

Selecting Replacement Windows

Residential windows can be replaced without rebuilding the opening or redoing the trim

Replacing windows has always been a staple for residential remodelers. Some 22 million windows were replaced in 1996, and industry estimates are that more windows are now used for replacement than in new construction. There is no shortage of manufacturers — there are nearly a dozen national brands and several hundred regional and local shops.

by Sid Hymes

For this article, we looked at replacement windows that could be installed without any major carpentry or trim work.

Replacement Window Basics

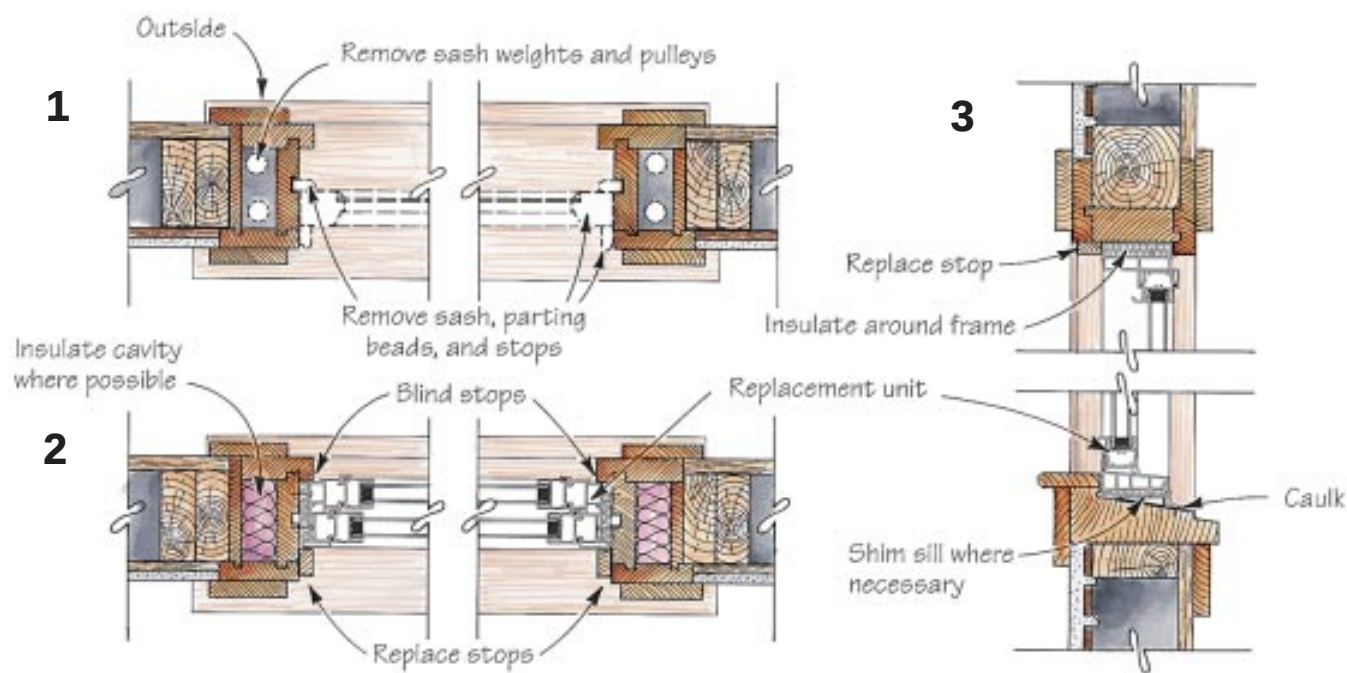
Replacement windows are available in wood, wood-clad, and vinyl. The national brands are most readily available in wood and wood-clad units, and some manufacturers offer sash and frame materials made from composite and fiberglass materials.

Double-hung windows are the most commonly available design. Most of these installations allow you to use the existing stops and frame, and these units will work with sill slopes that vary from the industry standard of 14 degrees (see illustration, next page).

