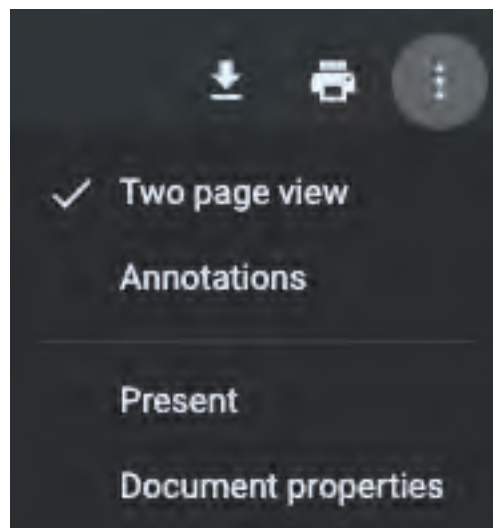


# WINDOW+ DOOR

**Welcome to the digital edition of  
Window + Door!**

**To view the issue in a two-page format using  
Google Chrome, click the triple dots in the  
upper right corner and select “Two-page view”  
from the drop-down menu.**



ADVERTISEMENT

RESIDENTIAL FENESTRATION COVERAGE, FROM SOURCE TO SALE // WINDOWANDDOOR.COM // JULY/AUGUST 2026

# WINDOW+ DOOR

SOLUTIONS

THAT

MATTER



deceuninck

## AT DECEUNINCK, WE BUILD SOLUTIONS THAT MATTER

At Deceuninck North America, solutions start with what we do best: extrusion, lamination and pultrusion. These core capabilities allow us to support window and door manufacturers with systems, materials and technologies designed for performance, durability and long-term value.



EXTRUSION



PULTRUSION



LAMINATION



deceuninckna.com

GlassBuild  
AMERICA  
THE GLASS, WINDOW & DOOR EXPO  
**2026 EXHIBITOR**

BOOTH 1531



# deceuninck

# WINDOW + DOOR

## WINDOW + DOOR AWARDS

OFFICIAL PUBLICATION

**GlassBuild**  
AMERICA  
THE GLASS, WINDOW & DOOR EXPO

GLASSBUILDAmericA.COM

Ceramic Printing  
on Glass

Extended Producer  
Responsibility



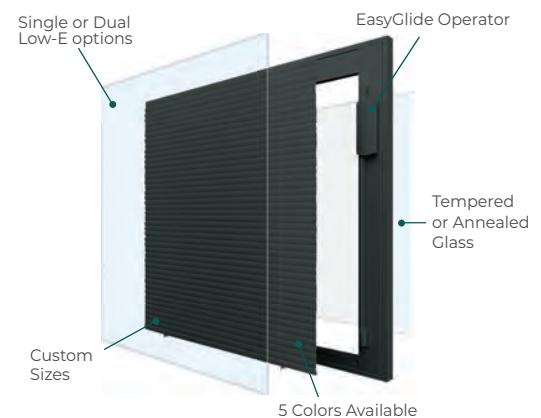
Scan to  
learn more

Visit us at GlassBuild: Booth 2401 – West Hall.

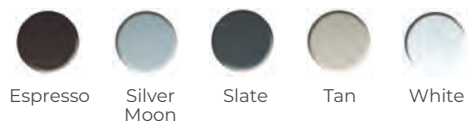
## EXPAND THEIR VIEW. **ELEVATE THEIR EXPERIENCE.**

Blinds + Glass XL by ODL are the largest enclosed blinds in the industry—up to 28 square feet—delivering unmatched access to daylight, effortless privacy control and a sleek, modern aesthetic. No cords. No dust. Just beautiful, natural light.

Give your clients more openness, more daylight, more connection to the world outside. Design bigger moments, brighter spaces and better living with XL.



### COLOR OPTIONS



**f in @** [odl.com/xl](https://odl.com/xl)

GlassBuild: Booth 2401 – West Hall.

# YOUR WINDOWS DESERVE

# FLEXSCREEN

*The ultimate window screen solution engineered to outlast and outperform all the others.*



[FLEXSCREENRITESCREEN.COM](http://FLEXSCREENRITESCREEN.COM)



Residential fenestration coverage, from source to sale // windowanddoor.com // Vol. 34, No. 4 // July/August 2026



## Features

### 26. Window + Door Awards

The Window + Door Awards return to print for the first time since 2019, showcasing the innovation and ingenuity of the fenestration industry.

*By Rachel Vitello*

**ON THE COVER:** The Window + Door Awards returns to print for the first time since 2019. Read about the innovation defining this year's winners. Pictured: Most Innovative Entry Door, 555 Series Pivot Door System from Awake Window & Door

## Insights

### 12. Trenches

Ceramic Printing on Glass

*By Katie Hren*

### 14. Decoded

Finding a Common Language for Glass Lingo

*By NGA Advocacy and Technical Team*

### 16. Eye on Fenestration

EPR Moves from Theory to Reality

*By John Crosby*

### 20. Legal

The Rise of AI-Informed Customer Complaints

*By Melanie Scherer*

### 22. Business Matters

Plan for 2026 and Beyond

*By Janice Yglesias*

## Intel

### 42. Products

### 46. Framework

Northwest Idea House

## Sponsored

**24. Great Glazing**  
Beckhoff

**40. Meet the Experts**  
Erdman  
Automation  
and Roto North  
America

**43. Product Solution**  
GED Integrated  
Solutions



# UNLOCK MORE POTENTIAL

*with a Synchrony partnership*



- Streamlined processes
- Flexible financing that works
- Innovation with your business in mind

## Here's how we invest in your success:



**Complete consumer financing solutions**, including revolving credit and installment loans, with competitive rates



Leading approval rates that help **drive higher tickets and more customers**



**Premier second-look financing** that covers more of your customers



**Continuous technology investments** including seamless integrations with leading software platforms such as ServiceTitan® and WEX®, ensure an exceptional experience for both your technicians and customers



The **Synchrony Project Card** encourages repeat business, with cardholders spending an **average of \$4,383—155% more** than non-cardholders\*



Always-on marketing solutions, such as Synchrony Marketplace—which **generates over 650 million impressions annually**—help drive new leads to your business effortlessly, requiring no additional effort on your part

**1 in 4**

**Americans have a Synchrony credit card**



SCAN THE QR CODE TO LEARN MORE AT  
**SYF.COM/BUSINESS**



# Four Takeaways from the FGIA Virtual Summer Summit

From regulation to trends to economics and beyond, the virtual meeting addressed key issues impacting the fenestration industry

BY LAURIE COWIN

The Fenestration and Glazing Industry Alliance's Virtual Summer Summit in June spanned a gamut of topics in panels, presentations and discussions. Here are a few of my top takeaways from the event:

## 1) Black vinyl continues to develop.

Subject matter experts discussed the history of dark colors, the technologies to achieve dark extrusions and today's primary challenges of heat build-up and weathering. The Vinyl Material Council is launching a formal research project about the black color space and will host an interactive session at FGIA's fall conference where attendees can help shape the research direction.

## 2) The regulatory and legislative landscape is busy—as always.

Canada is prioritizing housing, manufacturing investment and energy efficiency in its 2025 budget, including \$25 billion for Build Canada Homes initiative, manufacturing incentives and SR&ED enhancements.

In the U.S., deregulation is aggressive and accelerating thanks to Executive Order 14192 that says 10 regulations must be eliminated per every one new one. EPA claimed it deregulated more

in one year than any agency in history, which sets the tone for the whole U.S. regulatory environment right now, said FGIA's Kathy Krafka Harkema, U.S. Codes and Advocacy Director.

## 3) Homes are expensive.

In an unusual inversion, existing home prices exceed new home prices, said Robert Dietz, NAHB chief economist. Builders are discounting new construction to induce sales; resale sellers have not followed suit. Dietz anticipates resale price weakness ahead as this corrects. Accelerating construction costs also place upward pressure on prices. Aggregate residential construction price growth jumped from 4% to 6% while Canadian softwood lumber tariffs are now about 30%.

## 4) Daylight is critical to health. Glass is a huge player.

Lisa Heschong, author of "Visual Delight in Architecture," returned to discuss daylighting research. She covered chronobiology, epidemiology, embryology/myopia and microbiology/mitochondria. For example, UK Biobank studies showed brighter daytime light exposure correlated with fewer psychiatric diagnoses, less cardiovascular disease, lower cancer rates and 17% lower mortality. ■



Laurie

LAURIE COWIN  
EDITOR, WINDOW+DOOR

# WINDOW+DOOR

Produced by

**NGA** NATIONAL  
GLASS ASSOCIATION  
with GANA

344 Maple Ave. West, Unit 272  
Vienna, VA 22180  
P: 703/442-4890

## Editorial

**Katy Devlin** // Chief Content Officer  
**Tara Lukasik** // Associate Director, Content & Programming  
**Laurie Cowin** // Editor, Window + Door  
**Norah Dick** // Editor, Glass Magazine  
**Rachel Vitello** // Associate Editor  
**Cory Thacker** // Creative Lead  
**Melanie Dettmer** // Content Development Manager  
**Bethany Stough** // Director, Communications & Digital Media  
**Wendy Vardaman** // Digital Media Specialist  
**Cathy Underwood** // Production Coordinator  
**Jo Ann Binz** // Circulation Manager

## Advertising & Sales

**Sarah Swango** // Vice President, Development & Exhibit Sales  
sswango@glass.org // 703/442-4890 ext. 135  
**Rob Russel** // Senior Account Executive // rrussel@glass.org  
703/442-4890 ext. 197  
**Tristan Scofield** // Account Executive // tscofield@glass.org  
703/442-4890 ext. 194  
**Cameron Francis** // Senior Manager, Content and Sales // cfrancis@glass.org // 703/442-4890 ext. 132  
**Chereé Buckson** // Content and Sales Coordinator // cbuckson@glass.org // 703/442-4890 ext. 121  
**Tim O'Connell** // Directory & List Specialist // toconnell@glass.org // 703/442-4890 ext. 129

## NGA Board of Directors (2025-26)

**Tim Kelley** // Chair // TriStar Glass Inc.  
**Jim Stathopoulos** // Chair-Elect // Ajay Glass Co.  
**Courtney Little** // Treasurer // Ace Glass  
**Rick Locke** // Immediate Past Chair // Montana Sash & Door  
**Taylor Anderson** // Anderson Aluminum Corp.  
**Joey Aragon** // Aragon Construction Inc.  
**Vipul Bhagat** // Skyline Architectural Glass  
**Tara Brummet** // Vitrum Glass Group  
**Jodi Martinez** // AllStar Glass Co. Inc.  
**Dan Reinhart** // Salem Fabrication Technologies Inc.  
**Mark Seeton** // Vitro Architectural Glass  
**Syndi Sim** // Q-railing  
**Lakisha A. Woods** // President & CEO // National Glass Association

Window + Door™ (ISSN 1525-1195), Volume 34, Number 4 is published six times annually in January/February, March/April, May/June, July/August, September/October and November/December by the National Glass Association, 344 Maple Ave. West, Unit 272, Vienna, VA 22180; 703/442-4890. There is no charge for subscriptions in the United States for individuals in the trade and/or qualified requestors. All other subscriptions will be charged \$49.95 in the U.S., and \$79.95 outside the U.S. Periodicals postage paid at Vienna, Va., and other mailing offices. POSTMASTER: Send changes of address to Window + Door™, Subscriptions, Box 460, Congers, NY 10920. Canada Post: Publications Mail Agreement #40612608. Canada Returns to be sent to Bleuchip International, P.O. Box 25542, London, ON N6C 6B2. For all subscription inquiries, please call 1-800-765-7514. ©2026 National Glass Association. All Rights Reserved. Printed in the U.S.A.

## *MEET XCORE™* THE FUTURE OF AUTO-FIRE LOCKING

Available as a 3-point system with  
an industry-first optional 5-point  
auto-fire upgrade.

*ENGINEERED FOR*  
PERFORMANCE.

