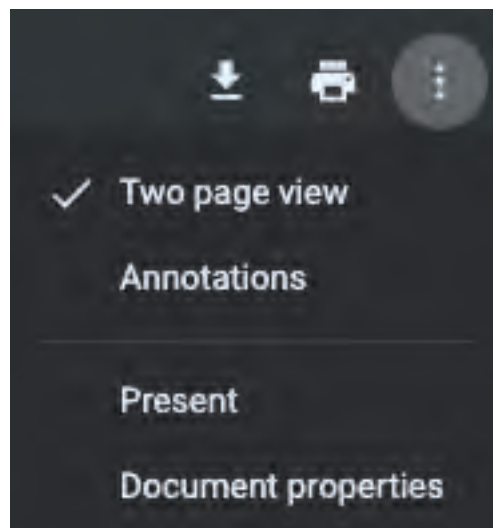


WINDOW + DOOR

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WINDOW + DOOR

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2026
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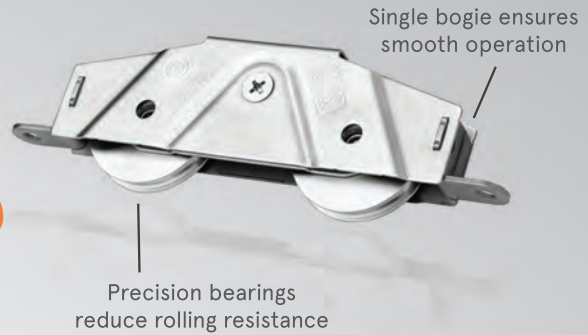


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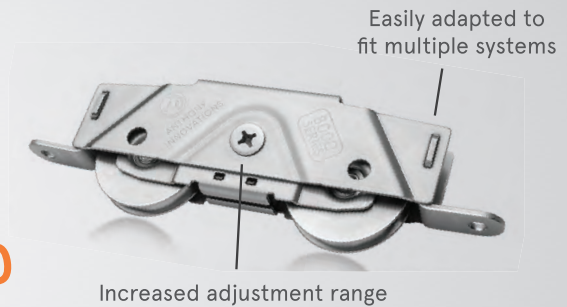
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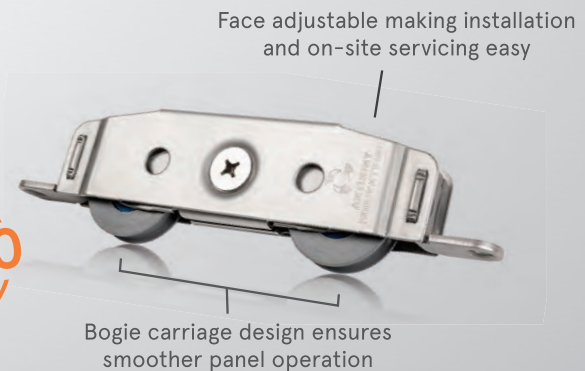
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Residential fenestration coverage, from source to sale // windowanddoor.com // Vol. 34, No. 2 // March/April 2026



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ON THE COVER: High-performance windows offer homeowners energy efficiency, thermal performance and structural integrity. Increasingly, wellness has become a complementary goal with fenestration performance. Fenestration products can support this goal by offering both ventilation and daylight towards supporting occupant health. Photo courtesy of Velux.

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What We Do Matters

Our industry is integral to shaping the homes and buildings people live, work and play in **BY LAURIE COWIN**

There's a moment we all have after working on a project—whether it be as simple as a new dinner recipe or as complex as building a custom home—where we stand back, look and say, “Wow, I did that. I was part of that.” As fenestration professionals, what we do matters deeply. Windows, doors and skylights are a critical element of the home that affects the home's performance and influences its style. There undoubtedly is also an emotional dimension to what we do.

The National Association of Home Builders received nearly 650 submissions for its 2025 Best in American Living Awards and several trends consistently emerge. Homeowners are abandoning the stark, minimalistic aesthetic in favor of darker hues. Window + Door's research backs this up; black and dark profiles continue to grow in popularity, according to our Industry Pulse and Top Manufacturers reports. Read more about co-extruding and lamination for dark colors on In the Trenches on p. 10.

Doors are becoming statements in their own right, with black metal framing, bold paneling, and expansive glass increasingly defining entryways and interior transitions. And the connection to the outdoors—through natural light, warm materials, and seamless indoor-outdoor flow—is no longer a luxury differentiator. It's a baseline expectation.

Nicole Willits, design trend, product and sustainability manager at Pella Corp., has similar takeaways in Pella's 2026 Trends Report. Rather than going bigger and more, she says, homeowners are seeking rooms with more meaning. They're after spaces that invite them to slow down and are designed for longevity. Design expectations are also changing. “Tailored-to-you details used to come with a luxury upcharge,” she says. “In 2026, they're a design expectation.”

Likewise, Brian Leizerowicz, vice president of sales, Western Window Systems, says energy efficiency is no longer a selling point; it's a given. California in particular, where Western Window Systems, does a lot of business, has its Title 24 energy code as a baseline requirement. He views Title 24 as a leading indicator of how energy codes around the country will continue to tighten. Read more about codes updates in Decoded on p. 22.

In windows and doors, the technical and emotional aspects converge into one product. Tell us: What projects have you worked on that make you breathe a proud, “We were part of that” moment? Share them with me at lcowin@glass.org. ■



Laurie

LAURIE COWIN
EDITOR, WINDOW+DOOR

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News

Metrie Acquires Three Businesses from Owens Corning

— Metrie, a North American manufacturer and distributor of millwork solutions, announced the acquisition of BWI Distribution, Louisiana Millwork and Florida Made Door businesses from Owens Corning. This acquisition, Metrie's eighth since 2020, enhances Metrie's total millwork solutions for customers in the eastern U.S., further developing its capabilities across residential solutions, including interior and exterior doors, door systems, and finishing options; and commercial specialties including custom metal, wood, and welded frames, turnkey hardware installation and job-site delivery, and engineered solutions for complex specifications.

Assa Abloy Acquires NSP Security

— Assa Abloy has acquired NSP Security in the U.K., a company providing design, manufacturing and installation of access control solutions primarily within the student accommodation segment. NSP was founded in 1993 and has about 20 employees. The main office is based in Borehamwood, U.K.

Window Nation Expands into Five New Markets

— Window Nation, a pure-play window replacement company, announced the completion of its early-year expansion into five new markets: Grand Rapids, Michigan; Detroit, Michigan; Westchester, New York; Long Island, New York; and Newark, New Jersey. This growth marks the company's entry

into Michigan, further extending its national footprint to 36 Window Nation locations across the United States. Window Nation's recent market expansions, coupled with its acquisitions of Armorvue Window & Door in 2024 and NewSouth Window Solutions in 2025, enhances the company's ability to serve homeowners across the nation, say officials.

Velux Partners with Habitat for Humanity

— Velux announced the expansion of its "Living Places" concept to the United States by partnering with the Habitat for Humanity of York County, South Carolina, which will build multiple homes. During the first initiative in York County, the first U.S. Living Places-inspired builds will be completed on Lige Street in Rock Hill, with three to five Habitat for Humanity homes that each prioritize sustainability and affordability.

The Velux Living Places initiative was developed by the Velux Group, EFFEKT architects and Artelia engineers to create sustainable, healthy and affordable housing. Launched in 2023 in Copenhagen, the initiative challenges the building industry by demonstrating that low-carbon, high-quality homes can be built today using existing technology. It draws on five core principles for residential construction: healthy, shared, simple, adaptive and scalable. Since its launch, Living Places projects have been announced for development in several markets, including the Netherlands, the United Kingdom, Ukraine, and now the U.S.

