

If you are brave enough, gather a group of experienced contractors around a picnic table with a few beers; then bring up the subject of retrofit windows. Stand back and watch the fur fly. It may be a Kodak moment for you. Or it may just be a dangerous experience. Why? Because contractors, especially the older ones with a little grey in their beard, will tell you that retro fit windows are everything that is wrong about windows. It is the wrong way to install windows. It is cutting corners. Only slick salesmen like them for the quick commissions. They are bad, wrong and yes.... evil.

Other contractors, some who may be a little more open minded, may take a moment to reconsider the situation.

Yes, retrofit windows are something of a new experience. Approximately 15 years (or so) ago the retro-fit window strategies took the scene. And yes, there have been many disastrous experiences. I can tell you first hand about the disasters.

My company investigates rain related leaks for builders and homeowners in California, Arizona, Nevada and many other parts of the country. I have seen first hand the disasters resulting from retrofit window installations gone wrong. So in some ways, I agree with the older, grey beards that have a chip on their shoulder for the retrofit window salesman.

Here is my experience: in every disastrous experience that I have witnessed, and I have witnessed hundreds of them, the common denominator was a tradesman who did not understand how or where to correctly install a retrofit window.

That is right. The problems were not the windows but the tradesman doing the work. Let me take another twist on this for you: I have also investigated homes where the homeowners thought the problem was the new retrofit windows, when infact the problems were other issues around the windows. I have vigorously tested retrofit windows with differential pressure inducing heavy rain with sustained 49 mph winds and observed the window systems to perform just fine.

So after these experiences I am comfortable sharing with you the following: when correctly used and installed, retrofit windows are a terrific product offering valuable solutions for homeowners with old, nasty windows that don't work anymore.

So here are my suggestions for avoiding catastrophic retrofit window misadventures.

First, select the right project. What do I mean? Here it is: If the homeowners have a history of rain related leaks around their windows, stand down. Pump the brakes big fella. Suggest getting the windows tested or otherwise investigated to ensure the existing flashing around the old windows is not providing the water into the walls. If the existing flashing or surrounding building materials around the old windows leak, it will still leak after the new retrofit windows are installed. So your homeowner may spend a few thousand dollars thinking they are getting new windows and stopping their rain related leaks-only to find their carpet wet again during the next big rain. And guess whose phone number they will be dialing?

Yours. So in your initial interview with prospective homeowners, ask about their history of rain related leaks. In your contract documents you should specify that if their old windows leaked due to flashing or other issues around their windows, the new retrofit windows will not solve their problems. If they have existing leaks, new windows can solve their problems; however the project will need to be a more traditional project that includes breaking back the exterior wall surface and providing new flashing and building envelope materials. The retrofit window that is custom sized to slip into the old window is not a good choice for these homeowners.

After you have correctly identified a project as a good candidate for retrofit windows, the next step is take good measurements. That means who ever is holding the smart side of the tape measure needs to understand what he or she is doing. Don't let a young salesman do this. Disaster looms for the contractor who allows his young salesman to measure windows for anything other than pricing. After the deal is closed, have a tradesman take the measurements that will go to the factory. To correctly measure you need to understand what will remain after the old sash and/or glass is removed. This requires experience with windows. Salesmen generally don't have this experience. Take the narrowest inside opening and subtract 1/2" in width and 1/2" in height. This will give you 1/4" on all four sides. If the windows are correctly measured in this manner then the sizing will be great. I do not say "Never" very often, but here is a "Never" statement for you: "Never" install the new retrofit window by collapsing the old window out of the wall. What does this mean? I have seen jobs where the ignorant contractor cut the old window out with a sawzall through the side and top frames; then pulled the frame out of the wall system. In my neck of the woods it is called collapsing the window. Other parts of the country may call it something else. No matter what part of the country you are in, this is a terrible idea. I know there a some contractors in Arizona right now reading this and preparing to throw this article away. Stop! Consider the following: Water travels behind the exterior surface of our walls. All of our wall systems are designed as "Drainage walls" which is why weather resistive barriers are used below our surface materials. Think about it- why is window flashing used? Why is Tyvek or other weather resistive barriers used? Because these areas get wet during periods of heavy sustained rain and these products manage the water outside of out wall systems. If you collapse the old windows, you tear the old flashing and dislodge it from the old weather resistive barriers that were successfully repelling water away from the walls. I have seen these jobs leak like the rain was coming in through open windows. So, if a window is mis-measured and the unfortunate new window is too big, do not be tempted to simply collapse the old window to find the extra room to get the new window to fit. Seriously. Don't do it. Just order an new window the correct size.