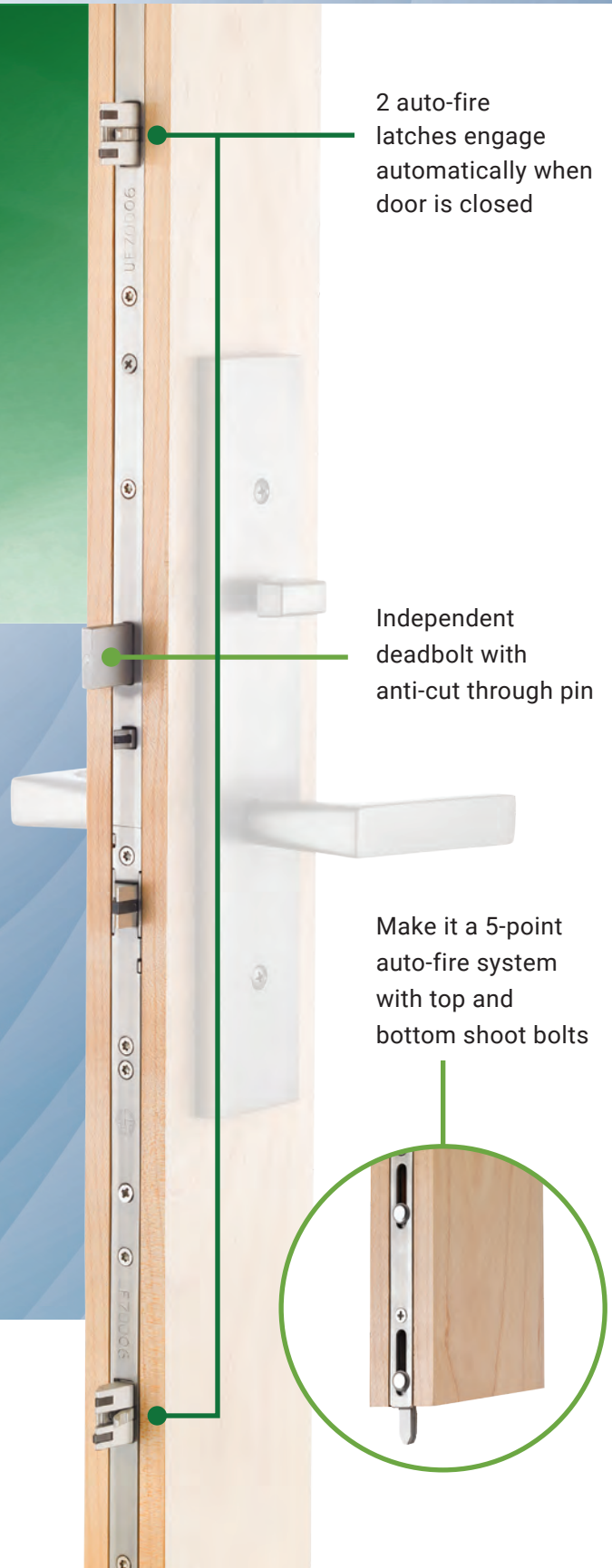
*DESIGNED FOR*  
INTEGRATION.

*REFINED FOR*  
INTUITIVE  
OPERATION.



See XCore  
in motion!

**Quanex**®  
A Part of Something Bigger®



# News

## Miter Brands Introduces New Era for Western Window Systems

—

Miter Brands has refreshed the brand identity, position and name for Western Window Systems. Now known as Western Architectural Openings, the brand is elevating its position from high-end manufacturer to experience-driven, luxury window and door brand.

As part of its brand evolution, the manufacturer also introduced four brand pillars, including: Design Unconfined, A Passion for Precision, Crafted Around You and Driven to Defy.

## 2026 North American Fenestration Standard Published

—

The 2026 edition of AAMA/WDMA/CSA 101/I.S.2/A440, North American Fenestration Standard/Specification for windows, doors, and skylights (NAFS) has been published. This standard is the result of a multi-year effort by CSA Group, Fenestration and Glazing Industry Alliance (FGIA), and Window & Door Manufacturers Association (WDMA). An agreement among the three organizations requires NAFS to be reviewed every five years to keep current with changes in the fenestration industry. The updated 2026 standard supersedes the 2022 edition, representing a continued evolution of the standard while improving harmonization across North America. The Joint Document Management Group (JDMG), comprised of representatives from all three associations, stresses the importance of NAFS-26.

“Unlike with the previous version of NAFS, there were no major revisions for NAFS-26, with the exception of the

secondary designator clarification,” says Lisa Bergeron, director of business development and government affairs for Jeld-Wen, who served as FGIA’s JDMG co-chair. “As it has been before, NAFS remains an excellent industry tool as an internationally accepted performance standard for the included fenestration product types.”

## Jeld-Wen Expands Environmental Product Declaration Portfolio

—

Jeld-Wen expanded its portfolio of Environmental Product Declarations to include newly released, third-party verified EPDs across a broad range of product categories in both North America and Europe, including vinyl and wood windows, interior doors, exterior doorsets, and other building solutions. These disclosures provide standardized, independently verified data on environmental impacts across a product’s full life cycle—from raw material sourcing to manufacturing, use, and end-of-life considerations.

## Westeck Windows & Doors Unveils New Brand Identity

—

Westeck Windows & Doors, a British Columbia-based manufacturer of windows, entry doors and patio openings serving architects, builders and developers across Alberta and the Pacific Northwest, refreshed its brand identity and redesigned its digital experience. The brand refresh introduces a new visual identity. Key updates include a new logo and visual identity system built around the brand’s “Make It Bold” purpose, a fully redesigned website at westeck-windows.com and a refreshed brand presence across social media.

## Andersen Corporate Foundation Announces \$1.2 Million in Spring 2026 Grants

—

The Andersen Corporate Foundation has committed over \$1.2 million to 86 nonprofit organizations in its spring 2026 grant round. This cycle of Andersen Corporate Foundation grants places an emphasis on expanding access to safe, stable housing across the U.S.

As part of the \$1.2 million distribution, the Foundation approved \$130,000 in specific capital grants to two organizations. Andersen will donate \$100,000 to 360 Communities’ Lewis House Shelter Capital Campaign, helping adults and families fleeing domestic violence. Andersen will also donate \$30,000 to Our Neighbors’ Place’s Every Need, Every Neighbor Capital Campaign, helping construct a right-sized facility in River Falls, Wisconsin, to address homelessness and poverty effectively.

## INNERGY Acquires Archetype

—

INNERGY, a provider of ERP and design software for custom millwork and cabinetry manufacturers, acquired Archetype, a provider of outsourced drafting and shop drawing services for the woodworking industry. Archetype joins INNERGY to provide a single, integrated platform addressing the industry’s at-times chronic operational bottleneck: drafting and engineering capacity. With the acquisition, INNERGY will offer drafting services.

## Windsor America and Acadiana Garage Doors Partner

—

Windsor America has partnered with Acadiana Garage Doors to strengthen



**Stay in the Know:** Subscribe to Window + Door Weekly, our weekly newsletter that keeps you informed with everything fenestration every Wednesday.

resources and capabilities to serve customers across South Louisiana. As part of the partnership, Acadiana Garage Doors owner Ty Greneaux will remain actively engaged in the business's expansion throughout Louisiana. He will also join Windsor America's executive leadership team as president of service and replacement.

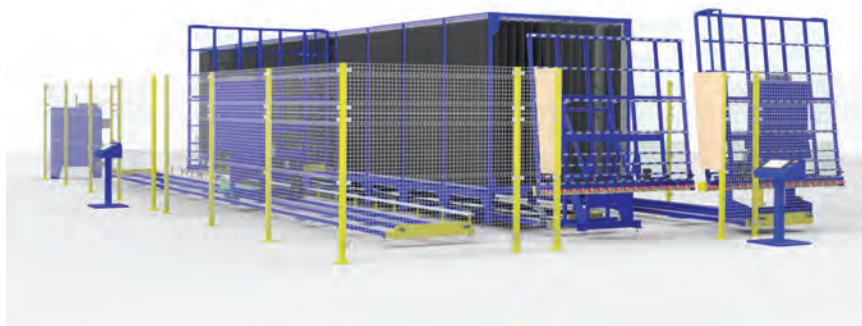
Founded in 1986, Acadiana Garage Doors is a residential and commercial overhead door company specializing in custom design, installation, replacement, repair and maintenance services throughout South Louisiana. The partnership provides Acadiana with additional operational resources, expanded purchasing power and access to a broader range of products and services, while maintaining the same local leadership team.

## People

**Wythe Windows** announced that its co-CEO, Darren Macri, has been named president of the Board for the **Passive House Network**, a nonprofit organization specializing in Passive House education. Macri, who previously served as the board's vice chair, will help drive the widespread adoption of Passive House principles across the U.S.

Macri brings over a decade of hands-on experience within the Passive House community to his presidency. Macri is a certified Passive House consultant and the builder of New Jersey's first certified Passive House. He has spent years advocating for sustainable construction as both a practitioner and an educator, teaching classes and presenting at conferences across North America. ■

## More Than Racking: *Total Glass Plant Efficiency.*



IAS goes beyond racking with intelligent automation for sorting, storage, and tempering batch building—integrated into a plant-wide solution. From WIP to finished goods, we support monolithic, laminated, mirror, shower door, and IG operations with fewer handoffs and smarter flow. See integrated glass handling systems at [iasmachinery.com](http://iasmachinery.com).

*Real Integrated  
Automation Built for  
Real Glass Plants.*

[iasmachinery.com](http://iasmachinery.com)



Ryan McHugh 330.954.3070 [ryan@iasmachinery.com](mailto:ryan@iasmachinery.com)



# GROUNDBREAKING IN *MORE WAYS THAN ONE.*

Cutting-edge factory. Thinner, lighter smart glass in panels up to 50 square feet.  
We'll keep your supply lines filled to keep you delivering for your customers.  
Get the latest information at [CLiCglass.com](http://CLiCglass.com)



**CARDINAL IG**   
A CARDINAL GLASS INDUSTRIES COMPANY

ENGINEERING THE FUTURE OF PRIVACY GLASS

**CLIC**®  
On-Demand Privacy Glass

Also protects  
from UV,  
Storms,  
Burglary  
and Noise





➔ In the Trenches

## Ceramic Printing on Glass

Performance, design and architectural opportunity

BY KATIE HREN

Ceramic printing on glass has evolved from a niche decorative capability into a valuable tool for glass manufacturers and glazing professionals. As architects increasingly demand customization, performance and visually distinctive building envelopes, ceramic printing has emerged as a solution that combines aesthetics with durability and functionality.

No longer limited to simple patterns or opacity treatments, modern ceramic printing technologies allow manufacturers to create sophisticated graphics, textures, gradients, and imagery directly onto architectural glass. For fabricators and glaziers, this capability opens the door to expanded project opportunities, greater design flexibility and added value across a wide range of applications.

### The benefits of ceramic printing

One of the defining characteristics of ceramic printing is its exceptional durability. During fabrication, ceramic pigments are permanently fused into the glass during heat treatment, becoming part of the glass surface itself.

This process delivers several long-term performance advantages, including UV resistance, weather resistance, scratch and abrasion resistance, chemical resistance and long-term color stability.

### The evolution of ceramic printing

Historically, ceramic printing was primarily used for applications such as glare reduction and bird-friendly glazing. Printed designs were limited to a single-color and repetitive patterns. Today's digital ceramic printing technologies with multi-color capabilities have dramatically expanded what is possible. Advanced printing systems can reproduce highly detailed graphics, variable opacity levels, custom artwork and even photographic-quality imagery.

### Understanding the process

Ceramic printing involves applying ceramic-based inks directly onto the glass surface before heat treatment. During tempering, the ceramic material permanently fuses with the glass, creating a durable finish that resists fading, scratching, weathering and chemical degradation.

For optimal long-term performance, ceramic ink is applied to sub-surfaces of the glass to protect the design from direct exposure to the elements. For example, on exterior railing lites, the ink is typically positioned on the balcony side of the glass, helping shield the design from weathering and environmental wear. In insulating glass units (IGUs), the ink is generally applied to the second, third or fourth surface, where it remains protected from direct environmental exposure.

### Supporting the future of architectural glass

As the architectural glass industry continues to evolve, ceramic printing is positioned to play an increasingly important role in façade innovation and building design. Architects are seeking materials that deliver sustainability, performance, customization and visual impact. Ceramic printing helps achieve these goals while providing manufacturers and glaziers with opportunities to expand their capabilities and competitive positioning.

For manufacturers, investing in ceramic printing can open doors to higher-value projects and strengthen relationships with architects and glazing contractors. For glaziers, understanding the capabilities and performance characteristics of ceramic printed glass enables stronger collaboration during specification and project execution.