Cornerstone Building Brands Volunteers to Build Hope for Kids Fighting Cancer

— Cornerstone Building Brands announced a partnership with Roc Solid Foundation to build and donate backyard playsets for children fighting cancer. The initiative, Roc Solid Foundation's largest-ever multi-build program from a single company in its 16-year history, will provide families with moments of normalcy during a difficult journey. Starting in September, during Childhood Cancer Awareness Month, playsets will be constructed and delivered to families in communities where Cornerstone Building Brands employees live and work, spanning North Carolina, Texas, New Jersey, Massachusetts, South Carolina, Ohio, Minnesota, Tennessee, New Hampshire, West Virginia, Illinois and Virginia.

People



Edelbrock

Marvin welcomed *Chris Edelbrock* as vice president of supply chain. Edelbrock brings nearly 20 years of program management and supply chain experience to Marvin, most recently having served as senior director of supply chain at Honeywell Aerospace. Edelbrock also previously held supply chain leadership roles at L3Harris Technologies and The Boeing Co.

At Marvin, Edelbrock will work closely with operations leaders and key external partners to advance sourcing strategies, build out strategic sourc-



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ing capabilities, and strengthen the company's materials management approach.



Krings

NuCoat appointed *Connor Krings* as business development manager. In this role, Krings will focus on expanding NuCoat's customer base, supporting strategic accounts and strengthening relationships across key markets. He will

work closely with NuCoat's outside sales network and internal teams to drive new business opportunities and support customers as they adopt advanced coating technologies.

Stefanie Dennis has been appointed senior manager of internal administration. Dennis will oversee internal operations, customer support and administrative systems.



Manning

Deceuninck North America promoted *Don Manning* to regional sales manager for the Central region.

Manning brings more than 35 years of experience to the role, beginning his career with Deceuninck in 1990 manufacturing windows for the sales and testing departments. Over his tenure with the organization, he has served in a variety of positions, including technical sales representative, quality auditor, quality manager and quality engineer. ■



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Behind Black and Bronze Vinyl Windows

How coextrusion, lamination and testing technologies merge design and performance **BY TRAVIS ARTHUR**

Black and bronze windows have become a hallmark of modern residential design. But as these darker finishes have gained traction, they've also presented some performance challenges for manufacturers and builders. Heat absorption, fading, and surface durability all come into play when moving beyond traditional white vinyl.

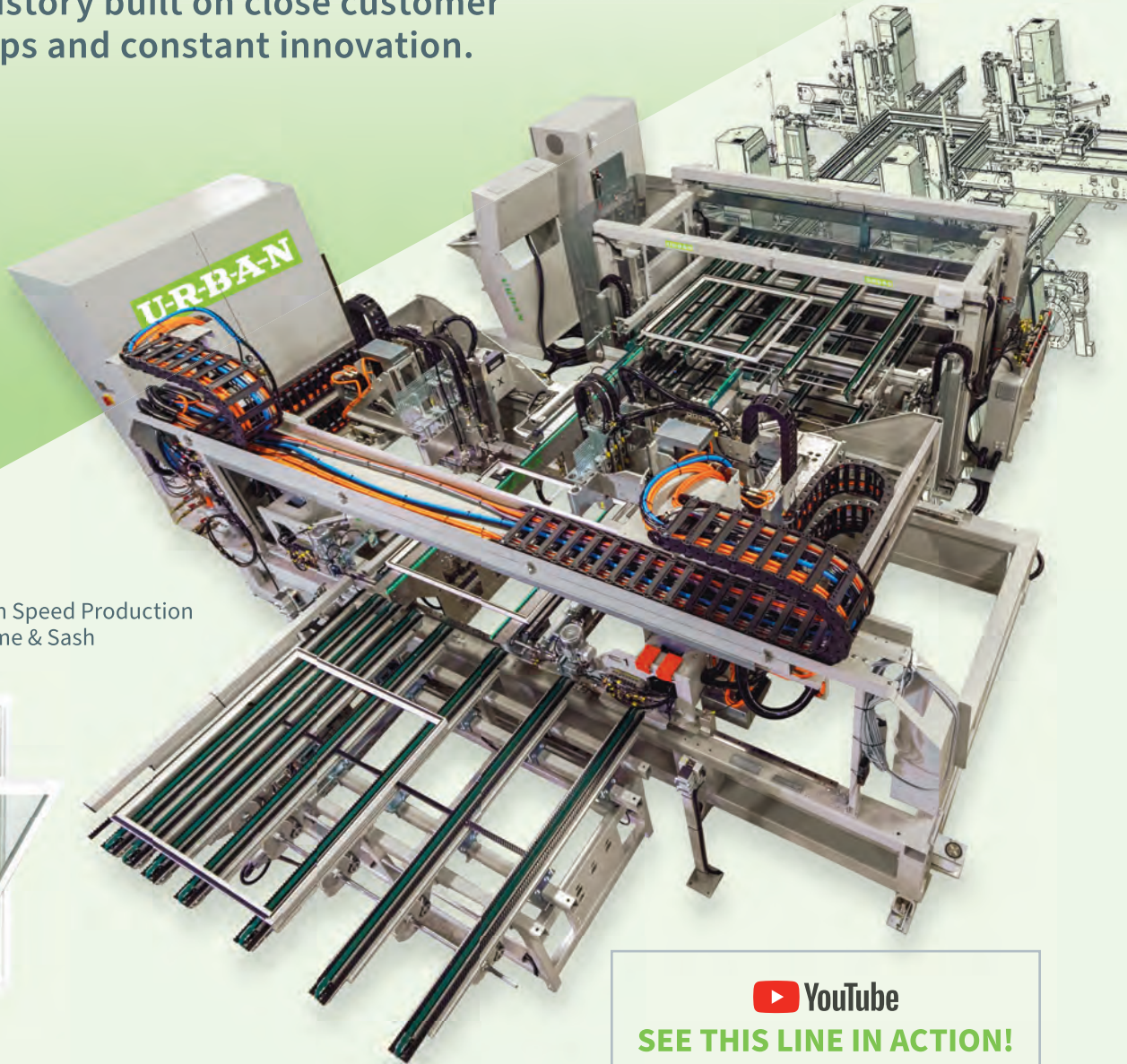
Window manufacturers have to make sure dark finishes hold up as well as white vinyl over time, which presents technical challenges because dark colors behave differently than light ones. They absorb more heat, show scratches more easily, and are more prone to color fading if the materials aren't properly engineered.

Even paint formulated to adhere to vinyl can get scratched, revealing the white substrate. Then there's UV exposure; dark pigments can fade quickly without protection. And because dark profiles can reach surface temperatures 50 to 60 degrees Fahrenheit higher than the surrounding air, that heat buildup stresses the material, affecting dimensional stability and long-term performance.

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The industry is meeting those challenges through the advancement of lamination and coextrusion technologies. Both are engineered solutions that combine color and performance.

Lamination starts with a standard vinyl extrusion, which is then covered with an acrylic film that bonds to the surface. That film provides the color and acts as a protective barrier. The acrylic layer is highly resistant to scratching, fading, and heat buildup, so it maintains its color and gloss for long-term durability. It also performs well in tough climates where temperature swings and UV exposure can be punishing.

Meanwhile, coextrusion fuses two materials together during the extrusion process. An outer layer of colored vinyl is bonded to a white substrate as it comes out of the die. That outer layer is formulated with advanced pigments that reflect heat and resist UV degra-

dation. Because the color is part of the profile itself, it's highly resistant to chipping or peeling, helping maintain its appearance over time.

Testing validates long-term performance of these technologies. We start with small-scale testing (ASTM D4803) to measure heat buildup under controlled conditions. Then we move to full-scale thermal cycling tests (AAMA 1506), which expose complete window units to infrared heat to ensure they maintain structural integrity without warping. Finally, we do extended field testing in high-stress environments—like the Arizona desert—to evaluate real-world color retention and material performance. Those results give us confidence to stand behind the product in any climate zone.

