

W I N D O W

SHOPPING?

WE HAVE THE ANSWERS



UNIFRAME

*A straightforward guide to
choosing the right replacement
windows for your home.*

If you're looking for replacement windows, you probably have a lot of questions and concerns. What should I look for? How can I tell if a window is well made? Which features are worth the money? What kind of warranty should I expect?

For most people, replacement windows are a considerable investment. This guide will help you compare "apples to apples," so you can get the best window for your money. You may even pick up a tip or two on the advantages certain window styles can offer.

Replacing your windows should be a once in a lifetime, worry-free home improvement, that is both fun and rewarding. If you have further questions about replacement windows and patio doors, we'll be happy to help. Visit our website at www.uniframewindow.com or call toll-free **888-975-9436**.

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Window Construction & Maintenance

Q: Why should I buy custom replacement windows?

A: Because custom windows fit perfectly. Stock windows, like those used by builders or sold in lumber yards, are available only in certain sizes. Since many window openings are not the same 'standard' sizes as stock windows, you'll be left with several inches of open space around the entire window. Carpenters generally fill this space with gypsum board or molding. This not only reduces your viewing area and detracts from your home's beauty, but you have extra wall space to patch, paint, and decorate. Custom windows are designed, engineered, and manufactured to fit your home's size, style, and appearance without reducing your viewing area.

Q: Can I install custom-made windows myself?

A: Yes, but the better question might be, "Should I install custom-made windows myself?" Professional installers have all the necessary equipment to do the job right, like bending exterior trim panels to make them more visually appealing. Measuring the size of the window is also extremely important. If your measurements are off by as little as $\frac{1}{4}$ ", a custom-made window may not fit. We strongly recommend that you let a professional do the job for you.



Q:

What's the difference between vinyl, wood, and aluminum windows?

A:

New Generation™ uiPVC — the strongest, most advanced vinyl for windows — provides the best combination of convenience and lasting beauty. It never needs painting and won't show scratches, unlike aluminum or wood windows.

Vinyl is also a better insulator. It doesn't conduct heat or cold like aluminum — a major source of lost heating/cooling energy. And it doesn't swell and shrink like wood when temperatures change. So vinyl maintains its shape, saves your heating/cooling dollars, and stays warmer to the touch.

Today, over 65% of replacement windows are vinyl.* But just because a window is made of vinyl doesn't mean it's superior. The design, engineering, and manufacturing of the window all help distinguish a poor window from a superior window.

TIP: Avoid low-grade PVC — this material can bend and bow or discolor. Be sure it's heavy-duty New Generation uiPVC.

**Ducker Report 2010.*



Q: **I've heard window corners can separate and leak air. What's the best way to put windows together?**

A: Windows (and doors) are the #1 source of a home's energy loss, and a lot of heated or cooled air can be lost through the frame (see R-factors under "Energy Efficiency").

Most wood windows are put together with staples; most vinyl and aluminum windows are screwed together and then caulked. The day they leave the factory, most windows are perfect. But construction methods can make a big difference five years, even twenty-five years after your windows are installed.

Look for windows in which frame and sash corners are joined in the sturdiest way possible. The most durable process we've found is a technology called 'pinch' fusion welding.

Q: **What is pinch fusion-welding?**

A: Pinch fusion-welding is the latest technology in window construction. It utilizes intense heat and specialized equipment to bond the corners of all four sides of a window's sash and frame into a single unit. Pinch fusion-welding results in a stronger, more stable window. It's more energy efficient because the corners remain fused and airtight for the life of the window — an important element to look for in a window's warranty.

Both the interior and exterior of the window's corners are clean and smooth, without bulky 'flashing' or overlap that can result with the old welding technique. And, they never need caulk so they're virtually maintenance-free.

Q: **My old windows used putty to hold the glass in place. Is there a better way?**

A: The use of putty for window glazing has, for the most part, been phased out. But many window manufacturers still use two-sided tape to hold their glass units against the window sash. UniFrame utilizes a state-of-the-art process called silicone autoglazing. This method securely and permanently bonds the insulated glass unit to the sash frame and provides increased durability, energy efficiency and maintenance freedom. Manufacturing our window sashes and insulated glass units as a one-piece unit is just one of the ways you're ensured of worry-free windows.

Q: What are cam locks and ventilation locks?