As demand grows for more sophisticated building envelopes and visually distinctive spaces, ceramic printing will continue to shape the future of architectural glass by combining design innovation with the durability and performance of today's construction environment demands. ■

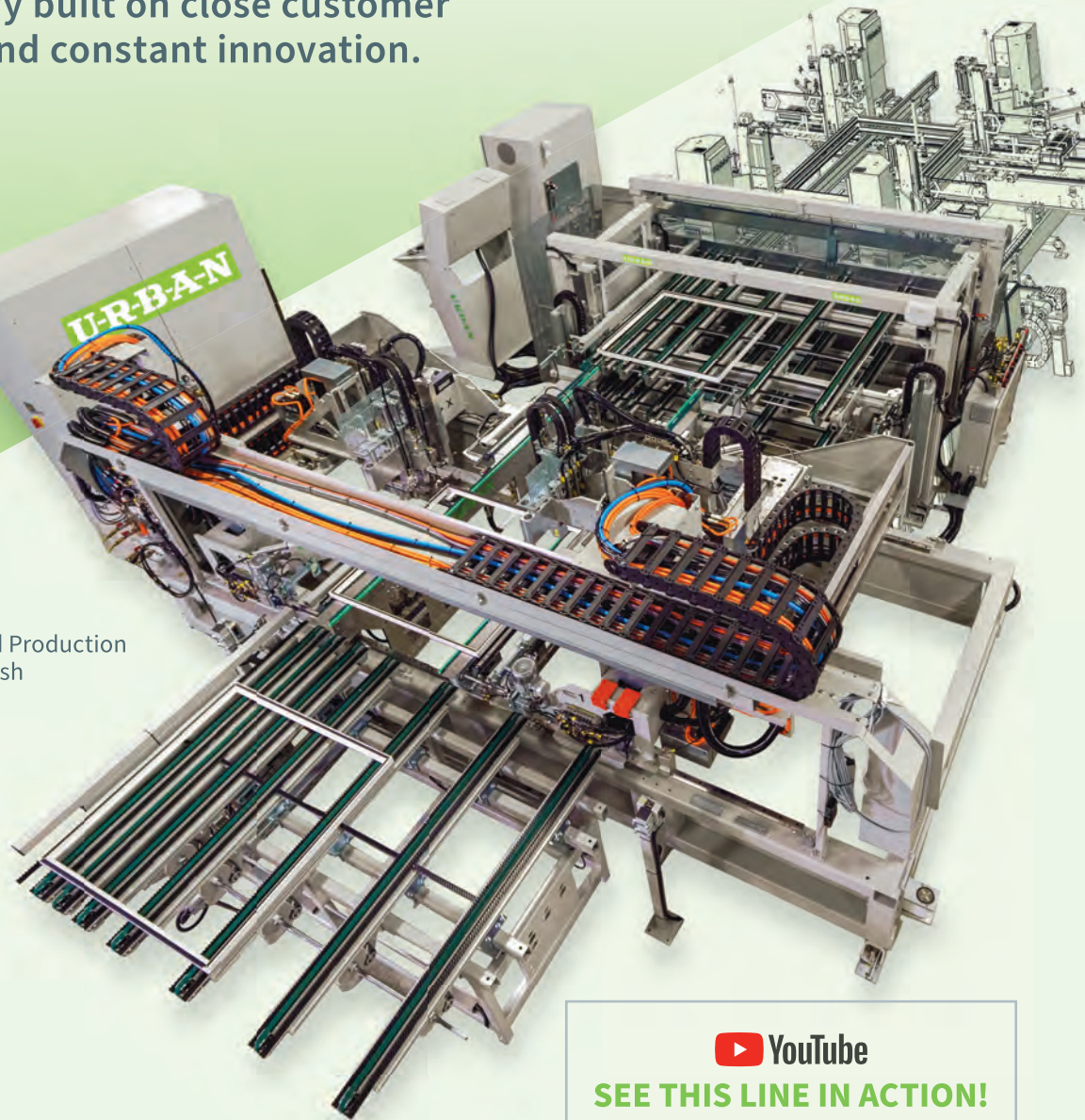


*Katie Hren is a U.S.-based product designer at Novatech Group where she leads the design efforts on door-glass products. She has more than 18 years of experience in building-product design, previously holding roles at companies like Jeld-Wen and ODL.*

# AUTOMATION CONCEPT – PLANNING – EXECUTION

A proven history built on close customer relationships and constant innovation.

Hung Window High Speed Production  
Machinery for Frame & Sash



 YouTube

**SEE THIS LINE IN ACTION!**

[youtube.com/UrbanMachinery](https://youtube.com/UrbanMachinery)

[urban-machinery.com](http://urban-machinery.com)

1-800-263-4216

# U-R-B-A-N

Trust. Right from the start!

# Finding a Common Language for Glass Lingo

A new digital tool from the NGA helps provide clarity and efficiency to build and decode glass nomenclature

BY NGA ADVOCACY & TECHNICAL TEAM

If you're not well-versed in ordering glass for residential windows and doors, the strings of letters, numbers and symbols that compose a product code may seem intentionally cryptic. Even with the experience, the terminology varies by region and company. A shared, common language for glass improves clarity and efficiency for the whole industry. For glass manufacturers and fabricators, a predictable structure for encoding glass makeups also is essential for ensuring consistency and compatibility across today's automated and computer-assisted process management systems.

## Deciphering standard glass nomenclature codes

Like a universal translator, the National Glass Association offers a new, visual, interactive tool for everyone to build or decode glass nomenclature. This online resource aligns with NGA technical resources.

### TO DECODE:

Input a valid glass nomenclature code to parse out the glass description and makeup in detail.

### TO BUILD:

1. Start with the glass layers' kind of glass type, thickness, material, and front and back surfaces.
2. Specify interlayer materials and thicknesses, or include spacers between layers.

3. Assign coatings or surface designations to the front or back of the layers.
4. Review and generate the glass nomenclature code.

## Key components to generating glass nomenclature codes

### KIND IS KEY

Letters designate the kind of glass type, based on strengthening as follows:

AS for annealed glass - If no kind code is given, annealed is assumed.

CS for chemically strengthened  
FT for fully tempered  
HS for heat strengthened

### METRIC MEASUREMENTS RULE

Use millimeters when specifying glass, interlayer and airspace thicknesses. As standard, the glass nomenclature code will use the numeral only, dropping the mm.

### MATERIAL MATTERS

Material type follows the glass kind and thickness. The uppercase letters are an abbreviation for the material type code. These appear in braces {}. As examples:

{CL} for clear - If no material type is given, clear annealed glass is assumed.  
{BG} for blue green  
{LI} for low iron  
{PC} for polycarbonate

### SIGNIFY THE SURFACE

Each glass layer has two surfaces, which can have separate coatings, textures and other decorative elements. A character

## More examples

| Single glazing<br>Detailed configuration                                                                                                                                                         | Summary nomenclature                                         |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------------------------------|
| 3 mm clear, annealed glass   0.76 mm PVB interlayer   3 mm clear, annealed glass                                                                                                                 | 3,3-0.76b                                                    |
| 5 mm gray, heat-strengthened glass   1.52 mm PVB interlayer   5 mm clear, annealed glass                                                                                                         | 5HS{GY},5AN{CL}-1.52b                                        |
| 5 mm clear, annealed glass   1.52 mm ionomer interlayer   5 mm clear, annealed glass                                                                                                             | 5,5-1.52ip                                                   |
| IG unit<br>Detailed configuration                                                                                                                                                                | Summary nomenclature                                         |
| 5 mm clear, fully tempered, low-e coated glass [9.5 mm cavity with Argon gas fill] 5 mm clear, heat-strengthened glass   1.52 mm PVB interlayer   5 mm clear, heat-strengthened glass            | 5FT*[9.5Ar]5HS,5HS-1.52b**Low-E                              |
| Triple IG unit with two low-e coated lites<br>Detailed configuration                                                                                                                             | Summary nomenclature                                         |
| 2.5 mm clear, annealed, low-e coated glass [6.4 mm cavity with 90% Argon gas fill] 3 mm clear, annealed glass [6.4 mm cavity with 90% Argon gas fill] 2.5 mm clear, annealed, low-e coated glass | 2.5*[6.4Ar9010]3[6.4Ar9010]*2.5**#2 Low-E Type, #5Low-E Type |

or lowercase letter before the glazing thickness indicates the outboard surface property. One after the thickness indicates the inboard surface property. Sample surface characters include:

a for acid-etched  
r for mirrored

#### CALL OUT THE COATINGS

When using an asterisk (\*) to indicate specific manufacturer coatings, the name of the coating is used at the end of the product code after a double asterisk (\*\*). If multiple coatings are used, they are listed in order from outboard to inboard, separated by commas.

#### LIST INTERLAYERS

The interlayers also are listed in the glass nomenclature code. These lowercase letters are an abbreviation of the film/sheet type or the liquid/cure type, such as:

b for polyvinyl butyral (PVB)  
ip for ionomer

Each ply is defined, separated by commas and followed by a hyphen with the nominal interlayer thickness and code. If needed, glass plies are listed at the beginning. The more complex the glazing unit, the longer the series.

As a simple example: glass with 6 mm clear, fully tempered outboard surface with a 1.52 mm PVB interlayer and a 6 mm clear, fully tempered inboard surface would be written as 6FT,6FT-1.52b.

#### IG CAVITY CONSIDERATIONS

For insulating glass (IG), the cavity thickness is stated in mm to one decimal point, followed by the gas code:

Ar for Argon  
Kr for Krypton  
V for vacuum

A gas fill percentage may be indicated, and is allowed using the online tool's

## Additional Resources

- To save time and clear the confusion, bookmark the NGA glass nomenclature builder/decoder tool at [glass.org/tools/glass-nomenclature](http://glass.org/tools/glass-nomenclature).
- Contact the glass manufacturer and/or fabricator for additional information on specific glass configurations available for residential window and door products.
- Watch an on-demand recording of the webinar, "Finding a

Common Language for Glass Lingo," presented by Michael Saroka of Goldray Glass and Sara Neiswanger of NGA. In this webinar, learn about why the nomenclature was created, how it could be helpful for your facility, and how to use the interactive tool to build or decode glass nomenclature.

- The NGA Glass Technical Paper FB78-25 Glass Nomenclature also is free for you to download.

preview feature. For example, "Ar9010" indicates 90% Argon fill, which is standard for many low-e coated residential IG units. If no gas code or fill percentage is given, air fill is assumed.

Brackets [] are used to indicate the insulating/spacing gap when generating the summary for an IG unit.

As a complex example: insulating/spaced glass with 5 mm clear, fully

tempered, low-e coated outboard surface with a 0.25 mm vacuum cavity and a 5 mm clear, fully tempered inboard surface with an 8 mm 90% Argon-filled cavity and a 3 mm fully tempered, low-e coated inboard surface, would be written as:

5\*FT[0.25V]5FT[8Ar9010]\*3FT  
\*\*Low-E, Low-E #2. ■

**SCHWEISS** 507-476-9376

**DESIGNER DOORS**

Let us help you with your door needs!

Schweiss Doors designed and built the glass bifold door for Fermilab National Particle Physics Lab, IL

**SCHWEISSDOORS.COM**

# EPR Moves from Theory to Reality

Extended producer responsibility is here. What manufacturers need to know.

BY JOHN CROSBY

For several years, extended producer responsibility laws for packaging have been discussed as an emerging issue for manufacturers in many industries. The conversation often centered on whether more states would adopt them, which products would be covered and how quickly the idea might spread. That conversation has changed.

EPR is no longer theoretical. It is moving from enactment to implementation, and the next phase may prove far more consequential for manufacturers than the legislative debates that preceded it.

Across the country, states are beginning to test what packaging EPR looks like in practice. Oregon is facing litigation. California has finalized regulations implementing SB 54. Colorado is moving through implementation while also facing legal pressure. Maryland has enacted a new law and begun the regulatory process. Washington has joined the growing list of states with packaging EPR requirements. Meanwhile, proposals in New York, Tennessee and Wisconsin may not have crossed the finish line, but they came close enough to signal that the map is still expanding.

For manufacturers of windows, doors, skylights and other building products, the message is clear: EPR is entering a new and more complicated phase.

## What to watch

The Oregon lawsuit is one of the most important developments to watch. A federal court issued a preliminary injunction blocking enforcement of Or-

egon's law against members of the National Association of Wholesaler-Distributors while the litigation proceeds. The injunction is limited, but the significance is larger than the immediate parties. The case raises questions about how far states can go in assigning compliance obligations and costs to companies whose products and packaging move through interstate commerce.

Whether the challengers ultimately prevail remains to be seen. But the case underscores an important point: passing an EPR law is not the end of the policy debate. In many ways, it is the beginning of a new one.

Oregon also illustrates another challenge: exemptions. Many industries assumed that packaging used in commercial, construction or business-to-business settings would be treated differently from consumer packaging. In practice, those distinctions are proving difficult to secure. Oregon's limited exemption process has left many sectors concerned that packaging that rarely, if ever, enters residential recycling systems may still be swept into programs designed to fund those systems.