Custom versus stock. There really is no such thing as a “standard-size” window: Sizes vary by virtue of age, geographic location, design, and brand. Manufacturers address this by sizing “standard” windows in increments as small as 1/8 inch. With



Installation Details



Installing a replacement unit typically takes less than an hour. First remove the existing stops, sash, and parting beads. Next, install the replacement unit (or jamb liners if you're installing a sash-only kit). Shim and reinstall stops as necessary, then finish up by caulking.

so many incremental sizes available, some manufacturers feel that they offer the functional equivalent of custom-manufactured sizes without providing custom window building services.

Brands and Availability

Most of the wood and wood-clad window manufacturers promoting made-to-order products ship throughout the country, routinely requiring four-to six-week lead times. Vinyl window manufacturers, though, tend to be more regional — it may take a few phone calls to locate a dealer or distributor in your area who can obtain a specific brand.

National advertising is no guarantee that you can obtain a particular window locally. Some manufacturers maintain warehouses throughout the country that inventory their entire line of window units. Dealers order through a distributor and can often obtain the windows in a matter of days.

The industry is also consolidating; Jeld-Wen, for example, has acquired the Pozzi, Norco, Caradco, and Wenco brands. Industry restructuring has both good and bad points: Fewer brand names may be available in the future, but those fewer brands may be available in more parts of the country.

Conversely, fewer brands may mean fewer choices. Also keep in mind that some manufacturers, especially those making vinyl products, may market their products under different names throughout the country, or they may supply products under different names to distributors, wholesalers, and home improvement chains.

Warranties

All major window manufacturers provide warranties ranging from 1 to 10 years or more, with different time periods applying to different components of the window. For example, Andersen warrants its glass for 20 years and the other window parts for 10 years; Weather Shield warrants its window hardware for the structure's life. Most of the guarantees are "limited warranties," meaning that while the manufacturer may replace the unit if it fails, labor is not covered. Be sure that you read the warranty and that your customer is given a copy of it. Don't attempt to explain the manufacturer's warranty to the customer; if you do and you are wrong, you could land yourself in legal hot water.

You, as the contractor, need to be clear with the customer as to how long, if at all, you are willing to

provide “no-charge” warranty labor to replace a manufacturer’s defective product. Your own warranty should also be in writing and given to the customer. For example, Mike McCarthy of The Window Works in Sumter, S.C., warrants his company’s workmanship for five years, because he installs a replacement window brand that carries a long warranty.

Also check to see if the manufacturer’s warranty is transferable to a new owner. Most are not, so once the building is sold, the manufacturer’s responsibility ends. While a seller may brag about a transferable warranty, it could be a potentially expensive liability for you as the contractor.

Working with a Dealer

Not surprisingly, all of the manufacturers I spoke with recommended working with a competent dealer, trained and experienced in window installations. Dealers employing former installers are frequently the most knowledgeable and helpful, especially where the contractor is unfamiliar with the brand or some aspect of the installation itself. A strong dealer will offer design and estimating services, and will often assist by measuring the existing openings for an accurate fit. If you’ve never ordered and installed replacement windows before, this is a very valuable service.

Ask how much of a dealer’s business is in the replacement window category. Many callbacks involve sizing issues rather than quality problems, so it makes sense to choose a dealer whose primary business is replacement windows and who knows how to size the existing measurements accurately.

Selecting Quality Windows

According to Barry Homrighaus of Jeld-Wen, there are three components to quality: “design, selection of materials, and craftsmanship,” and most manufacturers agree on what to look for in a quality window. The window and sash frames of wood windows should have strong joints with quality hardware that will give years of service. Finger joints should not show in any exposed surface, and nonwood joints should be welded or glued to resist wear and leakage. In areas where corrosion is a concern, the hardware should be of brass, bronze, or stainless steel.

Contractors who regularly install replacement windows choose and stick with one or two brands, especially if they’ve received good service from the manufacturer. Mike McCarthy’s business is 50% replacement windows, for example, and he sells and installs only Weather Shield so that his installers can quickly learn the nuances of working with one product line. Additionally, McCarthy points out, empha-

sizing one brand gets the manufacturer’s attention when he has a question or runs into a problem.