A: Cam-action locks are the thumb-turn locks traditionally used on double-hung windows. They reduce drafts by tightening the sashes together.



More importantly, cam locks improve security. Some manufacturers use two locks only on windows 32" or more in width. We recommend (and provide as standard) two pick-resistant locks on double-hung windows 25" or wider, and on sliding windows with heights of 25" or more.

Ventilation-limit locks are stops in the sash which permit windows to be opened partially while retaining security. They can be an added safety advantage in homes with small children. Be sure to look for them on windows as you shop around. Ventilation-limit locks are a standard feature on all UniFrame double-hung windows. *Uniframe ventilation-limit locks pass force-entry resistance Grade 10.*



Q: I understand aluminum is sometimes used to reinforce vinyl windows?

A: It's true, many manufacturers use metal to reinforce their windows. However, UniFrame double-hung windows feature InterForce II™ high-performance internal fiberglass reinforcements are actually stronger and far more energy efficient than those made of metal.



Q: Are UniFrame Windows ENERGY STAR® Qualified?

A: Yes. UniFrame windows are ENERGY STAR qualified in all climate zones. ENERGY STAR is a voluntary partnership between the Environmental Protection Agency and window manufacturers. ENERGY STAR qualification should be one of the factors you consider when choosing a replacement window.

ENERGY STAR qualification is based on NFRC certified product ratings.

Q: What is a U-factor? Can it help me choose a better window?

A: The U-factor is a standard measure of heat transfer through an entire window unit. The methods for measuring U-factor ratings were developed by the National Fenestration Rating Council (NFRC) at the request of the U.S. Department of Energy and the Federal Trade Commission.

The lower the U-factor the better the window's insulating ability. (A window's U-factor is the reciprocal of its R-factor, they both measure its insulating ability.) Look for windows with low U-factors and high R-values.



Q:

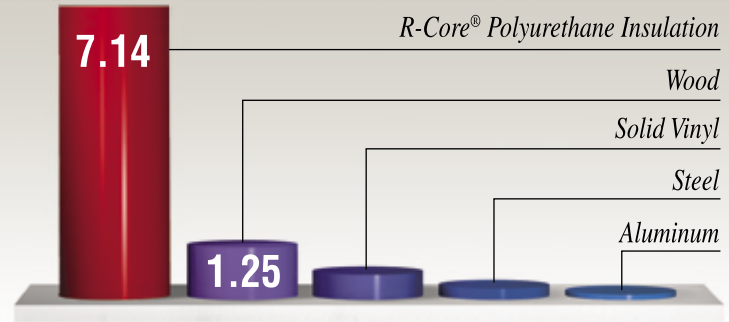
What are the R-factors for various window frames, and what is considered acceptable?

A: The following chart shows you the R-factors of different frame materials. The higher the R-factor, the better the energy efficiency. And as with any measure of energy efficiency, it's not so much what's considered acceptable, as what's acceptable for you. We fill every window frame with patented* R-Core® (pre-expanded high-density solid polyurethane insulation). The same type of insulation used in many refrigerator/freezer doors. Our process of utilizing preexpanded insulation eliminates voids and settling that can reduce the effectiveness of other insulating methods. Our process increases the per linear inch R-factor of a vinyl window frame from less than one to 7.14. If you want maximum energy efficiency, it makes sense to choose the window frame filled with pre-expanded high-density solid polyurethane insulation.



*U.S. Patent Number 4,516,356

Comparison of Window Frame Materials (per linear inch)



Figures courtesy of Insulation Enterprises and manufacturer testing. Higher R-factor means less energy loss.

Less than 1

Q: What is “warm edge” technology and how does it affect thermal efficiency?

A: “Warm edge” technology gives windows strong, long lasting, thermally efficient insulated glass. UniFrame’s standard Energy Edge glass spacer system reduces thermal transfer around the glass perimeter by utilizing a unique U-shaped channel to separate glass panes and interrupt the natural flow of heat to cold.

For the ultimate in insulated glass technology, UniFrame offers the optional I-Core spacer system. I-Core, a third generation warm edge spacer system, contains no metal and is the highest performing spacer available today.

Q: Is all window glass the same?

A: Definitely not. Glass is available in a variety of types and colors including clear, gray, bronze, obscure and Low-emissivity (Low-E). The type of glass, thickness, number of panes, distance between panes, as well as, the manner in which panes are connected, all affect the performance of the window.