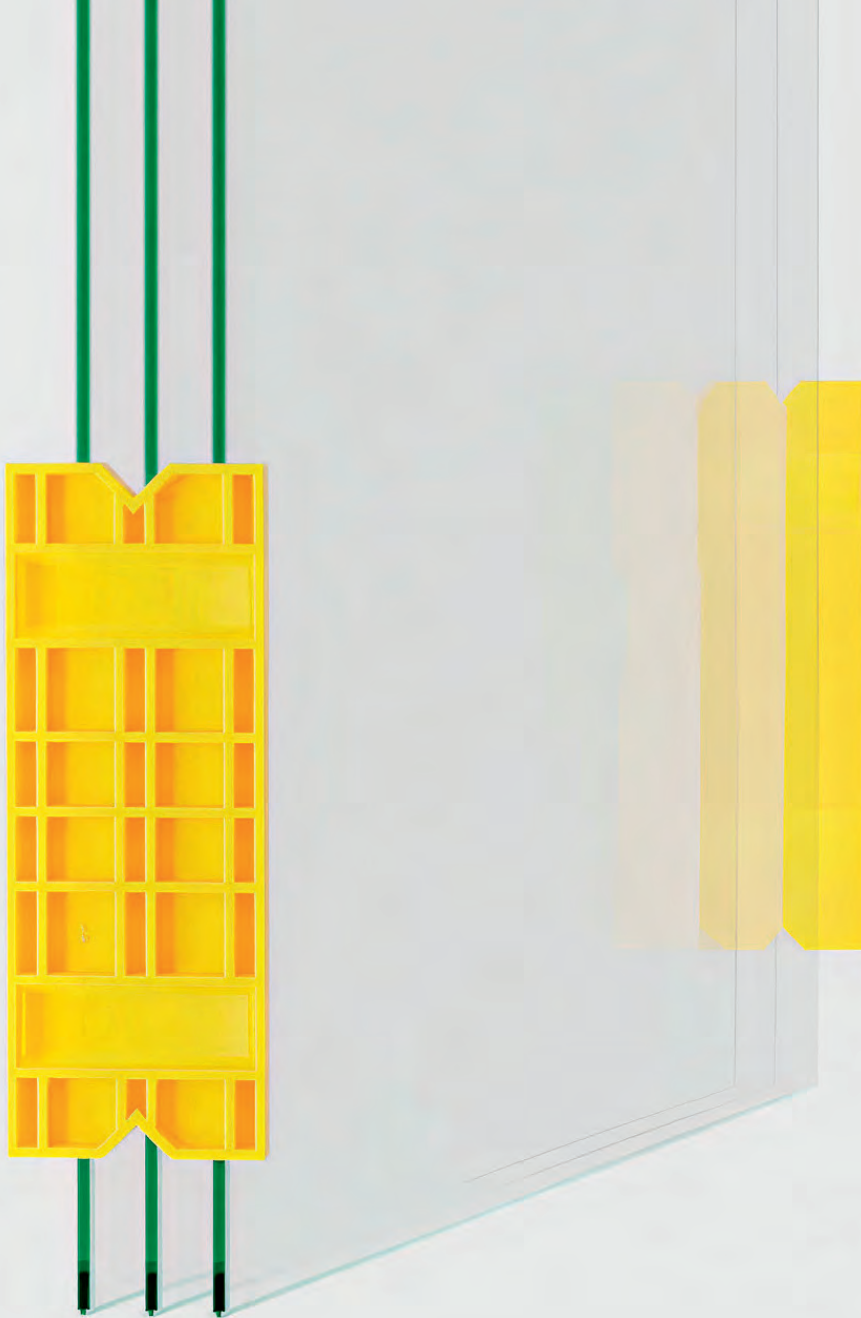
The bottom line is that advanced finishes aren't just about aesthetics; they're about reliability and longevity.

KEY TAKEAWAYS

- 01** Without the right technology, dark-colored vinyl windows face unique technical challenges, including heat absorption (50-60°F above ambient), increased scratch visibility, and accelerated UV degradation.
- 02** Lamination and coextrusion technologies have become the industry standard, offering integrated solutions that bond color and protection at the molecular level.
- 03** Rigorous testing protocols (ASTM D4803, AAMA 1506, and real-world field testing) validate that advanced dark finishes now match white vinyl's durability and thermal performance.
- 04** Modern dark finishes reduce warranty claims and callbacks while enabling dealers to confidently sell premium aesthetics with long-term performance guarantees.

With lamination and coextrusion, you're getting dark finishes that perform on par with traditional white vinyl in terms of durability, thermal stability, and colorfastness. That translates to fewer callbacks, fewer warranty issues, and an easier installation experience. Black and bronze windows aren't just a passing trend. With the right manufacturing technology behind them, they represent a significant and lasting evolution in vinyl window and door design. ■

Travis Arthur is the corporate test and compliance manager for windows & doors at Cornerstone Building Brands, where he oversees regulatory standards, product compliance, and building code integration across brands and product lines. He works closely with industry groups, testing agencies, and internal teams to ensure products meet evolving codes and deliver lasting value.



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Affordability is still a governor to demand. Even with mortgage rates improving, home prices and limited resale inventory keep many households sidelined.

New construction versus repair and remodel

For most manufacturers and dealers, the market is effectively two markets. New construction demand is tied to starts and builder sentiment, while repair-and-remodel is driven by home equity, housing turnover, and household sentiment, which drives homeowners' willingness to take on discretionary projects.

For new construction, especially single-family homes, elevated levels of finished, unsold inventory continue to hamper builders' desire to start new homes. Macroeconomic conditions, coupled with the expectation that prices and rates will fall, are keeping prospective homebuyers on the sidelines. Meanwhile, affordability and homeowner hesitation for big-ticket discretionary purchases are weakening R&R demand.

Headwinds: affordability, lock-in, and input cost uncertainty

Affordability is still a governor to demand. Even with mortgage rates improving, home prices and limited resale inventory keep many households sidelined. In late February 2026, average U.S. mortgage rates dipped below 6% for the first time since 2022, but the housing market remains challenged.

Cost volatility is also returning via trade policy and tariffs. Throughout 2025, manufacturer respondents in our quarterly survey, in partnership with

Bridging the Gap: From Slowdown to Recovery

Rates keep potential homebuyers sidelined as affordability weakens repair-and-remodel demand

BY CHRIS BEARD

After several years of constrained housing turnover and cautious consumer spending, the residential window and door market enters 2026 with mixed signals. The industry is no longer dealing with the acute supply shocks of the early 2020s, but demand remains highly sensitive to affordability, financing costs, and the “lock-in” effect that continues to suppress existing-home transactions. The good news: we’re expecting a slow thaw in 2026 and a more meaningful recovery window (pun intended) opening in 2027, with the caveat that it will be uneven across regions and channels.




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
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➔ Eye on Fenestration

Window + Door Magazine, reported elevated input costs. While the rate of increase slowed slightly between the third and fourth quarter findings—Q3 costs increased by 8% year-over-year, compared to 7% in Q4—these costs do remain elevated. Respondents also noted a lack of significant pricing power: weak demand makes it hard for companies to raise prices.

Tailwinds: rates drifting down and tax rebates

The clearest tailwind is the direction of financing costs. The Federal Reserve is still planning two rate cuts this year, which should push short-term interest rates down, leading to an expected bump in HELOC loans. We believe that this may be a driver for bigger-ticket R&R projects, including window replacement.

Another tailwind is an expected outsized tax refund this year. Payroll

withholdings were not updated for 2025 following the passage of the Big Beautiful Bill, and many households can expect larger tax refunds. This may also be a tailwind to encourage homeowners to undertake home improvement projects.

Expect 2026 to be the bridge—and 2027 to feel different

Many signs point to 2026 as a transition year: improving rates leading to improved consumer sentiment. The administration is focused on policy changes affecting housing, but concrete actions are muted at the moment. Resale volumes should benefit from potential demand stimulus, while lower rates will boost home equity withdrawal. Our Remodeling Index showed that momentum slowed in the second half of 2025. This should stabilize in the first half of this year, with recovery

beginning in the second half. Longer-term, remodeling has become an increasingly important end market. Remodeling accounts for nearly half of overall residential spending, near an all-time high.

On the new construction side, the spring selling season will be crucial to housing starts later this year. While mortgage rates are roughly a percentage point lower than this time last year, macroeconomic uncertainty and policy changes continue to weigh on new home purchases.