Also ask about installation training materials. Many manufacturers offer detailed installation instructions and training videos. While the materials focus on the manufacturer’s own products, the information can be readily adapted to virtually all installations.

Evaluating the Job

When you first meet with the customer, and before you reach for the tape measure or order form, evaluate your customer’s intent. If minimum trim work is a goal, then for the most part you’ll be using double-hung replacement units. But a client who wants to change the look of the home may be willing to replace interior and exterior trim; in this case, you have more flexibility in selecting styles and manufacturers.

Be sure you understand the customer’s expectations. Most major brands of replacement windows are well made and, if properly installed, will perform as intended. Yet, if the customer was expecting a different look, more or less visibility, or a different finish or trim, these unfulfilled expectations will translate into dissatisfaction.

When discussing cost, be careful to account for false starts and damage to walls and finishes, especially if you’ve never installed replacement windows before. While many of the installers we spoke with allowed an average of 45 to 60 minutes per window, be sure to allow for access or height restrictions, or the need to cut through layers of old paint which may be holding in stops and sashes. Small details like these can add many hours to the length of the job. Finally, qualify the customer financially, especially where high-end or custom-sized windows will be installed.

One oft-repeated question concerns cost versus value: How long will it take to recover the cost of the replacement windows? To determine the “payback” of replacement windows, subtract the increased value of the home from the installed cost of the windows, then divide by the amount of estimated energy savings per year. Typically, a payback period of three to five years is considered acceptable for energy saving improvements.

Sizing the Opening

With new construction, the window size is determined first, then the rough opening is framed for that size window. With replacement windows, the reverse is true: You’re working with an established opening, determined either by the

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Product Highlights

There are so many local and regional manufacturers of window units throughout the country that a complete listing would consume several pages. We have only listed manufacturers of products that are available nationally. Most manufacturers maintain an extensive Web site, providing detailed information about products and the company's dealer/distributor network.

Alside Window Systems

P.O. Box 2010
Akron, OH 44309
800/922-6009
www.alside.com

Alside manufactures vinyl replacement windows in single- and double-hung, sliding, and casement configurations. The windows feature solid vinyl frames, with aluminum reinforcing on some models. Options include obscure and tinted glass, grids and grille work, and argon-filled glazing. Warranty: Limited lifetime on glass breakage.

Andersen Windows, Inc.

100 Fourth Avenue North
Bayport, MN
55003-1096
612/439-5150
www.andersencorp.com

Andersen's entry in the replacement window category is the vinyl clad Tilt-Wash window, which is manufactured in 99 standard sizes. Andersen's full divided-lite windows feature a factory-applied exterior grille with an optional interior grille; an aluminum divider is factory installed between the glass panes. Andersen claims that its insulating system is 35% to 41% more efficient than ordinary double-pane glass windows. Andersen also offers a bow and bay replacement window model, together with custom design options. Warranties: 20 years on glass, 10 years for other components.



CertainTeed Corporation

P.O. Box 860
Valley Forge, PA 19482
800/233-8990
www.certainteed.com

CertainTeed's vinyl replacement window product, the Bryn Mawr II, includes double-hung, picture, and bay win-



dow units. The product features a stainless steel balance system, and low-e glass is standard. CertainTeed is one of the companies that offers a video training tape. Warranties: Limited lifetime with a 5-year labor and materials warranty against manufacturing defects.

Crestline Windows & Doors

888 Southview Drive
Mosinee, WI 54455
800/552-4111
www.crestlineonline.com

The Crestfit Replacement Window system is offered in both vinyl and wood construction. The available styles include double-hung, casement and awning units, as well as bow, bay and garden window varieties. Units are sold in both standard and custom sizes, and are delivered as complete units to be installed into the existing frame. Grille work is available either permanently installed or as removable units. Hardware is available in white, copper and bright brass finishes.

Warranty: Lifetime on all operating hardware, 25 years for insulated glass and vinyl frame components, and 2 years on all other parts, accessories and materials.