California represents a different kind of test. With permanent SB 54 regulations now approved and in effect, the state is moving from broad statutory concepts into the details of registration, reporting, compliance and producer responsibility. California's program is likely to become either a template or a cautionary tale for other states. Its scale alone makes it impossible to ignore.

For manufacturers, California matters not simply because of its market

size, but because state-level regulatory models often migrate. Once definitions, reporting systems, fee structures and compliance expectations are developed in one large state, other states often look to them as reference points.

Colorado shows that implementation concerns are not limited to Oregon or California. The state approved Circular Action Alliance's program plan, moving Colorado further into operational reality. At the same time, legal challenges and stakeholder concerns demonstrate that questions remain over how these systems are structured, who governs them, how fees are allocated and whether affected producers believe the process is fair.

Maryland's new law adds another layer of momentum. Its enactment confirms that EPR continues to advance even as earlier states wrestle with implementation complexity. In other words, uncertainty is not slowing the movement. New states are entering the field while existing programs are still being tested.

The near misses are just as important. New York's packaging EPR proposal again failed to become law, despite Senate action and significant advocacy. Tennessee's Waste to Jobs Act was sidelined, but supporters have indicated the issue will return. Wisconsin introduced a packaging reduction and recycling producer responsibility bill that failed to advance this session. None of these outcomes should be interpreted as the issue going away. If anything, they show that EPR is moving into states with different political profiles, different waste systems and different economic priorities. That is what makes the current moment so important.

EPR is no longer just an environmental policy discussion. It is becoming a business operations issue. It affects packaging decisions, supplier relationships, data systems, legal compliance, administrative costs and ultimately product pricing.



# Roto & AutoSlide

Combining proven Roto hardware with AutoSlide's intelligent automation for smarter Sliding Patio Door solutions.

**[rotonorthamerica.com](http://rotonorthamerica.com)**

Casement & Awning | Sliding Patio | Hinged Patio | Tilt&Turn | Hung & Sliding | Push-out

### Fenestration specifically

For the fenestration industry, there is an additional complication: construction-product packaging is not the same as consumer packaging. Packaging EPR laws were largely designed to address municipal recycling system costs associated with consumer packaging. But when those laws are applied broadly to construction inputs, they risk imposing fees and compliance burdens on materials that do not meaningfully contribute to the systems being funded.

There is also a housing affordability dimension. Windows, doors, skylights, insulation, roofing, siding, appliances, cabinetry, lighting and other building products are essential inputs in housing construction and renovation. If EPR fees and compliance costs are imposed across these categories, costs will move through the supply chain from manufacturers to distributors,

builders, remodelers and ultimately homebuyers and property owners.

Any single fee may appear modest in isolation. But when multiplied across dozens of products, multiple suppliers and multiple state compliance systems, the cumulative effect can become significant. This creates an uncomfortable policy tension. Policymakers are trying to improve recycling systems. They are also trying to address a housing affordability crisis. Poorly designed EPR programs could make both goals harder to achieve if they add cost to essential construction inputs without producing proportional recycling benefits.

That does not mean manufacturers should ignore environmental responsibility. Nor does it mean packaging practices should remain static. It does mean that EPR programs must be designed with a better understanding of how construction products move through the marketplace.

### Forward focus

The next chapter of EPR will not be written only in state legislatures. It will be written in regulatory proceedings, producer responsibility organization plans, fee schedules, courtrooms and compliance departments.

For manufacturers, the most important takeaway is this: implementation is where the real consequences emerge. The industry has moved beyond the question of whether EPR is coming. It is here. Now the question is whether these programs will be designed in ways that recognize the realities of construction supply chains, protect housing affordability and produce meaningful environmental outcomes. That is the debate manufacturers need to be prepared for now. ■

*John Crosby is the president and CEO of the Window and Door Manufacturers Association in Washington, D.C.*



# USED EQUIPMENT FOR SALE

## GREAT VALUE!



### 84" BILLCO GLASS WASHER

1975 Bilco 84" Glass washer with upgrades

Updated brushes and bearings, PLC-controlled water-saving final rinse, camera monitoring system, hydraulic top lift, and included transformer and spare brushes—well-maintained, currently in operation, and available July 2026 due to upgrade to a vertical washer.



### SPADIX ENDURON AUTO HOT MELT APPLICATION WITH PUMP

2004 Spadix Enduron Automatic Applicator with Graco 55-gallon hot melt pump, featuring recent rebuilds, upgraded components, multiple nozzle options, and front-facing controls—currently in operation and available July 2026 due to equipment upgrades.



### 12" DOUBLE MITER SAW WITH COMPUTERIZED STOP SYSTEM

2002 Pistorius 12" Double Miter Saw paired with a 2022 Pro-Line Quick Stop system, featuring servo and ballscrew controls, touchscreen interface, and integrated wiring for efficient operation—well-maintained, works great, and available now as surplus equipment.

**VIEW MORE DETAILS AND PHOTOS ONLINE!**

Scan the QR code or visit:  
[thermoseal.net/used-equipment-for-sale/](https://thermoseal.net/used-equipment-for-sale/)



 **660-258-4747 ext 101**

 **rodney@thermoseal.net**



# SEAMLESS WELDING FOR AMERICAN PROFILES

## Fast, Simple, & High Quality

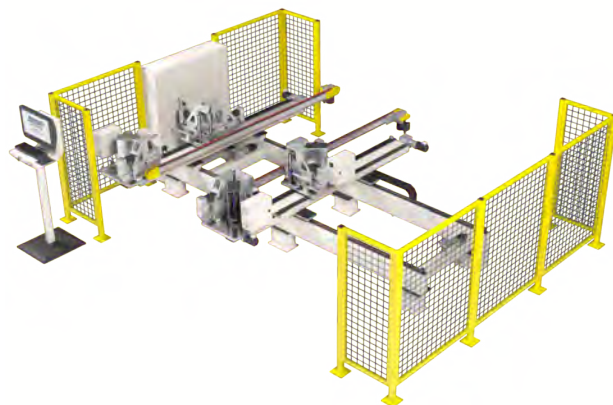
Joseph Machine's jSeam™ technology delivers seamless welding for typical North American window systems—without the complexity associated with traditional seamless solutions.

This patent-pending approach is fully contained within the fixtures, enabling fast changeovers between standard and seamless configurations across different window systems.

Proven on laminates and colored profiles, jSeam provides an immediate upgrade in finished appearance—without increasing cycle time or operational complexity.

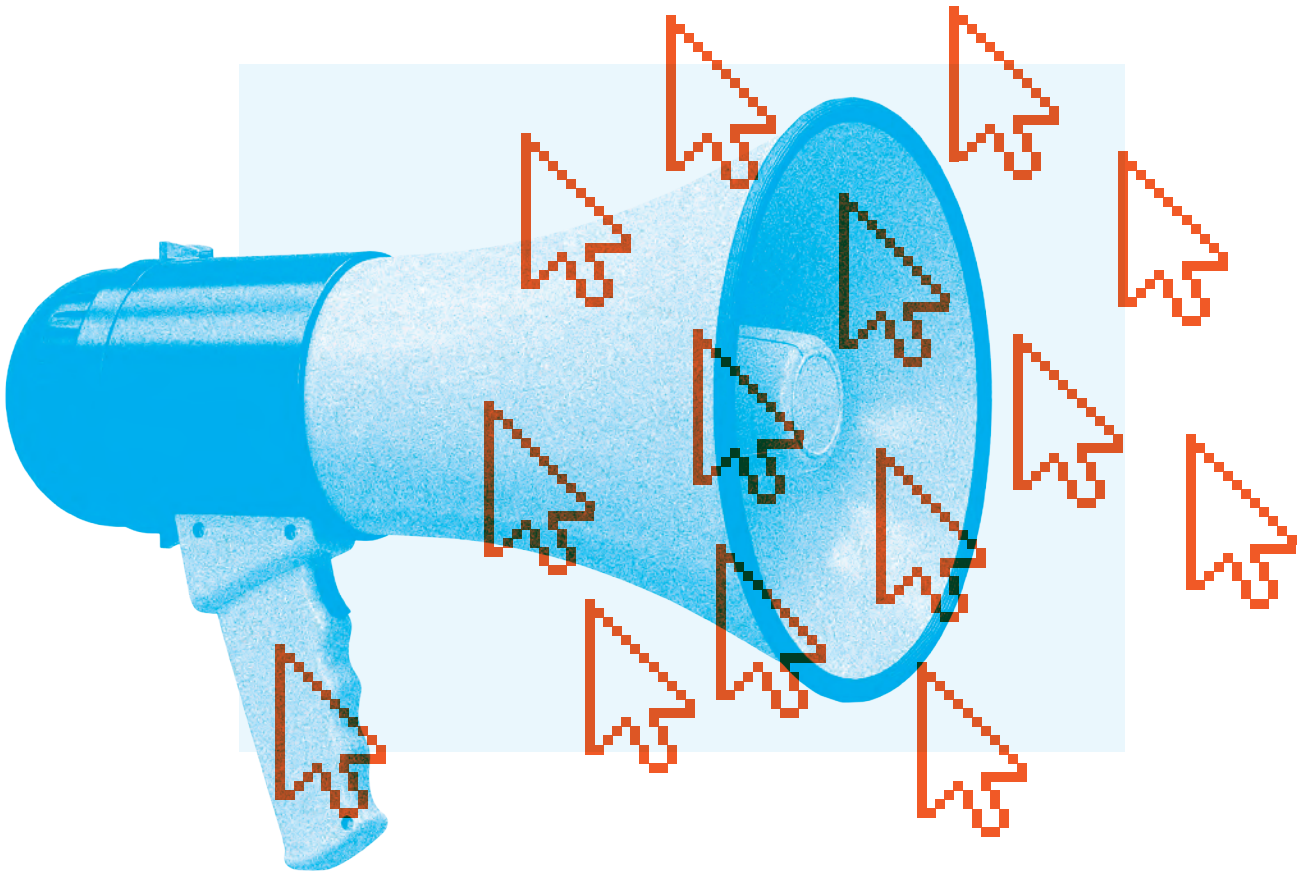
**Simple. Effective. Reliable.**

Innovation designed for the North American market—only at Joseph Machine.



Learn more  
[josephmachine.com](http://josephmachine.com)





## The Rise of AI-Informed Customer Complaints

AI has made it easier for customers to draft complaints, but it's important to remember that entitlement has not changed

**BY MELANIE SCHERER**

Artificial intelligence is changing—and challenging—all different facets of business. And AI will continue to evolve the way people compile, use and communicate information. With increasing frequency, AI is contributing to a surge in customers and businesses using the technology to craft a pseudo-legal argument when seeking resolution for an issue.

Of course, complaints and requests for relief are not new and have always been an embedded risk of doing business. Best practices involve addressing complaints with factual responses and reasonable resolution efforts. Now with the rise of AI, complaints and demands increasingly take the shape of a superficially convincing legal argument, often

in pursuit of an excessive resolution. Anyone can sound like a lawyer using AI to dress up their demand for relief. But it is crucial to remember the only thing that has changed is the complexity of the demand, not the entitlement.

### **AI-written complaints**

Using legal terms, citing to laws, court opinions and other legal authorities, anyone can use AI to craft a compelling demand letter, insisting that established law is on their side. Businesses are seeing an influx of formal and informal complaints written using AI, including demands for replacement products or work, or even monetary demands for reimbursement or damages. At first glance, the legalese and citations may

suggest an otherwise routine business complaint has instantly escalated to a legitimate litigation threat. The person making the demand is often emboldened by the belief that the referenced legal support unequivocally applies to their circumstance.

Additionally, AI may suggest to a person seeking support for their claim that a more extreme remedy is owed. Typically, statutes outline available remedies, but the facts of a particular claim will determine the actual extent of the remedy for that specific claim, if a claimant were to prevail in court.

For example, a claim for fraud may entitle a successful claimant to increased or “punitive” damages, but proof in a court of law is required for a fraud claimant to recover these types of damages. Using AI support, a person may interpret their entitlement to the most extreme remedies available under a given law and use this perceived support to make an unwarranted demand. Even where extreme circumstances do not exist for the person making the claim, the AI-generated information may encourage the belief that maximum recovery is owed, and the customer will accept nothing less.