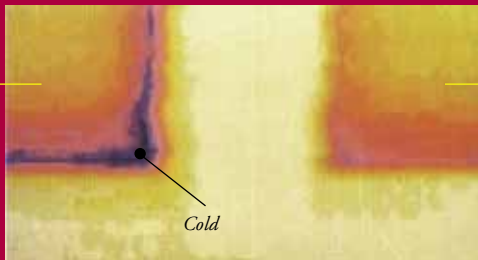
Standard



Intercept prevents excess condensation.

Energy Edge

Standard



Energy Edge virtually eliminates 'cold-spot' corners.

Energy Edge

Q: Is all Low-E glass the same?

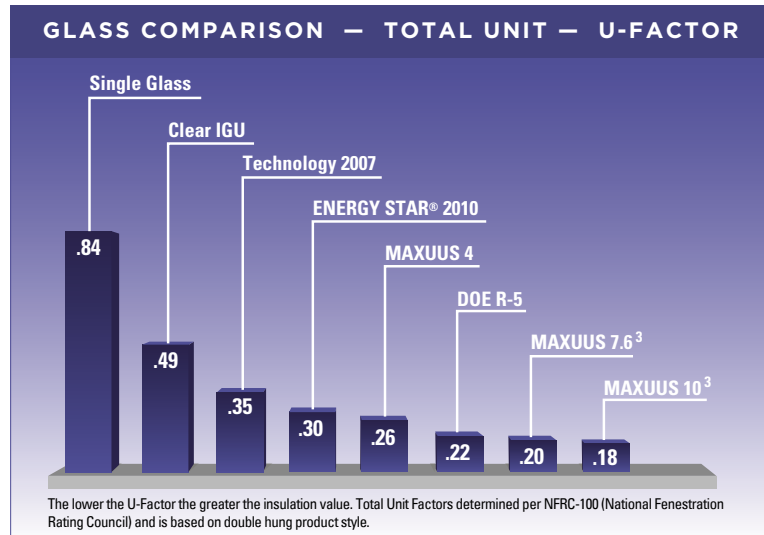
A: Definitely not. There are two major types of Low-E glass: hard-coat (tin/pyrolytic) and vacuum-deposition (silver/sputter). Both types block radiant heat, keeping summer's heat outside and winter's heat inside. And both block the sun's rays to some degree. But the similarities end there.

We recommend you look for windows with multi-layer vacuum-deposition Low-E glass for several reasons. First, silver based Low-E glass has better visual clarity. In fact, silver based Low-E has a "haze factor" of 0.14 — that's the same as plain glass. The haze factor for pyrolytic Low-E glass can be as high as 1.40. A haze increase of up to 1000%. With silver based Low-E, you get almost the same clarity as clear 'uncoated' glass.

For regions with significant cooling requirements, UniFrame windows can be configured with solar cooling Low-E. Additional UniFrame glass options include interior surface Low-E where the Low-E is applied to the interior glass in dual pane or triple pane insulating units providing increased comfort and improved energy savings.

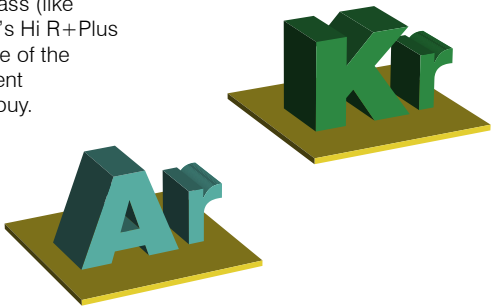
UniFrame windows are available with multiple high energy glass systems; Hi R+Plus, Hi R+Plus^{SC}, Maxuus, Maxuus4, Maxuus 5, Maxuus 7.6, Maxuus 7.6³, Maxuus 10 and Maxuus 10³.

Multiple UniFrame product styles exceed ENERGY STAR regional zone requirements and meet or exceed the Department of Energy's R-5 requirements. See the full UniFrame NFRC test summary for all product style U-Factors.



Q: Why do you use exotic gases in your insulated glass units, and are these gases safe?