Jeld-Wen Window Products

(Pozzi, Wenco, Norco, Caradco,)
P.O. Box 1329
Klamath Falls, OR 97601-0268
800/877-9482
www.doors-windows.com

The ZapPack replacement window is available under the Caradco brand both in standard and custom sizes. The all-wood window features tilting sash units and a sill that the company claims will work with existing sill angles from 9 to 16 degrees with little or no trimming. Jeld-Wen's Wenco brand offers pocket, tilt sash, and total window replacement units in both wood and vinyl. The Norco line offers the SashPack, which is available in both clad and primed wood in standard sizes. Warranties: Varies from 1 year to lifetime for glass, depending upon the brand line.

Kolbe & Kolbe Millwork Co., Inc.

1323 South Eleventh Avenue
Wausau, WI 54401-5998
800/955-8177
www.kolbe-kolbe.com

Kolbe & Kolbe manufactures a double-hung replacement sash kit in a number of styles. The units are available primed or aluminum clad and are factory finished or may be field finished with either latex or alkyd paint. Both sashes tilt in and open, and are available with argon-filled insulation spaces.

In addition to wood grilles and aluminum muntins, Kolbe also offers its Simulite K-Bar system, featuring interior and exterior grille work permanently bonded to the glass. Kits are available with either 1/2-inch or 7/8-inch insulated glass. Kolbe claims that using their system results in very little loss of daylight since their units have "nearly identically sized stiles and rails as the originals that were removed."



Standard-sized sashes can be used with 1/8-inch veneer shims behind the sash clips. The existing sill angle can vary as much as 5 degrees from the 14 degree standard without modification. The minimum jamb size is 3 3/8 inches. Kolbe also manufactures custom-sized units, with custom moldings for historic replications.

Warranties: 20 years for glass; 10-20 years on finishes; life-time on hardware.

Marvin Windows and Doors

P.O. Box 100
Warroad, MN 56763
800/346-5128
www.marvin.com

Marvin's Tilt-Pac system of sash-only replacement windows can be installed from the inside without removing plaster, siding, or trim. Marvin also offers extruded aluminum exterior cladding and units constructed of composites.

Marvin estimates that its replacement window system kits cost 20% to 30% less than the cost of replacing an entire window, with greater overall savings from reduced labor costs. Units are available both in standard and custom sizes with a number of trim and finish options.

Warranty: 10 years on workmanship and materials.



Pella Corporation

102 Main Street
Pella, IA 50219
800/847-3552
www.pella.com

Pella offers the Precision Fit and the Precision Fit Architect Series replacement window systems. Both are shipped fully assembled, are designed to fit in standard 3 1/4 inch sash pockets, and are built to order in 1/4-inch increments. Pella claims that it can often provide special order units within two weeks or less. Units are available with both clear and low-e insulated glass. Grilles are either bonded to the glass or removable. The window units incorporate an exterior cladding system.

Pella claims that its units offer more daylight than vinyl units of the same size, and that its InsulShield glazing offers a 24% savings on heating and cooling over single-pane wood windows. Warranties: 10 years on materials; 20-30 years on glass units; 2 years on labor for any problem.



Weather Shield Manufacturing, Inc.

P.O. Box 309
Medford, WI 54451
800/222-2995
www.weathershield.com

Weather Shield is one of the few companies that offers a true divided light replacement window. Using a 7/8-inch muntin bar, the company offers a number of glazing options, including their "Value R10" system, which provides a very high insulation factor. According to the manufacturer, the triple-glazed system allows for individual reglazing of each of the divided lights.

Weather Shield manufactures both a tilt-sash replacement kit, available in more than 100 standard sizes, and a pocket replacement unit called the Custom Shield. Weather Shield also makes casement and awning replacement windows, as well as a single-hung unit intended for the architectural preservation market.

The company's all-vinyl line of replacement windows, called RetroVision, are custom sized and ordered for the specific project. The line is available only to professionals as part of an integrated marketing plan. The company provides its remodeler-dealers with sales and marketing materials, direct mail pieces, job-site signage, and customizable presentation books.

Warranties: 20-year prorated on glass; limited lifetime on hardware and vinyl frames; 1 year for other components and as a general warranty.