The ease with which a person can input basic facts and queries to generate a formal demand letter translates to more people making these demands. Consequently, more complaints correspond to an increased business cost of engaging internal personnel or retaining external resources to handle and respond. In addition, multiple rounds of communication may be required to address threatened claims. Once a customer complaint has been initiated, anticipate follow-up communications if a request is partially or fully denied, likely also relying on AI to support the continued demand for a remedy.

While developing effective response strategies comes at a cost to your business, these communications will also later serve as evidence should the claim advance to formal litigation.

### Mitigate the impact

So, what can be done to mitigate the impact? First, it is essential to remember that responding to these requests is no different than handling complaints in pre-AI days. Anyone can write a letter, an email or even file a formal legal complaint. What has changed is the access to information. What has not changed is the sophistication required to determine application of the law to a specific set of facts, and the counterpositions and facts that may not have been examined. AI can identify potentially applicable legal support for a claim, but it cannot generate a confirmed outcome should the matter proceed to a court.

Your company’s initial response to a complaint or demand is your opportunity to address inaccuracies in both facts and the law. Investigate the claim history and communications to determine what happened. Review applicable contracts and warranties to confirm the terms, entitlements and exclusions. As with any demand, a customer’s request cannot be dismissed automatically; rather, it should be evaluated in light of the facts and circumstances on a case-by-case basis. The potentially applicable legal bases for a demand may even be on point and worth considering in early resolution efforts.

This is a benefit if it is determined that a potential claimant has a legitimate claim. In that case, coordinated efforts to resolve should be pursued at the earliest possible time to limit further legal exposure that may exist regardless of how the information was obtained. You can even use AI to develop your response, being careful to confirm accuracy and alignment with your business objectives.

Where a customer seeks a remedy to which they are not entitled, do not be instantly swayed by references to laws or legal authorities that may not apply. Do not simply accept the position at face value because it sounds plausible. Rather, qualified analysis is recommended. For example, if the demand relies on a law that applies to a purchas-

er of a consumer product, consider the possibility that the person making the demand may not be entitled to pursue their claim under the referenced statute. Similarly, your product warranty may directly address a customer’s claim and should be enforced if the customer seeks a remedy expressly excluded by the warranty’s terms.

### Align responses

Any demand, whether communicated using AI or not, requires an informed, rational response that aligns with relevant contracts, warranties and policies, taking into account your company’s best practices and approach to risk management. Where there is a threatened legal action, it is advisable to consult your legal counsel to determine how to best proceed and confirm a proposed response. However, an initial legal threat is no cause for alarm as you investigate and explore paths to resolution.

Remember, as a developing technology, AI is not always accurate and relies upon the validity and scope of the information being provided. There are also circumstances in which AI has been shown to reflect bias toward the user. This is not unlike how any legal dispute may involve conflicting positions where there are arguments in favor and against a particular position based on the same set of facts. AI certainly provides a “squeaky wheel” customer with more information at their disposal. Ultimately, it is just a new tool, but it doesn’t change the entitlement to recovery. ■



*Melanie Scherer is an attorney with The Gary Law Group, a law firm based in Portland, Oregon, that focuses on legal issues facing manufacturers of windows and doors. Contact her at 503/620-6615 or [melanie@prgarylaw.com](mailto:melanie@prgarylaw.com).*



## Plan for 2026 and Beyond

FGIA's latest study provides market information about housing data, plus insights about residential windows, doors and skylights

BY JANICE YGLESIAS

Each spring, FGIA gets multiple customer service inquiries looking for one thing: the most recent FGIA market study. That's because FGIA releases a new report about the industry, both residential and commercial markets, each year by early May. And since 2026 is an even year, FGIA has released the full multi-report edition, called the FGIA 2026 Study of the U.S. Market for Windows, Doors and Skylights. This set of reports delivers timely information about window, door and skylight market trends and product relationships. Forecasts are based on projections of construction activity as of April 2026.

With the current state of inflation, interest rates, the housing supply, and economic and regulation policy changes in the U.S., it is important to keep up to date with the latest news and develop-

ments, including crucial market information providing guidance on product volume and trends.

FGIA's market study has served the fenestration industry continuously for over 30 years and is a commonly referenced research program in the industry. The study details market volumes and trends in the U.S. for 2025, forecasted through 2028, as well as historical volumes. Our researchers interview several hundred homebuilders, contractors, installers and distributors each spring, which helps to develop indicative product usage factors and channel flow as a cross reference to the various manufacturer input.

Here are some takeaways from this year's report:

### 1. HOUSING STARTS AND EXISTING HOME SALES

Total conventional housing starts in 2025 decreased approximately 1% from 2024 due to declines in single family (7%) while multifamily grew significantly (17%). Both segments are expected to decline about 4% in 2026, but single-family should experience a rebound in 2027 and 2028. Existing home sales had been declining since 2022, but began a turn-around in 2025 that is expected to accelerate with an increase of 9% forecasted for 2026.

### 2. RESIDENTIAL WINDOWS

While the remodeling and replacement sector has historically held the majority position over new construction in residential prime window volumes, the gap has been closing in recent years. Continued, although slowing, expected R&R declines in the next few years are forecast to create a more balanced split between these two segments by 2028.

### 3. RESIDENTIAL DOORS AND SKYLIGHTS

The new construction patio door segment is the bright spot in the door market. Although 2025 saw declines that are expected to continue in 2026, a partial rebound is forecast to be on the horizon for 2027 followed by a stabilization of this market. The residential skylight sector has experienced growth during the past few years but saw some declines in 2025. In 2026, that segment is expected to be on par with 2025 before re-gaining some ground in 2027 and 2028.

### New Format

This year, FGIA modernized the format of its market reports. Designed to provide a more intuitive user experience, the updated studies feature engaging visuals and a streamlined structure that allows members and industry stakeholders to quickly digest complex market trends and product shipment data as well as historical trends and forecasts.

Having up-to-date market information is one of the best ways to plan for the future. Historical data for 2017 through 2024 and forecast data for 2026 through 2028 are also included in the new reports. The FGIA 2026 Study of the U.S. Market for Windows, Doors and Skylights is available for purchase from the FGIA Online Store. ■



*Janice Yglesias is the executive director of FGIA overseeing the full organization. She joined the association in 1999 and can be reached at [jyglesias@FGIAonline.org](mailto:jyglesias@FGIAonline.org).*



# Your solution for color profiles

**Seamless - Clean - Efficient**

Colored or dark windows and doors: this is the real answer with the best aesthetics and long-term performance on the welded corner. Perfect to join/weld color profiles, painted or laminated, cap stock or solid PVC, Aluminum clad hybrid profiles in one shot.

- ▶ Creates perfect seamless corners
- ▶ No manual touch-up at all
- ▶ Saves more than 50% floorspace as no cleaning is needed
- ▶ Ready for automation



## SL4FF EVO

**Gamechanger for many producers worldwide**  
**More than 1200 machines in operation since 2013!**

**BOOK YOUR DEMO TESTS WITH US and experience the difference on your profiles!**

\*Certain restrictions apply. Please contact us for more details.



## V-PERFECT TECHNOLOGY

**V-Perfect is the world's  
first and only technology  
that completely eliminates  
the weld seam from  
the corner, allowing to  
get **AESTHETICALLY  
PERFECT PVC  
WINDOW.****



**GlassBuild**  
**AMERICA**  
THE GLASS, WINDOW & DOOR EXPO

September 23-25, 2026  
Las Vegas Convention Center  
**West Hall - Booth 1667 - Machinery Area**

**GRAF Industries Inc.**  
5-6750 Langstaff Rd | Vaughan, ON L4H 5K2 | CANADA  
[www.grafsynergy.com](http://www.grafsynergy.com) | [www.v-perfect.it](http://www.v-perfect.it)



The jFlex SFMC is a truly flexible machining center based on 40 years of Joseph Machine expertise and automation technology from Beckhoff. Photo ©Beckhoff, 2025.

## Joseph Machine Cracks the Code on Flexible Machining

OEM draws on 40 years of experience to create the jFlex SFMC for window and door profile manufacturing

Engineers often channel their best ideas into a sketch. When Joseph Machine Company printed its first brochure in 1986, the company laid out an ambitious machine concept in a highly detailed drawing: a flexible window and door profile machining center capable of adapting to new products and production needs without rebuilding the machine from the ground up.

The company's vision of the flexible machining center now has more clarity than ever. But to make the concept real, the company had to embark on a rapid migration from a traditional control system, that reached its limits, to advanced PC-based control and EtherCAT-enabled servo technology from Beckhoff. The goal was to enable high

throughput, multi-axis machining centers with coordinated motion control that are highly modular, serviceable and adaptable in ways that were previously out of reach. "It took 40 years for the automation and controls technologies to catch up to this flexible machining center concept with 30 axes of motion or more," says Anthony Pigliacampo, owner and CEO of Joseph Machine.

### A control stack layered with flexibility

Joseph's new machines such as the jFlex and the jFlow PVC welder/cleaner are now based on Beckhoff's PC-based controls and EtherCAT, which cover all areas of automation and motion control. On simpler machines with fewer axes,

### ONLINE BONUS CONTENT

Sketching out the solution for a rapidly changing industry PLUS video content about flexible machining

Joseph uses CX7000 embedded PCs with ARM® Cortex®-M7 and integrated I/Os. For high-end applications, Beckhoff's fanless C6025 ultra-compact industrial PCs with processors up to Intel® Core™ i7 (4 cores) provide the necessary computing power to run complex, many-axis motion on machining centers.

There is no communication bottleneck for the controls as EtherCAT delivers deterministic, high-speed communication and synchronization across dozens of axes and distributed I/O. Beckhoff's openness to multiple protocols, EtherCAT's broad industry support, and the availability of gateways and bus couplers have been major enablers. "With our previous system, integrating IO-Link

sensors required unwieldy custom file management and cumbersome firmware updates,” says Albert Arustamyan, controls engineering manager at Joseph Machine. “With EtherCAT and TwinCAT, it’s much more straightforward.”

The Joseph team found additional benefits in the IP67 rating of the machine-mountable EtherCAT Box modules. “Our move to EtherCAT P cut our cabling by roughly 50% and eliminated laborious field wiring,” Arustamyan says. “All EtherCAT boxes feature standard M8 and M12 connectors that speed up I/O system cabling and remove the need for screwdrivers and wire strippers to install I/O modules.”

As the motion control aspects of the new machines were mission critical, Joseph Machine embraced Beckhoff’s drive technology such as the AX8000 family of servo drives and AM8000 series servo motors with one cable technology paired with Beckhoff gearboxes. The built-in AX-Bridge technology to feed power to all connected servo drive modules meant Joseph could substantially reduce the wiring and number of required fuses compared to the previous drive system. Additionally, energy-saving AA30x3 electric cylinders allowed Joseph to replace power-hungry hydraulic and pneumatic solutions, most notably in punching processes that were historically hydraulic.

Joseph also began implementing cabinet-free motion control technology with AMI8100 Series compact integrated servo drives. This series combines a servo motor, servo drive and fieldbus connection in a space-saving motor design in the power range up to 48 volts DC. AMI8100 integrated servo drives are suitable for all motion requirements up to 400 watts. These drives can be placed directly on the machine outside of control cabinets and without upstream I/O.

Beyond the hardware, TwinCAT 3 automation software delivered additional engineering efficiencies. With many Joseph machines requiring dozens of axes

of motion control, TwinCAT 3 NC PTP is used to cover development for up to 250 NC axes per machine. The company’s software engineers gravitated to structured text programming and TwinCAT’s motion libraries, kinematics and camming. TwinCAT Motion Designer tools allow the entire Joseph software team to specify and configure different drives, motors and other mechanical components without requiring a core motion specialist to do all the work.

The ability to write modular, re-useable code blocks and apply CNC paths with variables rather than recreating code across hundreds of locations changed how the company approaches machine development. “Now we can do coordinated, interpolated motion that’s smooth and precise. If we need to change a radius or a start point, we edit it once in the G code and it takes effect on every fabrication the machine performs,” Arustamyan says. “TwinCAT code reusability from machine to machine allows us to focus more on software development, so we can introduce more exciting feature extensions.”

The switch to Beckhoff has enabled Joseph to realize tangible performance enhancements. The most visible improvement is in the motion capabilities. Joseph can now execute truly simultaneous, overlapping process steps and tool actions that were previously sequenced serially. The platform supports concepts like “tied tooling,” where multiple tools hit a dimensional location simultaneously, and multi-track operations that process multiple parts at once.