A: We replace the air between the panes of insulating glass with high-density Argon or Krypton gas. This process provides windows with both increased energy-efficiency and increased sound deadening properties. Yes, both Argon and Krypton are safe, odorless, colorless gases that occur naturally in our atmosphere — in fact, you are breathing small amounts of them right now. But, because of their density, heat and cold do not pass through Argon or Krypton gas as easily as through air. When Argon or Krypton gas is used in an insulated glass system with soft-coat Low-E glass (like UniFrame Window's Hi R+Plus or Maxuus), it's one of the most energy-efficient windows you can buy.



Q: Can the right glass really reduce furniture and carpet fading?

A: Definitely. Ultraviolet rays are one of the best-known causes of fading. Certain types of window glass can reduce the amount of UV rays that pass through the glass. For example, soft-coat Low-E glass with argon (Hi R+Plus) blocks 64% of ultraviolet rays — a 42% reduction compared to clear window glass.

But research has shown that factors beyond ultraviolet light contribute to fading and damage. So the usual tests for UV transmission may not give you the whole picture. (Besides, UV rays aren't all bad — plants need a certain amount of UV light to thrive.)

A more accurate estimate of fading protection is called the Krochmann Damage Function. This method, expressed in percentages, measures the amount of all damaging radiation (ultraviolet, infrared, visible light, and heat) transmitted through window glass. The Hi R+Plus and Maxuus system transmits as little as 16% of UV rays and has a Krochmann function of 20%. Conversely, tested Pyrolitic Low-E products showed transmissions as high as 47%, with Krochmann percentages as high as 52%.

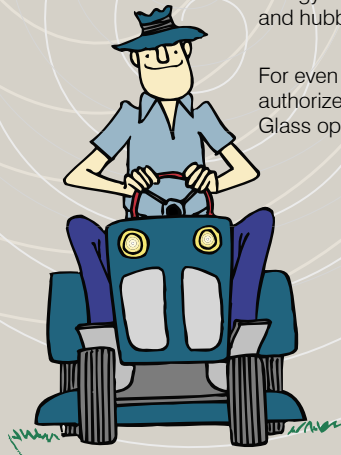
Q: I prefer humidity over dryness in my home. Can I reduce or eliminate condensation on my windows without reducing the humidity level?

A: Condensation usually occurs on windows because glass surfaces have the lowest temperature of any of the interior surfaces of your home. Using glass with the highest R-factors available, such as our Maxuus glass systems, will not only keep the inside pane warmer to the touch, but will allow you to maintain higher humidity levels in your home.



Q: I want windows that will help eliminate the noise from outside. Is there such a thing?

A: Certainly. In fact, the same features that make a window more energy efficient also help cut down on noise transmission from outdoors. For instance, UniFrame windows with Maxuus glass significantly reduce sound transmission when compared to single pane windows. So, not only are our Maxuus windows the most energy efficient, they also dramatically shut out the noise and hubbub.



For even more sound control options, see your authorized UniFrame dealer for our Sound Package Glass option with an STC 33 value.**

***Note: STC values referenced are for the glass packages only and are not whole unit (window) values.*

Window Features

Q: Do I have to replace my windows with the same style windows, or can I choose a different style?

A: You can replace windows with any style, shape and color that suits you. Change from double-hung windows to casements, stationary windows, or a combination. Give rooms a new look by replacing a group of windows with a bay or bow window. Add a garden window in the kitchen. A new window style can make you feel like you moved into a new home — use your imagination!

Q: I like the maintenance-free benefits of vinyl, but I really like the look of a wood interior. Can I get a woodgrain look on vinyl windows?

A: Woodgrain finishes are available with some vinyl windows. UniFrame Windows offer four interior woodgrain choices — Natural Oak, Golden Oak, Colonial Cherry, Rosewood and Colonial White — so there's a wood tone to complement any architectural motif.

You'll find, however, that many manufacturers don't offer woodgrains. The needed equipment is quite expensive. The process involves a tremendous amount of technical precision and complex calculations to custom bond the woodgrain material to each individual vinyl extrusion. We've enhanced this process using new finishing equipment with .002" precision. This results in sharper, cleaner woodgrain corners and a better, more beautiful window.