Installing Sash or Pocket Units

Most sash replacement kits are intended to be installed from inside the building. Procedures are similar for most brands, and while no special tools are required, you will need a flat bar or a broad blade putty knife to remove trim. Many craftspeople prefer either the Hyde 45600 pry bar or the Hyde 12000 angle blade scraper (Hyde Manufacturing Co., 800/872-4933, www.hydetools.com) because the sharp, stiff blades can easily get behind trim without damage.

Double-Hung Replacement

First remove the interior stops. Years of repeated paintings can bond the stops so tightly that you won't be able to remove them without cutting the paint with a utility knife. While you won't be using the old stop materials, be sure you remove them without damaging the jamb stock.

Next, cut the sash cords and remove the weights from the upper and lower sashes, removing the head jamb and side jamb parting strips as you go. Fill the sash weight cavities with insulation, but don't use expansive foam, since that might cause the jambs to bow and interfere with the operation of the new sashes.

Installation of the new jamb liners will vary from manufacturer to manufacturer. Frequently, you will need to cut the new stop and parting materials to length. Install the new head jamb stop first, followed by the upper then lower sashes. Replace the old interior stop moldings if necessary, then caulk and paint as required. The installation is fairly straightforward and can frequently be accomplished in as little as 30 to 45 minutes.

Pocket Replacement

To install a pocket replacement unit, prepare the opening as with the sash replacement kit. Some units use a sill bracket that gets nailed or screwed into the existing sill. Caulk the outside edge of the window stool, the blind stop interior surfaces on the sides and back, and the sill bracket, then set the unit into the opening.

Shim the unit plumb and square. Some manufacturers provide installation adjustment screws that can be used to center and plumb the unit. If that's the case, use the predrilled holes in the side jambs of the new unit to attach it to the studs, making sure to place shims behind the screws. Some manufacturers also call for screws and shims at the head jamb.

Caulk both inside and outside where the new material and the existing window frame meet along the top and sides; unless the manufacturer states otherwise, do not caulk at the sill to allow for drainage. It is important to install the materials and caulk where indicated in the manufacturer's instructions both to ensure proper performance and not to void the product warranty.

—S.H.

existing jambs or by the rough framing.

Where a full replacement window is being installed, the rough opening must be measured accurately. Make no assumptions: either remove the trim or drill through the side and head jambs to locate the jack studs and header. Only by actually measuring each window pocket can you verify the working space.

Since it's more expensive to find rough framing dimensions, many remodelers use replacement sash kits instead of full window replacement units. For these, measure between the interior jambs and from the top of the sill to the bottom of the head jamb. It's best to take three horizontal measurements — at the top, center, and bottom of the side jambs — and two measurements at the left and right sides of the vertical opening. The smallest of these respective measurements are your ordering dimensions. Also check for plumb and parallel jambs, a level sill surface, and a square opening. Where there is substantial variation, a sash replacement kit is not the best choice since weather tightness depends upon a tight fit into the existing frame. Where you cannot square the frame, use a total replacement window.

The existing trim will affect both the method of installation and the measuring tolerance. Be sure that the existing trim can be removed without damage or can be matched if necessary. Also verify that any reinstalled trim will cover minor gaps once the new sashes or window unit is installed.

Check the sill or jamb stock for rotted areas or other damage. Andy Wilkerson, a sales and installation representative for Crestline Windows, suggests using a pocket knife or ice pick at the joints between the sill and side jambs, the points at which moisture tends to collect.

While it may be possible to putty and fill areas with extensive damage, it's best to remove the rotted materials completely and replace the entire window unit. Also look for an "hourglass effect" on the window frame, indicating stress either from over tightening the installation screws or from the window frame carrying weight from above. One problem is easy and inexpensive to correct; the other requires major work.

Regardless of the window type being considered, give all of the dimensions to your vendor without making any adjustments. "Let the vendor do the downsizing measurement," says Wilkerson, who has been in the business for more than 20 years. "Adjusting the measurements for fit is probably the most common purchasing mistake I see."



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