### **The 40-year vision, realized**

With the jFlex SFMC and jFlow, Joseph Machine has translated a long-held ambition from paper to the plant floor. These machines give window and door manufacturers equipment that is reliable, reusable and adaptable for high-throughput production. Joseph is already planning the next steps such as an upcoming jCNC machine center with pusher-based infeed that leverages

TwinCAT Kinematics for its 5-axis CNC tooling in a single track or multi-track design. The solution also features tool changers, saw cutting, variable angles and easily movable clamps. “High-speed, coordinated motion from Beckhoff is crucial for successfully introducing a powerful new machine like the jCNC,” Arustamyan says.

The simplification of commissioning and the cabinet-free approach to I/O and motion control have created positive ripple effects across Joseph Machine’s business. Labor, commissioning time and cabinet size have all been reduced. “By minimizing cables, terminal blocks and real estate from machine mountable EtherCAT Box I/O and drive technology, we have been able to downsize electrical cabinets by an estimated 15% to 20%,” Arustamyan says. Another avenue under consideration at Joseph is Beckhoff’s MX-System for cabinet-free automation. “It’s clear that the fully machine mounted MX-System can add a lot of value on machines where floor space is at a premium,” Arustamyan adds. This would dramatically extend the gains already made from cabinet-free I/O and motion control.

With each new system Joseph Machine ships with PC-based control, the payoff for that 40-year-old flexible machining center sketch becomes clearer—streamlined designs, improved performance, smaller footprint and more reliable machines. “We’re very happy that we chose this path,” says Pigliacampo. “Working with Beckhoff feels like a true partnership and an extension of our team. Our machines are now built with the right building blocks for the future of flexible machining, and ultimately that’s a game changer for our customers.”

Visit [josephmachine.com](http://josephmachine.com) or [beckhoff.com/window-production-machines](http://beckhoff.com/window-production-machines) for more information. ■

SPONSORED

**BECKHOFF**

---

# THE 2026 WINDOW+ AWARDS

---

## The Judges

The awards program every year, and especially this year with the new categories and recognitions, would not be possible without our panel of judges. We thank our judges for taking the time and care to select the winners of these prestigious awards using their industry expertise.



**Steve Dillon**  
Veka North America



**Robert Simon**  
Renolit Corp.



**Heather West**  
Heather West Public Relations



**Rick Locke**  
Windows, Doors & More



**Mike Biffi**  
Sturtz Machinery



**Ryan Anderson**  
Cyncly

---

# DOOR

THIS YEAR'S AWARDS SHOWCASE THE INNOVATION AND  
INGENUITY OF THE PROJECTS, PEOPLE AND PRODUCTS  
IN FENESTRATION

By Rachel Vitello

This year's Window + Door Awards received a renewed sense of life featuring exciting new categories and recognition for winners at GlassBuild America 2026 for the first time since 2019. The heightening of this awards program is a testament to the importance and innovation of the residential space.

This year's awards feature the inaugural Best Residential Case Study category, which was created to highlight the role windows, doors, glass and other building components play in creating beautiful homes.

Another new category this year is the Legacy Leadership Award. Individuals who put in the hard work, day in and day out, are the ones who make this industry truly special. This award highlights those who not only show up every day, but who mentor their peers and have dedicated years to bettering this space.

---



**Tammy Schroeder**  
Apogee Architectural Metals



**Chris Kammer**  
A+W Software



**Ray Garries**  
Global Fenestration Advisors



**Steve Chen**  
Crystal Window and Door  
Systems



**Michael F. Sugrue**  
Winchester Industries



**Stefanie Couch**  
Grit Blueprint



**Tim McGlinchy**  
GED Integrated Solutions



Photo credit: Adam Potts Photography



## Best Residential Case Study Framing Sonoma

Nominating Company

Miter Brands

Architect

Ridge Design + Build

Dealer

Boulder Ridge Sash & Door

Expansive glass openings connect architecture, landscape and life in this Sonoma wine country home. Villa Verde Sonoma was designed to connect indoors to outdoors, connect architecture to landscape and connect people to place. At the heart of the home is a 42-foot multi-slide door from Western Window Systems. When fully retracted, the wall disappears entirely, transforming the great room

and covered terrace into one expansive living space. This opening is what drove the rest of the architecture.

The covered patio structure was engineered with steel to eliminate view-blocking posts. The result is uninterrupted indoor-outdoor flow so the space can remain open all day, effectively tripling the living area. Throughout the home, Western Window Systems' Series 600 products continue the design of the home. Large fixed "window box" fixtures appear in the foyer and primary suite, framing olive trees and creating intimate seating niches trimmed in white oak. On the exterior facade, double-story window walls help break up expanses of stone. Breezes move freely through the open multi-slide doors.

Products used in this home include Western Window Systems' Series 600

Multi-Slide Door, Series 900 Hinged Door, and fixed windows. "The Framing Sonoma case study earns my recognition because it demonstrates how product, architecture and environment can work in complete harmony to create an exceptional residential experience," says judge Tammy Schroeder. "Rather than simply incorporating large openings, the entire home was designed around them, using expansive multi-slide doors, structural innovation, and uninterrupted sightlines to fully dissolve the boundary between indoors and the Sonoma landscape. The result is more than a beautiful home; it's a thoughtful execution of indoor-outdoor living where light, views and flow become central to the architecture itself, showcasing how well-designed fenestration systems can elevate both form and function in a truly meaningful way."



# Legacy Leadership Award

## Dan Marvin

Nominating Company  
Infinity by Marvin



Dan Marvin, president of Infinity by Marvin and Infinity Replacement, is a residential industry veteran whose leadership and vision have had a lasting impact on the window and door industry, say company officials who nominated him for the award.

Nearly 25 years ago, Marvin co-founded Infinity in partnership with Tom Goldsmith. A fourth-generation member of the Marvin family, Marvin now serves as president of Infinity by Marvin—the fiberglass product line—as well as Infinity Replacement, the

internal replacement window division. Throughout his tenure, Marvin has consistently grown the business while remaining grounded in the values that define Marvin: integrity, humility and doing the right thing.

Under Marvin's leadership, Infinity has continued to evolve and expand, most notably through the successful launch and growth of the Costco partnership [LC2.1] in recent years—an initiative that has propelled the business forward and strengthened Infinity's position in the market. His ingenuity, data-driven approach, and deep industry expertise have fueled year-over-year growth. Marvin's steady leadership, long-term perspective and commitment to people have helped shape not only Infinity's success, but also the broader fenestration industry, making him an exceptional nominee for recognition as a legacy leader, say company officials in their nomination.

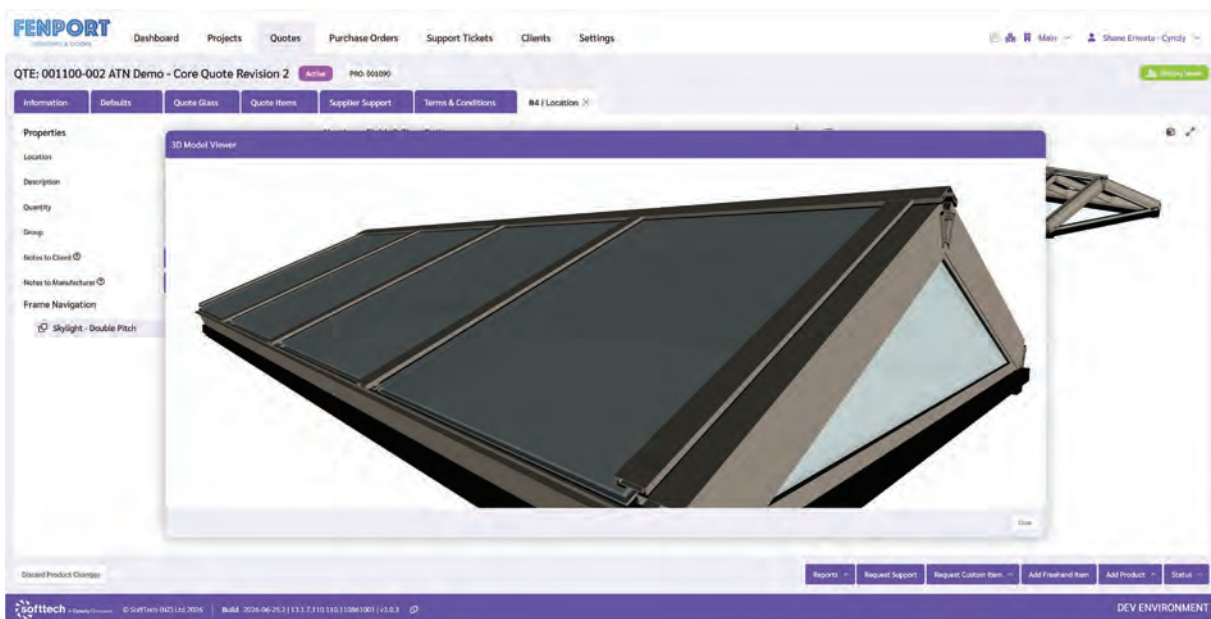
Marvin's career reflects both long-term commitment and meaningful innovation within the window and door industry. His impact extends well beyond business growth. He has been instrumental in building and sustaining a dedicated internal team and a trusted, growing network of independent dealer partners who share a commitment to quality, ethical practices, and exceptional customer experiences. Colleagues consistently describe Dan as driven yet humble—someone who leads with clarity, empowers others, and earns trust through consistency and accountability. His long-term perspective and steady leadership have positively influenced not only Infinity's success, but also the broader industry, making him a respected mentor and role model for peers, partners and the next generation of leaders, say Marvin's peers.



# Best Digital Tool

## Soft Tech V6 Advantage

### — X3D Visualizer



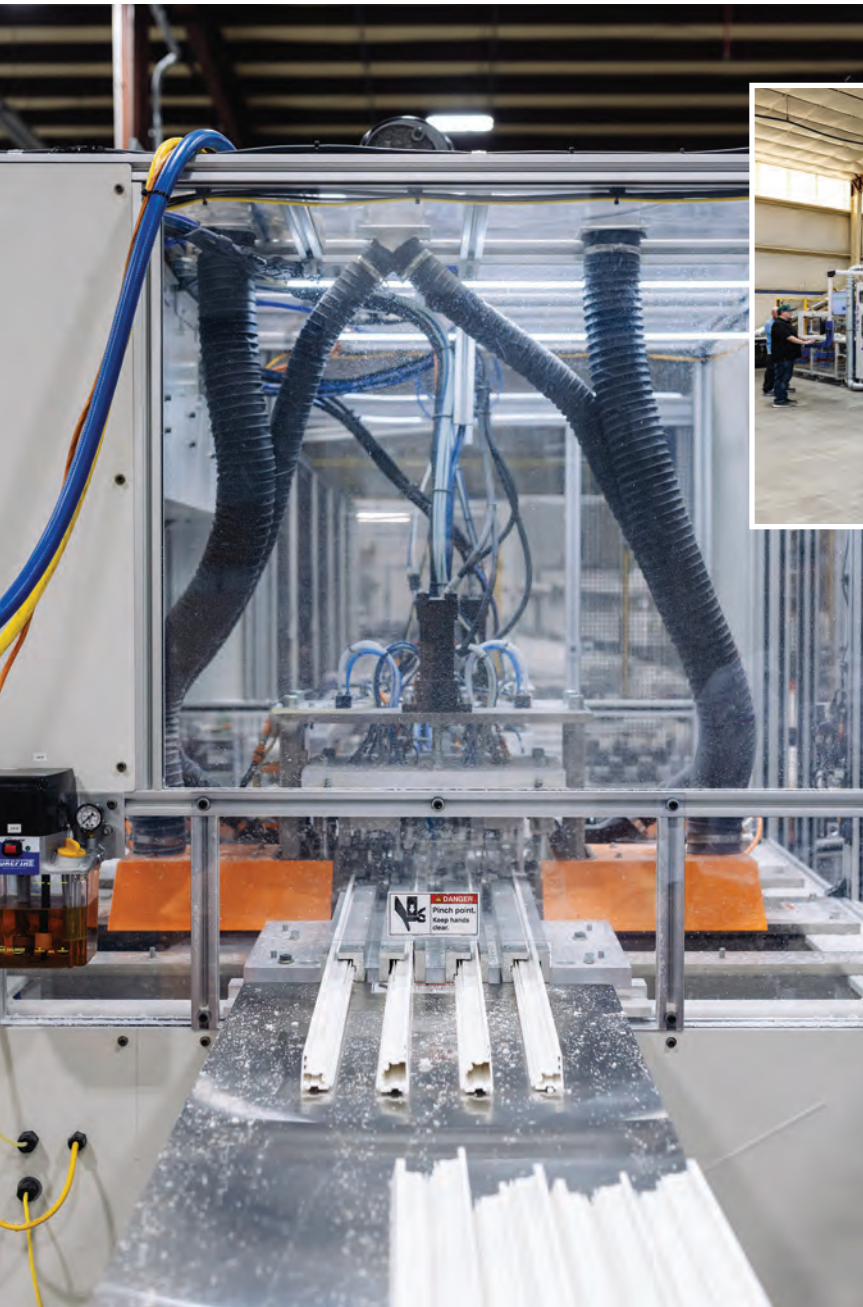
Nominating Company

Cyncly

Cyncly's V6 Advantage X3D Visualizer automatically generates a geometrically accurate 3D digital twin of every residential window or door configuration—as options are selected, not after quoting is complete. The result is a visual that is a production-accurate representation of what will be manufactured. Complex configurations—bays, bows, mullied combinations, entry doors—render as complete assemblies, not individual units approximated together. V6 Advantage is a configure-price-quote platform built specifically for residential window and door manufacturers and their dealer networks. The X3D Visualizer is embedded directly within the CPQ workflow.