While uncertainty continues in the near-term, we believe the backdrop for a return to volume growth in new construction and R&R next year is favorable. ■



Chris Beard is the director of Building Products Research for John Burns Research and Consulting.

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Second-chance Hiring Offers New Talent Pool

The untapped potential of the second-chance workforce for the glass industry **BY RACHEL VITELLO**

At the National Glass Association’s annual BEC Conference, held March 1-3, 2026, in Louisville, Kentucky, Joshua Johnson spoke to attendees about the benefits of second-chance hiring—meaning the hiring of formerly incarcerated, detained or arrested individuals, who he refers to as “justice-impacted.” Johnson himself was previously incarcerated for 10 years and is now the founder of The Redemption Collective, an organization that “helps states, employers and workforce systems to design and implement fair-chance hiring strategies.”

About 600,000 individuals are released from incarceration every year, Johnson says, and just over a quarter of them are unemployed. Despite this, he adds that 85% of human resources professionals report that this demographic “perform their jobs about the same or better than workers without criminal records” because “justice-impacted individuals represent one of the most motivated,



“Justice-impacted individuals represent one of the most motivated, loyal and under-utilized talent pipelines in America.”

loyal and under-utilized talent pipelines in America.”

Johnson’s story

During his presentation, Johnson spoke about his own experience being incarcerated at the age of 17 in 1995. After being released in 2004, Johnson got a job with Walsh Construction thanks to Jay Titus, a leader in the company at the time who decided to give Johnson a chance.

In 2005, Johnson became an apprentice with Laborers’ International Union of North America Local 113 in Milwaukee, Wisconsin, as a construction craft laborer. By

2019, after working his way through the ranks, Johnson had his signature on that same apprenticeship contract for every apprentice in the state of Wisconsin, but this time as the State Director of the Wisconsin Apprenticeship Program.

His story of working his way up throughout the years is one of perseverance and hard work, but also an example of how company leadership can help lift people up by giving people a second chance at employment. Johnson says his career progression post-incarceration would not have been possible without Titus’ help. Unlike Titus, many in leadership see criminal history on

the job application and immediately disqualify that person as a potential candidate. There is a movement right now called “Ban the Box” that seeks to remove questions about criminal history from initial job applications.

Johnson says one thing that Titus did not have at that time was a “structured blueprint for engaging justice-impacted individuals.” In response to a need for this structured blueprint, Johnson created an “opportunity excellence framework.”

“[This is a] simple framework to help employers really try to engage justice-impacted populations,” Johnson said as he quickly walked through the framework, which consisted of leadership at the foundation, as well as employer readiness and skills-based recruitment. “Before organizations can expand access, redesign recruitment or invest in development, they must ensure that their internal structures are

aligned to support people effectively. All of this will start at the top.”

Examples of this framework in action include offering flexibility for required obligations to justice-impacted individuals, like needing to visit with a parole officer, as well as access and transport support, scheduling adjustments, referrals and “helping them access those things they need to be successful,” Johnson says.

What the industry can do

As the glass and fenestration industry continues to face labor shortages and work towards better recruitment and retention, pursuing individuals who have previously been incarcerated could be an untapped demographic of hard workers. Building partnerships to find new labor from this talent pool is key, Johnson says, and advised glass industry owners and leaders to build strong partnerships with

workforce development boards, local community groups and faith-based organizations in order to find justice-impacted individuals to join their workforce. “You don’t need to build a talent pipeline from scratch,” he says. After establishing partnerships, he also recommended that leaders invite members from those organizations to visit their facilities and get to know their business, so that they can better understand what kind of workforce is needed for glazing contractors.

Johnson shared that preconceptions about formerly incarcerated employees can negatively affect retention, especially if employees are not offered competitive wages and the opportunity to grow within the company. “People think of justice-impacted talent as only able to come in and build the widget, not run the line,” he says, a mindset that doesn’t appreciate their full potential. ■



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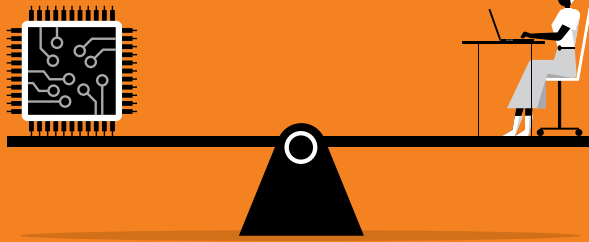
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➔ Your Business Matters

AI at Work

AI can be a powerful tool for refining everyday work, but organizations must protect information and keep humans in the loop

BY JANICE YGLESIAS

There are a lot of questions about artificial intelligence in the workplace, but not a lot of answers when it comes to when and how to use it best. Navigating carefully to protect proprietary information is critical, but there are some much lower-risk approaches that yield valuable efficiencies. While I don't think anyone should see AI as the first and last stop on any project, it can be a good "refiner" of content you have already created yourself.

Protect your IP

At the Fenestration and Glazing Industry Alliance, we have carefully deliberated the roles AI should and should not play in carrying out daily work. When making these decisions, we had to think about AI's limitations and risks. For example, a big one is the threat to intellectual property. Once something is uploaded to AI, its ownership and accessibility to others becomes precarious, especially without using a paid version that may offer additional security.

With respect to privacy concerns

and the protection of confidential and proprietary information, FGIA does not use AI for document development or for minute-taking for committee and task group meetings. But in more appropriate situations, AI can be a very useful tool. Try to think about using AI as an "amplifier" rather than as a "creator." Through that lens, non-proprietary content can be uploaded for refinement, which can greatly expedite the completion of daily work and create much-needed efficiencies, given how many employees are stretched thinner than ever.

Save time with AI

For our part, FGIA has identified the following as time-saving examples of AI use, some of which you may be able to apply at your own company:

- Polishing or abbreviating content, like reports, or checking for grammar
- Revising the tone of content to make it more conversational or more formal

- Refining promotional messages and standard customer communications
- Creating renderings for stage or room layouts for events
- Developing initial, not final, draft agreements to reduce legal fees
- Producing an annual report of accomplishments and value proposition
- Tracking regulatory and legislative issues to learn about new developments
- Notetaking for internal or vendor meetings (without confidential or proprietary information) if all parties involved agree to its use

Content review

The above types of AI inputs are lower risk because the prompts are more innocuous since they don't include confidential or proprietary information. However, it is critical for all AI-generated content to be thoroughly reviewed by a human for accuracy, tone and context before being shared externally. This ensures quality control and prevents the spread of misinformation or off-brand messaging.

Copyright

Another interesting part of AI is the question of copyright. Anything generated solely by AI may not be copyrightable by an organization. Human creative input is necessary to claim ownership. It is generally recommended that AI users keep total AI content under 20 to 30% of a final product. Some additional important tips include knowing the parameters of your AI tool's terms of service and complying with your company's policy on using AI.

It may feel like the wild, wild west now, but AI certainly has potential. Just remember that the human factor is essential to any final work. ■



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.

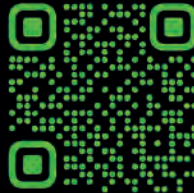


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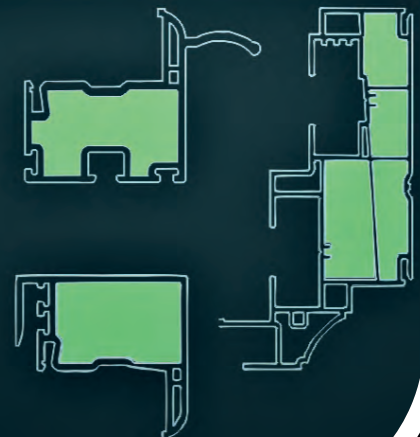
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2027 Residential IECC Nears Completion

Prescriptive performance requirements among key changes for fenestration **BY JOHN CROSBY**

The International Code Council is in the final stages of developing the 2027 International Energy Conservation Code, with publication expected this fall. While most residential updates carry limited direct impact on the fenestration industry, several proposals are worth noting.