<p>Interior Exterior</p> <p>Golden Oak woodgrain</p>	<p>Interior Exterior</p> <p>Colonial Cherry woodgrain</p>	<p>Interior Exterior</p> <p>Natural Oak woodgrain</p>	<p><i>Colors are reproduced as accurately as printer technology allows. Please see your authorized UniFrame representative for actual samples.</i></p>	
<p>Interior Exterior</p> <p>Rosewood woodgrain</p>	<p>Interior Exterior</p> <p>Colonial White woodgrain</p>	<p>Interior Exterior</p> <p>Creamy White</p>		<p>Interior Exterior</p> <p>Camel</p>

Q: Are interior woodgrain finishes durable and long lasting?

A: Yes. Today's better woodgrain finishes are designed for a lifetime of maintenance-free beauty. They've proven themselves over time to resist fading, chipping, peeling, and blistering. So your woodgrain finish should be covered in your warranty. We use only the highest quality woodgrain laminate (10 mils thick) and we back it with a lifetime warranty.

Q: What features should be considered standard when I buy replacement windows?

A: It depends on the manufacturer. Be sure you understand what is considered standard with the type of window you want, and which features are optional and may add to the cost. The manufacturer should make it easy for you. As an example, the following chart lists many of the features UniFrame double-hung windows provide.

D o u b l e - H u n g

<i>Feature</i>	<i>Benefits</i>	<i>Standard</i>	<i>Option</i>
Fusion-welded construction	Adds strength; maintenance free	●	
Patented R-Core [®] -filled frame and sash	Warmer, more energy efficient	●	
Triple heavy-duty weatherstripping	Eliminates drafts, cuts heat loss	●	
7/8" insulating glass with Energy Edge spacer system	Maximum insulating property; quieter, more energy efficient	●	
Silicone autoglazed sash	Sturdier one-piece unit; seals out air and moisture	●	
Heavy-duty extruded screen	Made to last a lifetime	●	
Extruded lift handles in top and die cast lift handles in bottom sash	Easy to open/close window; durable	●	
Two cam locks on windows 25" and wider, with matching die cast tilt latches	Enhances security; weather-tight seal at meeting rail	●	
Ventilation-limit locks	Adds safety and comfort	●	
InterForce II [™]	Maximum strength and energy efficiency	●	

Windows

<i>Feature</i>	<i>Benefits</i>	<i>Standard</i>	<i>Option</i>
New Generation™ uPVC	Strength, durability and lowest maintenance	●	
Tilt-in sashes top and bottom	Easier and safer cleaning	●	
Custom-made	Perfect fit	●	
Hi R+Plus® glass system	superior energy efficiency	●	
Maxuus® glass systems	maximum energy efficiency		●
Glass/grid options	Distinctively different		●
Exterior colors — White, Camel, Earthtone, Sandstone	Improves home's curb appeal		●
Interior choices — colors: White, Camel, woodgrains: Rosewood, Natural Oak, Golden Oak, Colonial Cherry, Colonial White	Add warmth, beauty; match any decor		●
Easy-Clean™ Glass	Windows you'll clean half as often and in half the time		●
Limited Lifetime-Plus Warranty	Protects your investment	●	
Glass Breakage Warranty	Total peace-of-mind	●	

Q: What about decorative glass? Is it worth the cost, and what kind of choices are available?

A: The style of glass you choose will play an important role in the appearance — and the curb appeal — of your home. Look for a window manufacturer that offers you a comfortable range of choices. The more styles you have to choose from, the better you can protect or enhance the value of your home, whatever its architectural style.

Styles and selection will vary with each manufacturer. UniFrame Window offers a variety of decorative grid choices that add simple elegance or old-world beauty. Options include: Classic Colonial, Perimeter, and Diamond; Narrow Brass; Regal Colonial, Prairie, Perimeter, and Florentine V-grooved glass, and Beveled leaded glass in twelve elegant patterns. We also offer Georgian and Williamsburg grids that match interior woodgrains and exterior solid colors.*



Georgian Colonial Williamsburg Colonial Narrow Brass Classic Colonial Classic Diamond Classic Perimeter Regal Colonial Regal Perimeter



Regal Prairie Regal Florentine Regal Florentine Elongated Bratenahl Sheffield Vermillion Manistique

*Ask your local UniFrame Window dealer about the optimal decorative grid and insulating glass package for your home.

Q: Are some windows easier and safer to clean than others?