“The ability to generate 3D digital representations of windows and doors in real time as they are being quoted is a very valuable feature. Speeding up quoting and ordering, assisting all to visualize final products, and reducing post-order misunderstanding, have enormous value to manufacturers, dealers and contractors,” says judge Steve Chen.

According to Cyncly officials, homeowners purchasing replacement or new-construction windows and doors consistently struggle to visualize the finished product from specification sheets or flat drawings. This uncertainty slows purchase decisions, increases the likelihood of post-order change requests, and creates costly production disruptions. The X3D Visualizer bridges the gap between what a customer imagines and what a factory produces, reducing miscommunication, accelerating close rates, and improving order accuracy from first submission.



Nominating Company  
Joseph Machine Company

Joseph Machine's jFlex CNC processing system enables rapid changeovers, modular reconfiguration and scalable performance without costly mechanical redesigns. Powered by PC-based control and EtherCAT, (Ethernet for Control Automation Technology) the system executes highly coordinated multi-axis motion. Each CNC zone on a jFlex system has its own motion control and tooling configuration. This allows each zone to operate on different tracks or different operations simultaneously, with no mechanical repositioning required. Operators can load mixed profiles and let the machine handle the complexity.

Beyond performance, the jFlex introduces meaningful operational improvements. Simplified wiring and machine-mounted I/O reduced cabling by approximately 50%, lowering installation time, cost and maintenance complexity. The transition from hydraulic to servo-electric actuation further improves energy efficiency, safety and process control. Most importantly, according to company officials, the jFlex fulfills a 40-year vision: an adaptable machining platform that evolves with customer needs instead of becoming obsolete. For window and door manufacturers navigating rapid design changes and customization demands, this represents a shift from rigid machinery to intelligent, reconfigurable production systems.

# Best Machinery/ Equipment jFlex SFMC



## Most Innovative Entry Door 555 Series Pivot Door System

Nominating Company  
Awake Window & Door Co

The 555 Series Pivot Door by Awake Window & Door Co. is a proprietary pivot assembly. Designed as an unrestricted pivot point assembly, it allows for full flexibility in pivot location, enabling designers to adjust door movement and proportions without being constrained by fixed hardware positions. This level of flexibility supports larger panel sizes while maintaining performance and usability and enables some of the largest pivot door configurations in the residential market, according to company officials.

The system integrates a concealed

overhead closer and a magnetic catch mechanism, removing the need for exposed hardware and providing a silent, seamless and adjustable latching force. The door system also supports independent size options as large as 120 inches wide and a max panel height of 168 inches. It can be configured with no sill or low sill conditions. A range of insulated glass options incorporating low-emissivity coatings and argon-filled units supports energy performance, while multiple finish options provide design flexibility.

At Canyon Vista, a private residence

and retreat space in Sedona, Arizona, designed by The Ranch Mine, the 555 Series Pivot Door plays a central architectural role. The home is designed to dissolve the boundary between interior space and the surrounding red rock landscape, with floor-to-ceiling glazing capturing expansive mountain views and minimal wall conditions throughout. An 8-foot-wide Series 555 pivot door marks the primary entry, operating not only as a functional element but as a key design gesture that reinforces the home's connection to its environment.



# Most Innovative Patio, Multi-Slide, Multi-Panel Door LePage Multislide

Nominating Company  
LePage Millwork



The LePage Multislide system is distinguished by its fully flat, recessed fiberglass threshold. This solution significantly reduces thermal bridging while maintaining durability, accessibility, and a clean, unobstructed aesthetic. The LePage Multislide also offers an option with an internal tubular drainage system. Through extensive testing and multiple design iterations, LePage developed a drainage solution located beneath the frame and equipped with backflow protection. This system ensures reliable water management, resistance to wind pressure, and protection against freeze thaw conditions.

The Koons Pool House in Annapolis, Maryland, demonstrates how the LePage Multislide is being used in a real world residential application where large openings, frequent operation, and exposure to variable weather conditions are critical considerations. Installed as a primary connection between interior living space and a pool area, the Multislide allows the facade to be partially or fully opened on a daily basis, creating a seamless indoor outdoor experience while maintaining smooth operation and precise alignment.

“Thresholds that help reduce thermal bridging and improve accessibility are subtle, but important innovations,” says judge Heather West.



## Most Innovative Window Universal Series Wildfire Resistant Windows (WFR)

Nominating Company  
Cascadia Windows & Doors

Cascadia Windows & Doors' Universal Series Wildfire Resistant window options are among the first fiberglass window systems to successfully pass the California SFM 12-7A-2 standard, demonstrating verified wildfire resistance under direct flame exposure. The system uniquely integrates a fire-retardant resin (WFR Plus), mineral

wool integration and tempered glass within a thermally efficient fiberglass frame, enabling ignition resistance and self-extinguishing performance.

Cascadia's Universal Series Wildfire Resistant window options are being specified for projects in Wildland-Urban Interface zones across Canada and the US. Industry testing has demonstrated that under direct flame exposure—simulating real wildfire conditions—Cascadia's fiberglass

windows prevent flame penetration and maintain assembly integrity, protecting the building interior even when exposed to intense heat. As building codes evolve and wildfire risk expands, Cascadia's system is helping shift industry practice from prescriptive compliance to performance-based validation.

"Wildfire-resistant windows fill a unique and growing need in the industry," says judge West.

# THERMOROLL

WINDOW MANUFACTURING

**WE'RE  
SELLING!**

Business Brokers  
Welcome

## Thermo-Roll Window -

40 year old NYC  
manufacturing company is  
evaluating **strategic  
alternatives** such as  
**SALE or ASSET CARVE OUT**  
of our US & Canadian  
patented systems.



Products include  
**complete aluminum  
window lines &**  
architectural rated systems.



Patented **exterior aluminum  
and wood profiling system.**



CALL:

516-984-6580



EMAIL:

thermoroll@aol.com



www.thermoroll.com



TIED CATEGORY

## Most Innovative Window or Door Component Intercept Extreme warm-edge spacer

Nominating Company  
Technoform

Intercept Extreme was engineered through a collaboration between GED Integrated Solutions, Vitro Architectural Glass and Technoform. Intercept Extreme delivers high thermal performance, helping window systems achieve or exceed Energy Star 7.0 criteria. Its thermally broken hybrid construction—stainless steel sidewalls paired with a low conductivity polymer bridge—reduces heat transfer, improves condensation resistance, and enhances long term IGU durability. Designed to run on Intercept 2.5 equipment up to 85 feet per minute, the system enables fabricators to upgrade performance without disrupting production throughput. Intercept Extreme has passed rigorous durability testing (ASTM 2188/2189/2190), demonstrating excellent moisture resistance, gas retention and weatherability.



# Most Innovative Window or Door Component

## insulbar ESPOC

Nominating Company  
Ensinger Inc.

insulbar with Electro Static Potential Optimized Coating (ESPOC) is a post-extrusion surface treatment that functions as a painting primer. This treatment increases the electrical conductivity of the polyamide surface without altering its thermal performance.

By enabling electrostatic powder coatings to adhere to the polyamide surface in the same way they adhere to aluminum, ESPOC allows thermal break profiles to receive consistent, high-quality architectural finishes in a single coating pass. This improves coating uniformity and reduces

the need for secondary processes or manual correction. The innovation is not simply improved coating adhesion, say Ensinger officials. ESPOC removes a long-standing design constraint in thermally broken fenestration systems. System designers can now place polyamide thermal breaks wherever they provide the greatest thermal benefit, rather than limiting their placement to concealed areas. This expands design flexibility and enables new approaches to thermal optimization within window and door systems.





# Unique Innovation Innovio

Nominating Company  
Andulca

Andluca's Innovio Glass integrates UV-harvesting capability directly into the glass so windows can generate and store energy within the system itself. Innovio Glass integrates energy generation, system compatibility and added functionality into a single fenestration product—expanding the role of windows while remaining aligned with how the industry currently designs, fabricates and installs window systems.

Innovio converts ultraviolet light into usable electricity that is stored in the window frame, allowing powered features to operate without hardwiring or battery replacement. This functionality is achieved

while maintaining high visible light transmission and compatibility with standard low-emissivity configurations, allowing the product to be incorporated into conventional insulating glass units without requiring changes to established fabrication or specification practices. Innovio also features a laminated interlayer, delivering additional including enhanced security and improved acoustic performance.

For window manufacturers and fabricators, this represents a shift toward self-powered window systems that can support sensors, controls and other smart features without additional electrical coordination. By eliminating

the need for wiring through framing systems or building interiors, Innovio simplifies installation and reduces complexity. The optional SafeFlight UV layer adds bird-friendly performance without altering the appearance of the glass. Rated to the American Bird Conservancy standards, the solution has undergone testing for efficacy and demonstrates threat factor performance.

“Windows that harvest UV light, store it in the frame and power smart features without a single wire run through your walls is the kind of idea that makes you wonder why it took this long, especially with the bird-safe layer on top of that,” says judge Chris Kammer.

**GlassBuild**  
AMERICA

THE GLASS, WINDOW & DOOR EXPO

September 23-25, 2026 | Las Vegas, NV

Presented by  
**NGA**

# Meet the Experts

**Fenestration innovators and thought leaders head to GlassBuild**

Behind every high-performance window, code-compliant installation, and automated production line is a person who's mastered their craft.

Meet the Experts spotlights GlassBuild America's exhibiting company leaders, connecting attendees with the experts who solve real problems for their customers every day.

In these profiles, get to know the experts joining us in Las Vegas as they share their expertise and what their companies actually do.

The fenestration industry's greatest asset isn't equipment or technology — it's the people who know how to use it, improve it, and pass that knowledge on.



**Register now to be among these experts, and hundreds more, at GlassBuild.**

***GlassBuildAmerica.com***





## Meet the Expert //

# Morgan Donahue

**Job Title:** President

**Company Name:** Erdman Automation

**Years in Industry:** 30

**Contact me:** [eac@erdmanautomation.com](mailto:eac@erdmanautomation.com)

---

### My top areas of expertise

Problem solving in process and machine design, with a focus on simplicity  
Custom solutions for glass and window manufacturing

---

### Most surprising thing I've learned

About a year or so into my career, I began to understand how complex window production really is. From the outsider's perspective, a window looks basic. However, one will quickly learn that the options and customization of each window type make production far more complex than it appears. That complexity is exactly what makes efficient automation challenging.

---

### My definition of success

Success started as my score card. I focused on the companies' survival and keeping the lights on. Over time, I began to realize that it is about reputation, relationships and building systems that are best in class and built to last. I now measure success by the creation of value for employees and customers, and the creative legacy for others to continue.

---

### How I stay ahead of the curve

We've been in their [Erdman customers] operations long enough to spot the inefficiencies, often before they do. Our relationship with our customers is built on trust; when something isn't working or when they are running into a challenge with their current process, they trust that we can help. That's usually where a new product starts. We stay ahead by staying in the room with the people doing the work.

---

### What I'd change about how our industry operates

I would change the seasonality, as more consistent demand would help everyone.