Increases to prescriptive fenestration requirements

In collaboration with an advocacy organization, the fenestration industry—including Window & Door Manufacturers Association, Fenestration and Glazing Industry Alliance and the

National Glass Association—helped advance a proposal that increases prescriptive performance requirements for vertical fenestration in most climate zones while maintaining climate-appropriate, cost-effective efficiency levels. The approved revisions for vertical fenestration include:

U-factor

- Climate Zones 0 and 1: reduced from 0.50 to 0.45
- Climate Zone 2: reduced from 0.40 to 0.35
- Climate Zones 5 and 6: reduced from 0.28 to 0.27

- Solar Heat Gain Coefficient
- Climate Zones 0–3: reduced from 0.25 to 0.23

These incremental adjustments continue the trend of incremental improvements while recognizing manufacturing realities and market feasibility.

Across-the-board 5% efficiency increase

Another approved proposal requires an overall 5% increase in residential energy efficiency. Compliance may be achieved either by adding five

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“Additional Energy Efficiency Credits” (each credit represents roughly 1% in efficiency improvement) when using the prescriptive compliance path or by demonstrating an additional 5% reduction in energy cost when using the performance compliance path.

Although this change does not directly alter fenestration criteria, it increases pressure on builders and designers to capture additional efficiency gains. Whether those gains come from enhanced insulation, higher-performing windows, tighter building envelopes, improved HVAC systems, or on-site renewable energy will vary by project.

High-altitude exception remains at 4,000 feet

A proposal that drew attention from window manufacturers sought to modify the high-altitude exception for window performance. Under the

A proposal that drew attention from window manufacturers sought to modify the high-altitude exception for window performance.

current residential IECC, windows installed at elevations of 4,000 feet or higher may have a maximum U-factor of 0.30, even in climate zones with more stringent prescriptive requirements. Proposal REPC8-25 would have raised the elevation threshold to 6,500 feet.

WDMA and FGIA opposed the change, citing technical and economic concerns. In late February, the Residential Energy Code Committee voted 17-1 to reject the proposal, preserving the 4,000-foot definition in the 2027

IECC. The same 4,000-foot threshold will appear in the 2027 Commercial IECC and ASHRAE 90.1-2025, maintaining alignment across model codes.

The exception reflects long-standing technical considerations. Historically, windows installed at higher elevations relied on breather tubes rather than fully sealed insulating glazing units to accommodate pressure differentials between manufacturing and installation locations. While argon-filled insulating glass units can improve U-factor performance by 0.02 to 0.03, sealed units may face stress and durability challenges at higher elevations.

Although some manufacturers have introduced pressure-compensation technologies, these systems require separate processing and handling steps that are difficult to integrate into standard production lines, increasing costs. No cost-effectiveness analysis was presented to support the proposed change.

What's next

While final publication remains subject to completion of the ICC process, including approval by the ICC board of directors, these proposals have cleared key hurdles, and the committee's decisions are likely to remain when the code is published. ICC typically releases new editions of the International Codes in the fall preceding the code year, and the 2027 IECC is expected to follow that schedule. Once published, states will begin adoption processes, with early adopters likely implementing the code in 2028.

For the fenestration industry, the 2027 cycle signals continued incremental performance gains, increased emphasis on whole-building efficiency, and retention of technical provisions that reflect real-world manufacturing and installation conditions. ■



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

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← THE ESTIMATED TOTAL PROJECTED U.S. RETAIL VALUE FOR RESIDENTIAL AND COMMERCIAL SECURITY SCREEN FOR WINDOWS AND DOORS COULD GROW TO MORE THAN \$2.1 BILLION. PHOTOS COURTESY OF UHD INNOVATIONS.

STANDARDIZING

Security

f

or years, the term “security screen” has been used without a consistent way to verify what that claim meant. No North American benchmark existed to define minimum performance expectations or to distinguish true security products from standard insect screens.

This changed in June 2025 with AAMA 1901, Specification for Security Screen Products, developed by the Fenestration and Glazing Industry Alliance. The new standard establishes performance-based requirements for security screens used with residential windows and doors, creating a common reference point for manufacturers, specifiers and consumers. “Anybody could call their screen a security screen until AAMA 1901 came along,” says Ray Garries, Global Fenestration Advisors’ founder and president.

CERTIFICATION AND CONSUMER CONFIDENCE

Security screen manufacturers meeting the AAMA 1901 specification soon will be eligible for certification. Jason Seals, FGIA Certification Services Manager, Fenestration, anticipates the certification program will be available by the end of June 2026. Independent of FGIA membership status, certified products appear in FGIA’s verified components list and are labeled as AAMA-certified products.

Like an AAMA Gold label on certified windows and doors, Garries explains, “The consumer will know it’s a certified product, which means it was built the right way, and it was inspected at the factory. You have quality assurance verified with that label, and that it was built to standards that give you confidence as a consumer.”

AAMA 1901 covers hinged and sliding security screen doors, and fixed, hinged and sliding security screen window products. It pertains to both aftermarket add-on products and OEM products integrated into prime doors or windows. Installed on the exterior, security screens are intended to protect glass from opportunistic intrusions while allowing ventilation and visibility.

A NEW INDUSTRY STANDARD BRINGS PERFORMANCE-BASED TESTING, CERTIFICATION AND CONSUMER CONFIDENCE TO A PRODUCT CATEGORY THAT PREVIOUSLY HAD NO NORTH AMERICAN BENCHMARK

STANDARDS IN DEVELOPMENT

The AAMA 1901 specification resulted from three years of effort by the FGIA Security Screens Task Group. Garries co-chaired the task group first with Jeff Bell, UHD Innovations’ president and CEO, and now with Dan Parrish, UHD Innovations’ vice president of product development. Assisting FGIA, Bell presented a security screen specification from Standards Australia, which had been in use for more than 20 years. “Jeff brought a real vision to the task group,” notes Seals. “With permission, FGIA adapted the Australian standard with modifications for the North American market.”

“This was a real team effort,” shares Bell. “We invested the time to get the details correct and in complete alignment with the industry team of over 20 companies, followed by a successful ballot with FGIA membership.”

Garries says the task group “decided to make the first version simple: It’s pass/fail. But it’s not an easy test to pass.”

“AAMA 1901’s focus is to present a performance-based specification,” elaborates Seals. “It doesn’t matter what materials are used; it matters that it passes the test. There’s also no need to prescribe how it’s installed if it passes.”

BY HEATHER WEST

Screens

← AAMA 1901, SPECIFICATION FOR SECURITY SCREEN PRODUCTS, COVERS HINGED AND SLIDING SECURITY SCREEN DOORS, AND FIXED, HINGED AND SLIDING SECURITY SCREEN WINDOW PRODUCTS. PHOTO COURTESY OF FGIA.



OPPORTUNITY AND SCOPE

“The slowdown in housing turnover has put a lot of pressure on window and door sales,” observes Bell. “This type of add-on product creates incremental revenue without increasing unit sales. Plus, it meets a need that many consumers have for safety and security.” The estimated total projected U.S. retail value for residential and commercial security screen for windows and doors could grow to more than \$2.1 billion, according to commissioned research from UHD Innovations.

“Market growth is wide open,” says Adam Wilson, vice president of sales and new business development for Quanex, who participated in the FGIA Security Screens Task Group. “Security is an emotional purchase, which has no boundaries.”

“There are 100 different ways to get into a house,” acknowledges Seals. “The scope of AAMA 1901 doesn’t consider someone with a battery-powered angle grinder, the jaws of life, or hooking a truck winch onto a screen and driving away. It’s for security only.”

TESTING AND CLASSIFICATIONS

Forced-entry performance requirements for windows and doors are described in AAMA/WDMA/CSA 101/I.S.2/A440 - North American Fenestration Standard/Specification for windows, doors, and skylights (NAFS). “NAFS excludes glazing impact. It considers someone pushing, pulling and prying to try to gain access through a window or door without breaking the glass,” says Seals. “AAMA 1901 concentrates on the security screen and its role in protecting the glass when someone is willing to break it.”