OK, now that you have selected the right project, and you have correctly measured for your new windows what is next? Installing the new windows correctly. What is the most important element to installing retrofit windows correctly? Sealant. Sealant is the magic to successful retrofit window installations. You need the right kind of sealant, the right amounts of sealant, positioned in the right locations.

The right kind of sealant: you want a sealant that is durable with high adhesive qualities, paintable and with good elongation characteristics. Generally this means silicone is a poor choice. I would choose a polyurethane, a thermoplastic or an advanced polymer product. It should be paintable also. This means you cannot buy the cheapest product at your local big box contractor center. Painters caulk is the worst choice you can make. Here are a few very good choices that I have personally worked with:

OSI Quad sealant, OSI TeQ Seal, Rainbuster 450 or Rainbuster 900 by Top Industrial, Schnee Moorehead 7100, Moistop brand polyurethane. There are others to be certain, but any of these will take very good care of you. And don't forget, sealant is the magic to a great retrofit window installation.

Now, you have selected your sealant. Here is how to apply it: Apply a 1/2" big fat bead of sealant on the old window frame. It must be on the frame, not next to it. Remember that water travels behind the surface of the home so it may want to exit right there at the window frame, especially at the top of the frame. This sealant application on the frame of the window is known as the "primary" seal. It is called the primary seal because it does the heavy lifting of protecting you from water intrusion. Do not skimp on the sealant! Leave two open gaps in your sealant just below the weep holes, on the sill, of the old window. This will allow any incidental water that might get in your system to escape. This is called the path of least resistance. At the upper frame corners of the old window, from the inside of the window frame looking upwards, pump some sealant upwards into the two corners of the old window to prohibit water from entering the window through the upper frame corners.

Now that the old window is prepared with sealant, let's prepare the new window with sealant. First apply Blue Painters tape to the edge of the exterior flush fin of the window from the outside. Next, apply sealant behind the flush exterior fin, on the outside edge. This is called your secondary seal. Use a 1/2" fat bead of sealant here, just like on the frame of the old window. Now, here is an obvious thought that is often forgotten: What does sealant need to be effective? Compression. Compression of sealant is essential to your happiness as a retrofit window contractor. Do you want to keep your hard earned profits? Then be certain you have sealant compression around your retrofit windows. What is a definitive way of ensuring this? Listen carefully: if you don't remember anything else remember this- SQUEEZEOUT. You should see squeezeout of sealant around the entire perimeter of the window except at the two small locations under the weep holes of the old window. This is why you need to use sealant that is paintable and UV tolerant. When the window is pressed into place squeezeout should jump out from behind the flush exterior fin. Get the window level plumb and square then apply your fasteners through the frame of the new window into the wall or through the old window frame. Use 3" long exterior grade screws. I like 3" gold deck screws. But you can use any screw designed for this application. Some retrofit window manufacturers (like Anlin Windows in California) supply the screws required. Use those if you can. Fastening schedule? If your window manufacturer specifies a fastening schedule, use that one. Otherwise space your fasteners no more than 18" apart, and NEVER through the sill. Remember!-NEVER through the sill! I've seen that before and it is a quick road to the contractor poor house. After the window is secured in place, tool the excess sealant on the outside. To make nice clean lines I take Blue Painters masking tape just outside the window on the existing wall. You already applied blue tape to the flush fin earlier before the window was set in place. When you tool your squeezeout you can tool it over the tape at the edges. When you remove the tape you have great looking straight lines. If you use sealant that is the same color as the window, you won't even see it. (Check out OSI Quad sealant for an excellent array of colors).

Now from the inside, before you apply your interior trim, I think it is a good idea to apply a low-expansion foam product. It must be low expansion. A high expansion product can distort the frame of the vinyl window. I have played with a few different foams, and the one I like the most is the WinteQ brand of TeQ Foam. It is terrific because it will completely expand over the course of about 20 minutes to the point where you can trim off the excess. This will provide some nice additional support for your interior trim around the window. I also like the Henkel WinteQ TeQ Foam Gun applicator. It has cool little plastic tips that can get into tiny spaces and around corners. So, after your foam is applied and the excess trimmed, apply your interior casing. This is where good finish contractors can make additional revenue. Your typical window contractors are going to apply flat vinyl trim with adhesive backs around the window because it is quick and easy. That is well and good. Although a good finish contractor can really make these new windows extra nice with some wood jamb extensions and wood interior casing. It is more money, but many homeowners are willing to spend the extra cash for the excellent look of wood trim.

So in conclusion, I think retrofit windows offer value to both homeowners and contractors. Homeowners benefit from less disruption to their home and generally lower costs. Good contractors can find a lucrative new revenue opportunity where they may not have known one existed. When the homeowners win and the contractors win, it is good for all of us.