---

### What you might not know our company does

A common misconception is that Erdman Automation only builds glazing equipment or insulating glass equipment. We build a wide range of custom machinery. People also often assume that Erdman only serves residential; commercial machinery is growing rapidly. We're launching several products in tandem with GlassBuild 2026. Stop by our Booth #2445 to see ENVIROWRAP, our triple- and quad-pane line, cohesive bond and 4SG applications, and FlexScreen automation. You'll also see our standard lineup of high-speed lines. ■



[erdmanautomation.com](http://erdmanautomation.com)



## Meet the Expert // **Julija Neftik**

**Job Title:** Head of Product Marketing and Strategic Sales Projects

## Meet the Expert // **Chad Hackman**

**Job Title:** Senior Manager of Customer Solutions & Technical Sales Support

### Roto's Sustainable Growth

Over the past decade, Roto North America (RNA) has sustained double-digit annual revenue growth, driven by the dedication, expertise and collaborative efforts of employees across its two manufacturing locations. Operating through Roto Frank of America (RFA) in Chester, Connecticut, and Roto Fasco Canada (RFC) in Mississauga, Ontario, RNA leverages the unique strengths of both organizations.

RFA focuses primarily on Casement & Awning hardware, while RFC specializes in Sliding Patio Door and Hung Window hardware. Together, both locations also support Roto's core product offerings. This strategic focus has helped position Roto as a trusted partner for window and door manufacturers across North America. Behind that success are professionals like Julija Neftik of RFA and Chad Hackman of RFC.

### Julija's Top Areas of Expertise

Julija Neftik began with Roto in Germany in 2012 before joining RFA in 2018. As Head of Product Marketing and Strategic Sales Projects, she leads product marketing strategies tailored to North America. By monitoring industry trends, customer requirements, and competitive developments, she identifies opportunities that strengthen RNA's product offering and support business growth.

Working closely with manufacturing partners, Product Management, and the sales team, Julija helps guide new products from concept to launch, ensuring they align with market demands and business objectives. She also leads strategic sales initiatives focused on key accounts and priority growth opportunities. Her vision and strategic perspective have been instrumental in advancing Roto's position as a leading provider of high-performance window and door hardware.

### Chad's Top Areas of Expertise

Chad Hackman joined RFC in 2016 and has become a trusted resource for customers, working closely with purchasing and engineering teams to identify the right hardware solutions for their applications. As Senior Manager of Customer Solutions & Technical Sales Support, he leads cross-functional efforts with customer service and engineering teams to establish responsive support channels and ensure successful product implementation.

Beyond supporting customers, Chad oversees RFC's product portfolio for Sliding Patio Door and Hung Window hardware and contributes to new product development initiatives. He also shares his technical knowledge through training and educational programs. By combining strong product expertise with a practical understanding of industry needs, Chad identifies new avenues for business development and delivers competitive, value-added solutions.

# Products



## Find More Products Online

See all the latest products and trends online at [WindowandDoor.com](https://WindowandDoor.com)



01



02



03

### 01. Awning window

Kolbe Windows & Doors' gas strut awning window is the newest addition to its Ultra Series product line. Engineered to open outward to a full 90-degree angle, the window is supported by integrated gas struts that allow for smooth operation, even at larger sizes. With configurations available both with and without a sill, the design creates a clean, unobstructed opening that enhances the flow of food, drinks and conversation across residential and commercial environments.

715/842-5666 | [KOLBEWINDOWS.COM](https://KOLBEWINDOWS.COM)

### 02. Black-on-black color option

Viwinco launched Vanta, a fully extruded, black-on-black color option for the Cambridge, S-Series and OceanView product lines. Vanta delivers a continuous matte black finish throughout the interior and exterior surfaces, and provides a matte black finish that frames the outside view. Vanta products are built using engineered pigmentation and Sunshield technology, to mitigate color degradation over time and provide thermal efficiency.

800/927-2848 | [VIWINCO.COM](https://VIWINCO.COM)

### 03. Switchable glass

Clopay's C-Power technology delivers power directly to garage door sections, enabling the glass panels to switch from clear to opaque using a wireless remote. C-Power enabled click-to-conceal panels turn the garage door into a responsive design element that adapts to the user's changing needs throughout the day, offering daylight and outdoor views when desired, and privacy and security when needed.

800/225-6729 | [CLOPAYDOOR.COM](https://CLOPAYDOOR.COM)

# Product/Solution



## Key features

- Fabricates the most advanced warm-edge spacer design in North America
- Extreme™/ULTRA/ThinPlate to support good/better/best product design strategies
- Premium performance without adding unnecessary complexity to the production floor
- Pursue higher-performing window packages while maintaining proven fabrication efficiency

## Intercept® Extreme™ Warm-Edge Spacer // **GED Integrated Solutions**

### Challenge

Residential window manufacturers are under increasing pressure to deliver higher thermal performance, meet evolving Energy Star requirements and do it without slowing down production. Intercept® Extreme™ was developed to help fabricators meet that challenge.

### Solution

Intercept® Extreme™ is the next evolution of warm-edge spacer technology: an advanced, thermally broken, U-channel spacer engineered for high-performance residential insulating glass. Developed

through the collaboration of GED Integrated Solutions, Vitro Architectural Glass and Technoform, it builds on more than three decades of proven Intercept® spacer innovation while raising the bar for thermal performance, durability and manufacturing efficiency.

At the core of Intercept® Extreme™ is a hybrid construction that combines stainless-steel sidewalls with a Technoform polymer thermal bridge. This thermally broken design helps reduce conductive heat transfer at the edge of glass.

### Options

For fabricators, the value is clear—premium warm-edge

performance without adding unnecessary complexity to the production floor. Intercept® Extreme™ is fully compatible with the GED Intercept® 2.5 high-speed automated production platform, allowing manufacturers to pursue higher-performing window packages while maintaining proven fabrication efficiency.

Intercept® 2.5 also gives fabricators the flexibility to manufacture Intercept® warm-edge spacers from three material options, supporting a clear good / better / best product strategy. That means manufacturers can serve value-driven, upgraded and premium-performance segments from a single production platform, creating more opportunities to capture

higher-margin business without investing in separate spacer systems for each tier.

### Results

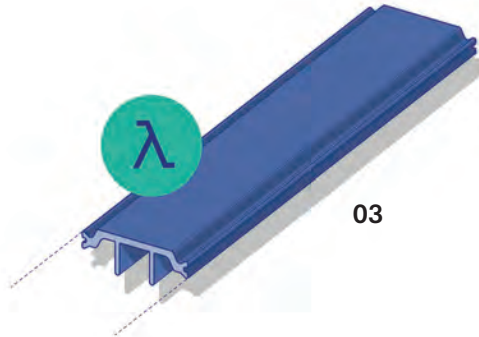
Together, Intercept® Extreme™ and GED Intercept® 2.5 give fabricators a practical path to better thermal performance, stronger product differentiation, improved production scalability and greater revenue opportunity, all on one proven platform. For more information, visit [gedusa.com](http://gedusa.com) or call 330/963-5401. ■



01



02



03

### 01. Hinge

Roto is meeting rising demand for aluminum doors with clean lines and concealed hinges with the Roto Solid C concealed hinge for aluminum doors up to 308 pounds. The FixClick function allows for efficient installation. Instead of mounting the leaves with screws, a single click fixes the leaf in place, aided by locking wedges secured in the frame hinge. Solid C concealed hinges come in black and silver, while the turn restrictor is available in black and polished stainless steel.

860/526-4996 | [ROTONORTHAMERICA.COM](https://www.rotonorthamerica.com)

### 02. Smart lock

The new Schlage Sense Pro Smart deadbolt is the brand's first smart lock to feature Schlage Converge technology, combining ultra-wideband with Apple Home Key in Apple Wallet to deliver hands-free unlocking. By calculating speed, trajectory and motion, it unlocks the door upon approach.

888/805-9837 | [SCHLAGE.COM](https://www.schlage.com)

### 03. Thermal barriers

Technoform Low Lambda polyamide thermal barriers are designed to improve performance in windows, doors and façade systems. Achieving higher thermal performance with lower assembly U-factors and better condensation resistance, this advancement in polyamide technology helps fenestration product manufacturers meet U.S. and Canadian energy codes.

330/487-6600 | [TECHNOFORM.COM](https://www.technoform.com)

# Advertiser Index

| Advertiser                         | Page   | Phone                | Website or email address                |
|------------------------------------|--------|----------------------|-----------------------------------------|
| Beckhoff Automation                | 24-25  |                      | beckhoff.com/window-production-machines |
| Cardinal Glass Industries          | 10-11  |                      | clcglass.com                            |
| Deceuninck                         | 1      |                      | deceuninckna.com                        |
| Erdman Automation Corp.            | 40     | 763/389-9475         | erdmanautomation.com                    |
| FlexScreen / RiteScreen            | 3      |                      | flexscreenritescreen.com                |
| GED Integrated Solutions, Inc.     | 43     |                      | gedusa.com                              |
| GlassBuild America                 | 39, 47 |                      | glassbuildamerica.com                   |
| Graf Synergy                       | 23     |                      | grafsynergy.com                         |
| Integrated Automation Systems, LLC | 9      | 330/954-3070         | iasmachinery.com                        |
| Joseph Machine Co.                 | 19     |                      | josephmachine.com                       |
| ODL                                | 2      |                      | odl.com/xl                              |
| Quanex Building Products           | 7      |                      | amesburytruth.com                       |
| Roto North America                 | 17, 41 |                      | rotonorthamerica.com                    |
| Schweiss Doors                     | 15     | 507/476-9376         | schweissdoors.com                       |
| Sturtz Machinery, Inc.             | 48     |                      | sturtz.com/us                           |
| Synchrony                          | 5      |                      | syf.com/business                        |
| Thermo-Roll                        | 35     | 516/984-6580         | thermoroll.com                          |
| Thermo Seal Vinyl Products         | 18     | 660/258-4747 ext 101 | thermoseal.net/used-equipment-for-sale  |
| Urban Machinery                    | 13     | 800/263-4216         | urban-machinery.com                     |

## WINDOW+ DOOR WEEKLY

**Delivering the Fenestration Industry to  
Your Desktop, Tablet or Smartphone**

To receive your copy every Wednesday, go to [WindowandDoor.com](http://WindowandDoor.com)  
and click the Subscription Services tab

# FrameWork



ONLY ON  
WINDOWANDDOOR.COM

## Beyond White: How Innovation is Expanding Color in PVC Window and Door Design

By Greg Koch, Deceuninck North America

Color plays a major role in defining a home's personality, curb appeal and overall aesthetic. As designers and homeowners gain access to more options beyond standard white PVC systems, color has become an increasingly important factor in window and door selection.

PVC has become the dominant material choice in the residential window market, reflecting its widespread adoption across new construction, replacement and multifamily applications. Historically, PVC window and door systems were more commonly offered in white and lighter tones because darker colors introduced greater heat and UV performance demands. While materials such as wood, fiberglass and aluminum have generally not faced the same historical color constraints, advances in material science, formulation, lamination and color technologies have expanded PVC's ability to support a broader range of colors, including darker shades. This progress has helped manufacturers respond to growing demand for more contemporary window and door aesthetics, while also raising expectations for long-term performance.

Even with that progress, adoption of dark-colored windows and doors continues to evolve unevenly across the country, shaped by regional design preferences, climate considerations and local architectural styles. ■



## Northwest Idea House

**Project:** 2025 Northwest Idea House, Gig Harbor, Washington

**Products:** Milgard V400 Tuscany Series vinyl windows in casement, horizontal slider and picture window configurations; Milgard AX650 Moving Glass Wall System

**Description:** Milgard Windows and Doors, part of the Miter Brands portfolio, was the window and door brand of choice for the 2025 Northwest Idea House. In partnership with Zetterberg Custom

Homes, South Sound magazine's Idea House brought together the design leadership of Greg Zetterberg and the construction expertise of Jeff Zetterberg. Located in Gig Harbor, Washington, the 5,428-square-foot project highlights contemporary Northwest architecture, emphasizing sunlight and modern design.

Oversized picture windows in the living areas bring abundant light throughout the interior of the home. The sliding patio doors connect the home's main living space to its three distinct outdoor

areas: an entertainment patio with an outdoor kitchen, a patio overlooking a sports court and a lower-level pool and spa.

Performance was also a key driver in product selection. The homeowners and Zetterberg Builders prioritized energy efficiency, structural integrity and long-term durability appropriate for Northwest conditions. The V400 Tuscany Series offers energy-efficient glass and enhanced insulation for cold climates, while AX650 doors deliver structural strength and resist harsh weather, balancing large spans of glass with reliable thermal performance and weather resistance. ■

# Gain Traction in Residential Building

See the  
innovation  
powering  
the future of  
fenestration



Register  
Today

**GlassBuild**  
AMERICA  
THE GLASS, WINDOW & DOOR EXPO

September 23-25, 2026  
Las Vegas, Nevada

[glassbuildamerica.com](http://glassbuildamerica.com)



The perfect combination of  
**MAN & MACHINE**

Scan to see cleaner combination.