AAMA 1901’s testing is conducted on the screen material and on the window or door screen assembly. Assembly testing simulates repeated

impact and forced-entry attempts, followed by prying and pull tests at locking points. Additional shear and knife shear testing of the screen material is required.

The two screen material types are: Type 1 screen material has openings small enough to prevent an arm, but too large to prevent insects from passing through. Type 2 screen material is small enough to prevent many small insects.

The three screen assembly classes are: Class A - permanent/fixed, Class B, permanent/operable, and Class C removable/operable. Class B and C operable products must be capable of being unlocked and opened with keys, tools, etc.



↑ AAMA 1901'S TESTING IS CONDUCTED ON THE SCREEN MATERIAL AND ON THE WINDOW OR DOOR SCREEN ASSEMBLY. ASSEMBLY TESTING SIMULATES REPEATED IMPACT AND FORCED-ENTRY ATTEMPTS, FOLLOWED BY PRYING AND PULL TESTS AT LOCKING POINTS. PHOTO COURTESY OF UHD INNOVATIONS.

← PHOTO COURTESY OF QUANEX

NEAR AND FUTURE APPLICATIONS

Currently, the FGIA Security Screens Task Group remains focused on gaining traction for AAMA 1901 and finalizing certification. “Eventually, we want to get it in NAFS,” says Garries. “NAFS has many different components and tests. When it’s in NAFS, it can be referenced in a building code. Then, it’s very clear to the builder: if you want to put a security screen in, it’s got to meet 1901, and it’s got to be certified and labeled—just like a window—to make sure it’s safe. We have many tasks to complete before asking for NAFS inclusion, but it will be soon.”

Through AAMA 1901’s balloting process, Garries and the task group received hundreds of comments. “Suggestions included expanded

performance levels and nonresidential applications, and we are reserving those for later versions,” he recalls.

Addressing safety, AAMA 1901 emphasizes compliance with egress, ASTM F2090 fall protection, NAFS, codes and other project-specific requirements.

Beyond fall protection, Parrish is leading an ASTM task group to develop a new test method evaluating the heat attenuation and ember resistance of noncombustible screens over windows and doors. He said the ASTM task group plans to send the first draft ballot in September 2026.

Referencing wildfire studies, he explained, “Many times the glass will break, or window framing materials can soften, allowing glass to become

dislodged. And then, that’s one of the first points of fire entry that will cause you to lose a home. Our goal is to attenuate the heat first and foremost with the screen mesh, which, in theory, could attenuate about 50% of the heat.”

Along with property protection, manufacturers see other consumer benefits for security screens. For example, UHD Innovations’ research projected the \$109.6 billion U.S. pet industry could support an additional \$1 billion of incremental retail sales in this product category. Bell says, “There’s no standard around pet resistance, other than general durability claims. But, we know if it’s security proof, it’s going to be pet proof. It’s another aspect of the multi-use benefits of these products.” ■

the Science Behind *a* Healthier Home

*How ventilation and daylighting are
redefining wellness in residential
design*

BY ROSS VANDERMARK

In

the race toward high-performance homes, we've long prioritized energy efficiency, thermal performance, and structural integrity. An additional priority is rapidly gaining ground: human health. From builder show floors to architectural firms, performance and wellness are now seen as complementary goals, improving the way homes are designed and built. At the heart of this lies the building envelope, transformed from a static barrier into a dynamic tool for improving indoor air quality and supporting human wellbeing.





With solutions like the Velux Solar Powered Fresh Air Skylight System, venting is as simple as pushing a button or setting a schedule through smart home automation. The system can also be paired with smart sensors to automatically monitor and open or close skylights to maintain a healthier indoor climate.



Research Spotlight: The Measurable Impact of Skylights

A study by Group14 Engineering, a Denver-based consulting firm specializing in building energy and resource efficiency, examined how quickly homes could recover indoor air quality after a contamination event (such as cooking or cleaning).

Group14 conducted single-tracer gas decay tests using the EnergyPlus V8.0 measurement tool. A harmless tracer gas was released into a well-mixed home at a controlled rate for one hour and then monitored concentrations over time. The speed at which the gas levels declined indicated how quickly fresh air replaced stale indoor air, a metric known as the "age of air." A younger age of air translates directly into healthier living conditions, since it reflects faster dilution of indoor pollutants and a reduced burden on occupants' respiratory systems.

The study modeled the impact in a typical two-story, 2,000-square-foot home in Boston. The results provide compelling evidence for including venting skylights directly in the building envelope.

In a code-built home:

- Venting skylights reduced contaminant concentration to normal levels within 3 hours
- Compared to 1.75 days without ventilation

In a high-performance home:

- It took 5 hours with skylights
- Versus 2.25 days without ventilation

That's 15 times faster contaminant removal with venting skylights in the baseline home and 11 times faster in the tighter-built model. The use of skylights creates a rapid air exchange, drastically shortening the "age of air" in a home, which directly correlates with reduced occupant exposure to harmful particles and VOCs.

The result? Fresher indoor air, reduced reliance on mechanical HVAC systems, and a home environment that quite literally breathes easier.



With Velux Skylight Systems pre-installed shades, homeowners can balance light and comfort right from a remote control or app. Shades allow natural light to pour in when it's wanted, or provide total light control and improved thermal performance when it's not.



Why our homes need to breathe

The U.S. Environmental Protection Agency estimates that Americans spend approximately 90% of their time indoors, breathing air that can be two to five times more polluted than outside, and, in extreme cases, even up to 100 times worse.

This pollution isn't coming from factories or highways. It's generated indoors through everyday activities: cooking fumes, dust, breathing, bathing, chemical residues from cleaning products, and off-gassing from building materials and furniture. While tighter envelopes are critical for energy efficiency, they can trap these contaminants unless designed with adequate ventilation.

All of this can take a serious toll over time. According to the National Institute of Environmental Health, poor indoor air quality is directly linked to increased risks of asthma, allergies, respiratory infections, cardiovascular issues, and cognitive decline. That's why the American Lung Association recommends venting out your home for at least 15 minutes each day; additional studies suggest venting two to four times daily is best for optimal indoor air quality.

Ventilation as a wellness strategy

The most effective way to achieve natural ventilation is by leveraging the stack effect, which occurs when warm air rises and escapes through high openings, drawing in cooler air below. The greater the temperature difference and the higher the opening, the stronger the effect.

That's where skylights come in. Positioned high in the envelope, they maximize the stack effect by acting as natural exhaust points for warm, stale air to escape quickly and efficiently. When this process is integrated directly into the envelope through both skylights

and windows, it creates a passive but powerful air-exchange system.

In this context, high-performance windows and skylights are more than architectural features. They are part of the home's wellness infrastructure, ensuring a healthier indoor environment.

The wellness benefits of natural light

Beyond ventilation, skylights bring another essential wellness benefit into the home: natural light. Under comparable conditions, skylights deliver nearly twice the daylight per square foot as vertical windows of the same size. They also provide overhead access to the sky and bring daylight into interior rooms that might otherwise depend entirely on artificial lighting. The result is a softer, more balanced distribution of light that can make spaces feel larger, brighter, and more inviting.

The benefits extend well beyond aesthetics. Natural daylight supports vitamin D production, a critical component of immune health, and plays a direct role in mental wellbeing. Studies show daylight boosts mood by stimulating serotonin and helps regulate circadian rhythms, which govern sleep cycles, alertness, and overall health. Based on several studies published in the National Library of Medicine, greater exposure to daylight has been shown to improve sleep quality, productivity, and overall wellbeing. Daylighting also reduces reliance on electric lighting, lessening eye strain and cutting energy use at the same time.

This connection between light and human health lies at the heart of biophilic design, a design approach emphasizing the importance of

incorporating natural elements into our living spaces. Whether it's daylight, views of the outdoors, or a fresh breeze, biophilic elements in the home foster comfort and calm. Skylights are especially powerful in this regard because they channel daylight into the core of a space, making rooms feel more open, alive, and restorative.