A: Absolutely. We recommend windows that can be cleaned easily from inside the house, so you can avoid the dangers of ladders. Look for double-hung windows with tilt-in top and bottom sashes (this feature is not available with many wood windows). With sliding windows, you should be able to clean both sashes easily, rather than just one sash. Casement windows should open fully to allow easy, safer, inside-the-house cleaning. Ask about our Washability Hinge.

Q: I've heard about a new, higher-quality window glass that cleans easily and stays cleaner longer than ordinary glass.

A: It's true. It's a higher quality of window glass that provides windows you'll clean half as often and in half the time. When windows do require cleaning, a garden hose and a squeegee or a soft cloth are all that's required.

ADVANCED
Easy Clean
GLASS®



Patio Doors

Q: Why are sliding patio doors so hard to roll?

A: This is a common problem with conventional-type rollers. Flat spots develop because all the weight of the door rests on a single point of contact. But not all patio doors have that problem.

The EuroGlide operating system integrates two major innovations. The first is a handle engineered to literally lift the door panel off the sill when you rotate the handle. The second is a ball bearing roller system that enables a door weighing up to 550 lbs. to glide smoothly open and close with just a push of a finger. A mere 8 lbs. of force is all it takes to operate, once in motion, compared to up to 20 lbs. for a standard sliding door.

Q: Aren't patio doors easy to break into?

A: UniFrame EuroGlide patio doors feature a unique three-point locking mechanism which gives you several times more resistance to forced entry than patio doors with a single lock.

Q:

What's the advantage to having an exterior keylock on my patio door?

A: Extra security and convenience. It allows you to lock and unlock your patio door from the outside, so you can use it as a primary entrance. With UniFrame Premier patio doors, the optional keylock — in beautiful polished brass — activates the unique, multi-point locking mechanism for improved security.

Exterior keylocks are not a typical option with other vinyl replacement products. However, the brass keylock system is available with all UniFrame patio door sizes and styles.



Moving the handle 180° actually lifts the door off the sill, enabling it to glide effortlessly.



Q: It seems like the first thing to go wrong with a patio door is its screen. Is yours any better?

A: We've engineered our screens not to break, bow, or warp, and we guarantee it for the life of your patio door system. Most screens are $\frac{3}{8}$ " thick. Ours is more than twice as thick for added strength, and it's manufactured to eliminate weak spots that tend to loosen over time. Additional screen mesh options include Aluminum, Pet Resistant, Solar Block and Optimal Viewing.

Q: Aren't patio doors a major source of energy loss because of the increased glass surface area?

A: Yes, often times they are. However, UniFrame Premier patio doors are available with the same superior insulated glass systems as our windows. They also feature heavy-duty weatherstripping, compression seals, and energy-efficient thresholds.



Warranties

Q: What kind of warranty should I look for when buying windows?

A: The warranty on replacement windows from any reputable source should:

1. Be easy to read and understand.
2. State in writing that it covers your windows for a lifetime.
3. Cover everything — frame, sash, glass and seal, hardware, screens.
4. Be transferable to the next homeowner when you sell.
5. Be supported by a manufacturer in good financial standing.

It's always wise to check on the company's financial strength. If it isn't strong, the company may not honor your warranty claim. Or worse, the company may not be around when you need to make a claim.

TIP: A reputable company may have manufactured the extrusions (framing material), while the assembly and glass manufacturing was done by a smaller fabricator. Look for a large window manufacturer willing to take total responsibility for the products that carry its name.

Q: What kind of warranty does the UniFrame Window provide?

A: UniFrame Window warranties meet all the points listed. Because Great Lakes Window, Inc. is a part of the Plygem Industries family, we have the solid financial base to back our products with the best warranty of all — a Limited Lifetime-Plus Warranty*. It's really a double lifetime warranty, because it's transferable to a second property owner if you sell your home. It's our way of telling homeowners that we have absolute confidence in our products, and a commitment as a longstanding and respected leader in this industry.

As an added feature, UniFrame windows also include an unprecedented lifetime glass breakage warranty — in case you live next door to a little leaguer.

**See printed warranty for complete details.*

This guide is provided as a service of Great Lakes Window, Inc., to help consumers make informed buying decisions. We welcome your questions and comments. If you need more information on windows and patio doors, call us — 888-975-9436, or visit our website at www.uniframewindow.com.



UNIFRAME[®]

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by Great Lakes Window, Inc.*

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