The next chapter for the building envelope

For builders and remodelers, skylights are also a straightforward addition to the building envelope. Velux skylights, for example, install without wiring or electricians, making it easy to integrate into both new construction and retrofit projects without disrupting workflow. This simplicity enables construction professionals to deliver meaningful wellness upgrades—including better air quality, more daylight, and greater comfort—without adding complexity to the build.

As science continues to show, the building envelope is the foundation of a healthier home. By combining natural ventilation with abundant daylight, today's windows and skylights turn the building envelope into an active wellness system that supports physical and emotional wellbeing for years to come. ■

Ross Vandermark is the national product manager for Velux America. He led four years of research to develop and launch the Velux Skylight Systems, a first-of-its-kind product designed for total light control, enhanced energy efficiency, and homeowner convenience featuring a pre-installed, remote-controlled, solar-powered shade. Learn more at veluxusa.com.



Window + Door: Let's start with the basics. What sets Quanex apart in the screen market?

Jamie Hartford: From standard window and door screens to fully custom-engineered screen systems, Quanex manufactures screen solutions built for precision fit, durability and seamless integration. Our capabilities span from roll form and extruded frames to mesh options, reinforced corner construction, custom sizing, broad finishes options, and scalable production programs. But what truly differentiates us is not just the quality of the screen itself—it's how we support our customers beyond the product.

Jeff Sieg: Exactly. When customers choose Quanex, they gain more than a screen supplier. They gain a strategic partner. Through integrated systems, engineering collaboration, automated ordering and just-in-time delivery, we help manufacturers drive efficiency, reduce handling and unlock long-term operational savings.

WD: Tell us about your automated ordering system.

JH: One of the key solutions we offer at Quanex is a fully automated ordering system through EDI. It is completely customizable and eliminates manual entry errors. The system includes an electronic scan feature called ASN, or Advanced Shipping Notice, that enables efficient single-scan receiving. Our customers can scan once, and the data flows electronically directly into their system. We manage all the programming on the back end to simplify the process for them. It is highly cost-effective for both us and our clients because you do not need someone manually entering purchase

Beyond the Screen

Quanex explores how operational efficiency and great customer experiences create and deliver value beyond the product **BY TARA LUKASIK**



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In today's competitive and rapidly evolving fenestration market, manufacturers face mounting pressure to optimize operations, reduce costs and accelerate production timelines—all while maintaining quality and meeting increasingly complex customer demands. This environment has transformed the supplier relationship from a simple transactional exchange into a strategic partnership, where operational efficiency and exceptional customer service deliver measurable value far beyond the product itself.

Window + Door sat down with Jamie Hartford, customer service manager, and Jeff Sieg, director of operations, at Quanex to discuss how their comprehensive screen solutions deliver operational efficiencies and long-term savings for window and door manufacturers.

orders. The result is faster processing, fewer errors and significant labor savings on both ends.

WD: How does your custom packaging and bundling work?

JS: Our EDI process streamlines receiving significantly. When we bundle products, there is just one scan—that's it. Customers don't have to manually scan every single screen into their system to confirm receipt, move them to the loading dock and then scan them all back out when they are ready to ship. With our EDI bundling system, one scan captures the entire bundle, eliminating all those redundant steps and the labor that goes with them.

Packaging developments over time have yielded positive impact for our customers. Our options span from bulk pack to house pack to single pack, and offer a nimble and impactful solution for our customers. They can choose the configuration that best suits their needs and many take advantage of our packaging solutions to drive value into their own value stream. In addition to our multiple options, our shop floor manufacturing execution system provides customers with options to develop a custom labeling solution. Integrating with Quanex systems opens doors to drive customization that can reduce handling at the customer level.

WD: What about your sequencing and just-in-time delivery capabilities?

JS: Our sequencing process allows screens to be ready for immediate use, moving straight from the truck to the customer's production line. If you need our truck there at 7:00 a.m., we'll be there at 7:00 a.m. They unload our carts directly onto their produc-

tion floor. As the windows or doors move down the assembly line, workers simply pull the screen from the cart, in order, and install it—no warehousing, no repackaging and no searching for inventory. This approach cuts labor costs, reduces storage and inventory needs, and streamlines just-in-time delivery.

WD: How do these efficiencies translate to cost savings for customers?

JH: The value extends beyond the quoted price. Just-in-time delivery supports direct line flow, reducing inventory storage, handling and tracking requirements. End-to-end scanning provides real-time visibility, eliminating time lost to locating misplaced packages. Together, these process efficiencies lower operational costs and improve throughput across the business.

JS: We have even collaborated with customers where we've completely pulled their entire screen operation out of their facility and taken the whole business. We go out to their facilities and realize they've got all this space dedicated to screens, and their expertise should just be in making windows and doors. We can take the entire screen process out of their facility and give them room to put something different there, and more people to make windows and doors.

We are driving savings at the plant level for our customers. We see our value in absorbing inefficiencies our customers may have that prevent them from manufacturing more windows and patio doors. Our goal is to partner with a customer and figure out how we can support them with a goal to utilize their plant capital to build more windows and doors. From a high level,

savings include, but are not limited to, added floor space due to inventory reduction, reduction in overhead and packaging waste, reduction in multi-handling product and lead-time, and reduced over-buys, which stabilizes the supply chain.

WD: This system did not develop overnight. How has customer feedback shaped your processes?

JS: The reason we can adapt so quickly comes down to the seamless connection between our customer service team doing the listening and our fantastic engineering support group responding to what they hear—identifying the problems, determining what we need to monitor and implementing the necessary changes. Much of the machinery in our facilities was built from the ground up by our engineers specifically to manufacture these products and offer time-savings solutions. We are not outsourcing to third parties for the equipment that makes everything we produce. Our customer service team excels at filtering customer feedback directly to engineering, and engineering is constantly modifying and improving our processes in response.

One of Quanex's core competencies is continuous improvement in everything we do. Our system has evolved over the years and continues to evolve daily driven by feedback from all that interact with it. We listen to the needs of our associates and our customers and blend their needs to offer the most comprehensive and efficient solution possible. If we can dream it, we can build it. ■

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02

02. Euro-Wall

Euro-Wall purpose-built its Horizon Multi Slide, a sliding door system, to handle the demands of coastal environments while maintaining modern aesthetics, efficient installation and easy serviceability, say company officials. Its updated sill geometry, panel-to-sill connections and a flatter sill profile all support effective water management and durability. Hidden anchors, screw covers and replaceable rollers simplify installation and long-term service. Horizon Multi Slide features slim sightlines and clean architectural presence, according to the company.

888/989-3876 | EURO-WALL.COM

Product/Solution



Key features

- Ease of installation
- Contemporary design
- Efficient, reliable locking

Roto 9900S Handle & 2-Point Mortise Lock // Roto North America

Challenge

Two-piece handle designs create a more challenging installation for the door manufacturer due to the need for precise alignment, tolerance stacking and assembly complexity. Similarly, hook-style mortise locks require extremely precise alignment, making them prone to jamming, difficult operation and failure when the door shifts.

Solution

Roto's 9900S one-piece handle streamlines and simplifies the installation process for the manufacturer, while our 2-point bolt-style mortise lock allows for easier alignment that's more tolerable of shifts and frame inconsistencies than hook-style locking systems.

Options

The 9900S handle is available in both locking and non-locking versions, and the powder coat colors are done in-house. The 2-point mortise lock is available in 304 stainless steel or regular steel with tuck-style, cup and flat trim plate options.

Results

Door manufacturers appreciate the reduced assembly time of the one-piece handle and highlight that the 2-point bolt-style mortise lock delivers reliable function and robust security that pairs seamlessly with it. Together, the 9900S one-piece contemporary handle and 2-point mortise lock creates a streamlined sliding patio door system that is easier to install in the field and more tolerant of natural shifts.

For more information, visit rotonorthamerica.com or call 860/526-4996. ■



01



03



02

01. ActivWall

ActivWall Tilt+Turn windows feature concealed hinges and dual-function operation for ventilation and easy cleaning. Tilt and turn windows from ActivWall feature the latest German hardware innovations from Roto. ActivWall Tilt+Turn windows complement all ActivWall products, including gas strut windows, pivot doors and folding units.

276/634-0085 | ACTIVWALL.COM

02. Novatech

Novatech's Infinite-Black door glass is designed for the entrances of contemporary homes. Infinite-Black glass features a fine grooved, reeded texture and shadowy black finish. This door glass filters light while gently obscuring the view, adding depth and elegance, while creating a semi-private entryway for the home.

609/484-1600 | GROUPENOVATECH.COM

03. ODL Inc.

ODL Inc. launched an expanded selection of wind-borne debris region-rated and High Velocity Hurricane Zone-rated fiberglass doors, along with its updated Keystone Impact-Rated frame and new decorative glass options. Combined with ODL's impact-rated door glass and frame solutions, the offering delivers more than 1,000 tested and approved configurations to help meet stringent coastal and high-wind code requirements.

616/772-9111 | ODL.COM



04



05



06

04. Panoramic Doors

Panoramic Doors' Slide-Pivot-Stack technology allows panels to glide, pivot and stack independently so entire walls can disappear, officials say. Panoramic Doors' systems include High Velocity Hurricane Zone-rated options, California Title 24-compliant products and thermally broken insulating glass for superior structural and energy performance.

760/722-1250 | PANORAMICDOORS.COM

05. Johnson Hardware

The 200SDSC Soft Operating Sliding Bypass Door Hardware set by Johnson Hardware helps ensure smooth and quiet movement of oversized, solid-core architectural doors weighing up to 330 pounds each. The product line is offered in two-, three- or four-door configurations and in sets for standard door sizes or by individual parts for custom installations. A quick-release locking tab allows for easy door removal. The precision-extruded track is available in up to 16-foot lengths.

574/293-5664 | JOHNSONHARDWARE.COM

06. Quattrolifts

The Nomad 880 from Quattrolifts is a small vacuum handling machine that can be broken down into three sections weighing about 50 pounds each, that can then be loaded onto a small truck to transport to site and then assembled by two operators. The Nomad has a lifting capacity of 880 pounds and can be upgraded to 1,100 pounds. The Nomad can be used for the transport and installation of glass, windows and stone.

301/748-7127 | QUATTROLIFTS.COM

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The Table Is Big Enough

By Tara Lukasik

At GlassBuild America's Women in Glass + Fenestration: Women Leaders Panel in November last year, two of the construction industry's most influential women took the stage for a candid conversation about leadership, visibility and the work still ahead. Lakisha A. Woods, CAE, president and CEO of the National Glass Association, and Sheronda Carr, CEO of the National Association of Women in Construction, didn't hold back—offering hard-won wisdom, personal stories and a clear-eyed vision for what the industry must become.

Showing up, even before you're ready

Both leaders agreed on one thing immediately: waiting for the “right moment” to step into visibility is a mistake. Woods framed it simply: the industry needs your story now, not when you've reached the top. “You do not need to be the expert to post,” she says. “People love the story of the journey. The best part of the story is the hard part—where the hero struggles. Share that, because someone else is watching, thinking no one else feels this way but me.” Carr echoed that call to action, connecting personal brand to industry-wide impact. “Show up as your best self, always, with a spirit of excellence in all that you do,” she says. “Whether you think people are looking at you or not, your personal brand is extremely important.”



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WINDOWANDDOOR.COM



The New American Home 2026

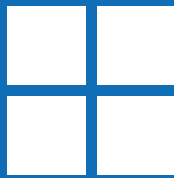
Showcasing Innovation

Project: The New American Home 2026, the official show home of the NAHB International Builders' Show

Products: Products by Euro-Wall including Vista DS fixed window system; Clopay's new Avante Door with C'Power garage door; and several DSA Doors systems, including its Luxe pivot doors.

Description: The 2026 New American Home, unveiled every year as part of the National Association of Home Builders' International Builders' show, is built to showcase the latest innovations in home building products, designs and techniques. “Every detail of the home was thoughtfully crafted to push the envelope in energy efficiency, sustainability and modern livability,” says a representative of New American Home builder Alair Homes – Orlando. ■

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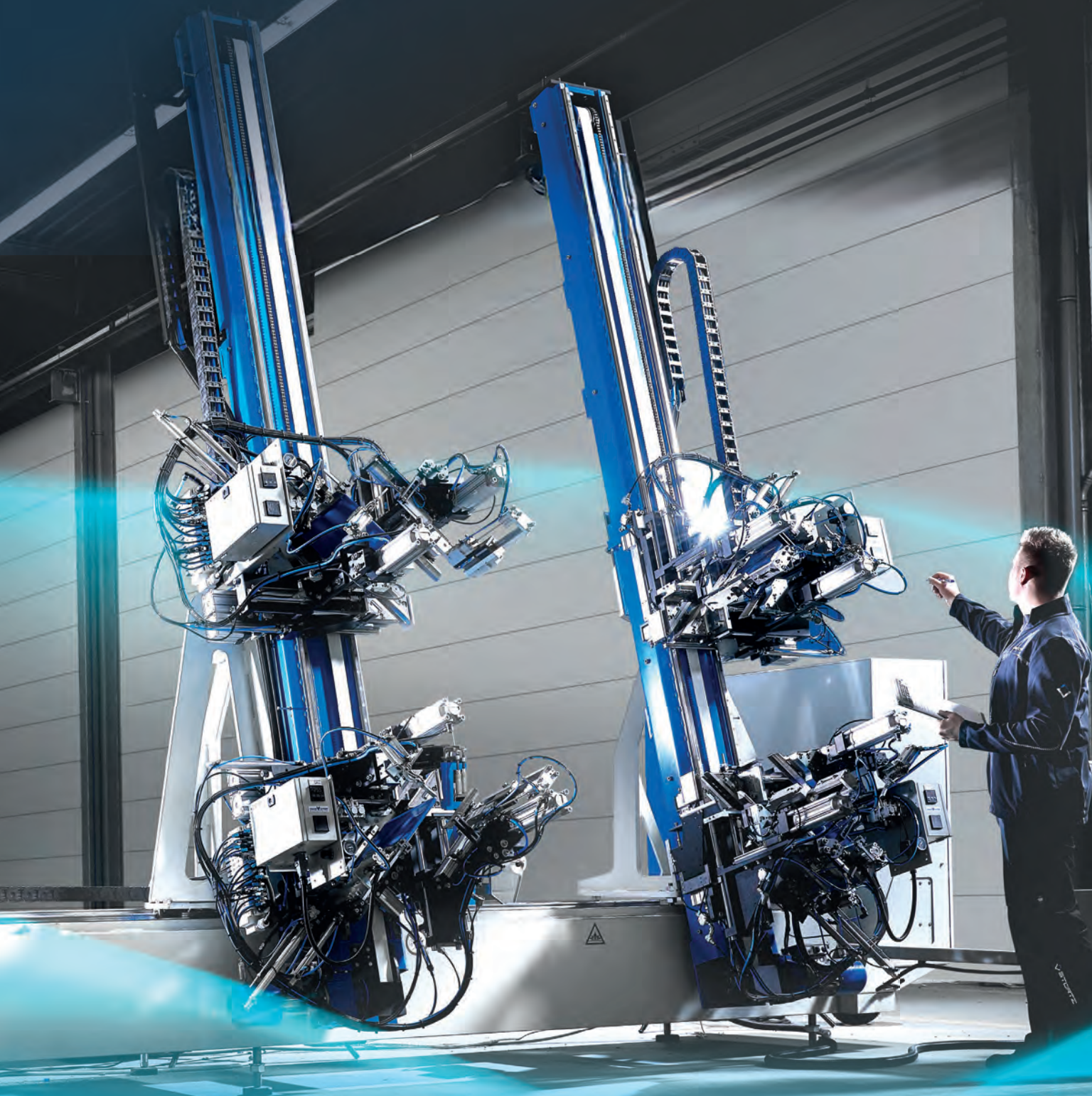
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