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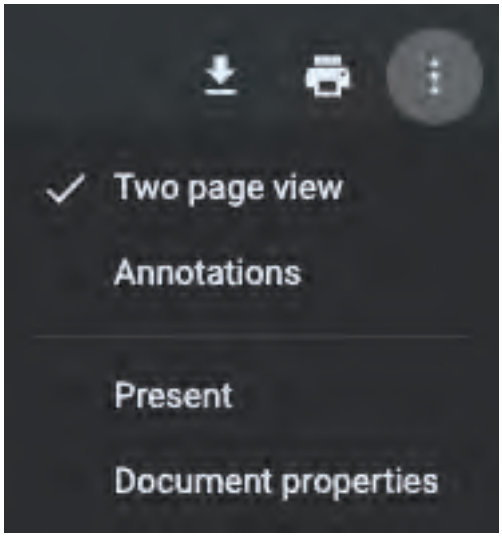

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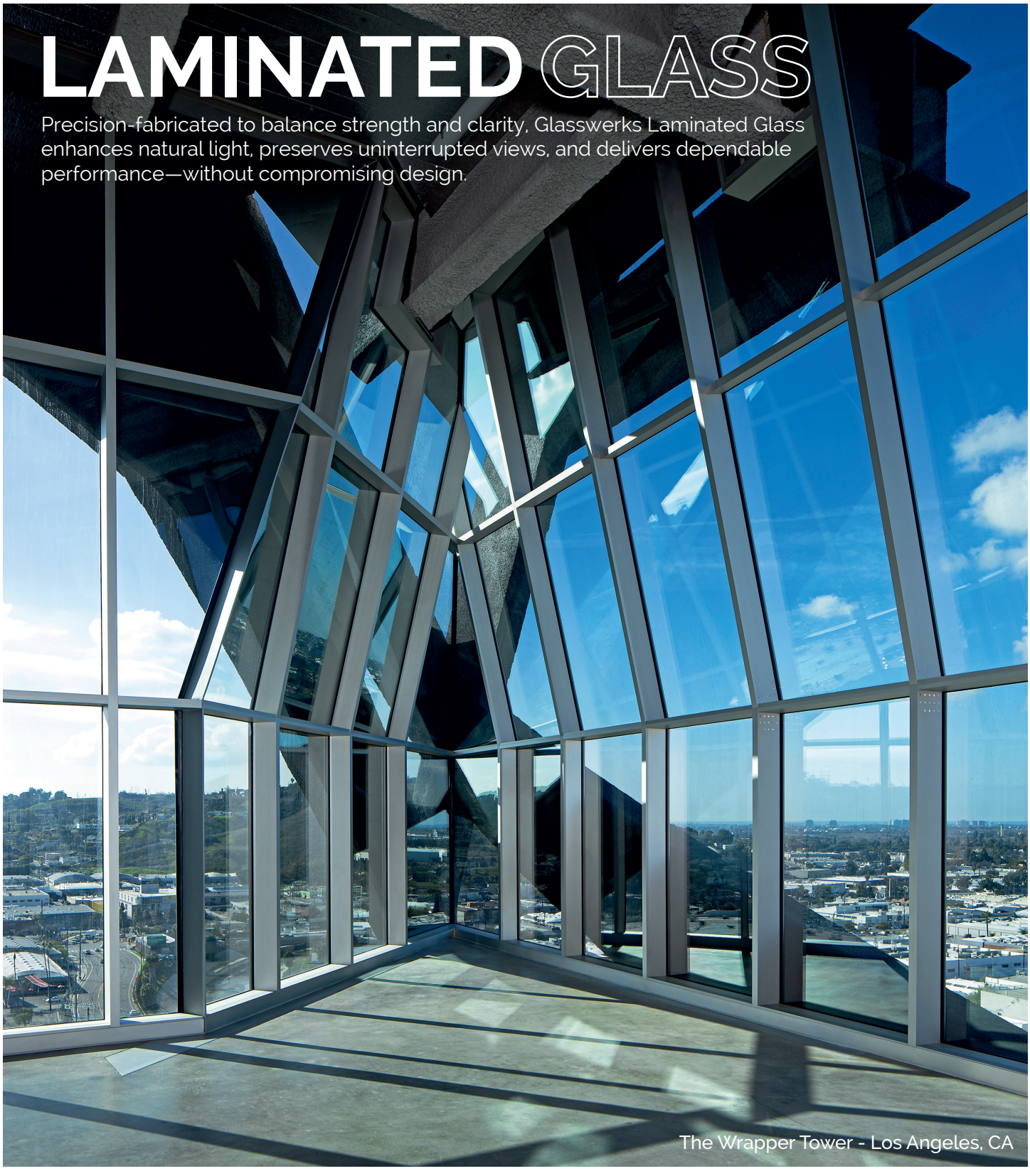

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ON THE COVER: An employee of Top Glass Fabricator Prelco. This year's industry ranking and market report includes a special section on labor, including relative difficulty of hiring, positions that are difficult to fill and employer benefits.

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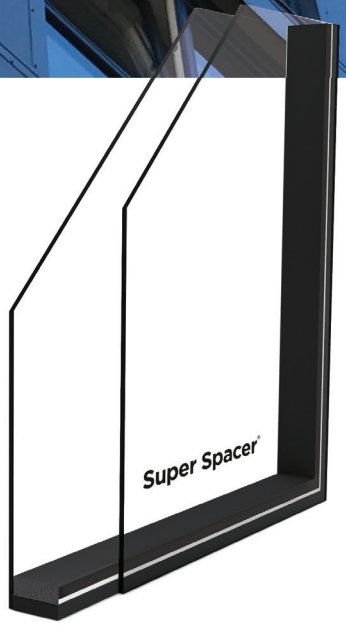

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NGA shares the results of its 2025 NGA Compensation & Benchmarking Studies.

WEBINAR
A panel of industry experts discuss top challenges and opportunities for fabricators.

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NGA and Glass Magazine celebrate women's achievements for Women in Construction Week and Women's History month.

GLASSBLOG



PERFORMANCE
Feel the Rhythm, Feel the Rhyme
By David Vermeulen



INSTALLATON
A New Path for High-Performance Facades
By Doug Milburn



INDUSTRY
Remembering Larry Vockler
By Max Perilstein, Sole Source Consultants



PROJECT SHOWCASE

Georgetown University's 111 Massachusetts Avenue NW adaptive use renovation on the Capitol Campus, designed by SmithGroup Architects and constructed by Whiting-Turner, transforms a dark landmark into a modern academic hub. S. Albert Glass selected Top Glass Fabricator GGI to provide a complete package of custom architectural glass solutions that combine aesthetics with long-term function. From the glass entrance systems and custom back-painted interior wall cladding to the customized MAX Glass Markerboards, each application highlights the versatility of custom-fabricated glass in major renovations.

Glass Magazine® (ISSN 0747-4261), Volume 76, Number 3, is published eight 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 Glass Magazine®, 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.

GLASS MAGAZINE

Published by the NGA
NATIONAL GLASS ASSOCIATION with GANA

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

EDITORIAL

Chief Content Officer
Katy Devlin • kdevlin@glass.org

Associate Director, Content & Programming
Tara Lukasik

Editor
Norah Dick

Associate Editor
Rachel Vitello

Creative Lead
Cory Thacker

Director, Comm. & Digital Media
Bethany Stough

Digital Media Specialist
Wendy Vardaman

Production Coordinator
Cathy Underwood

Circulation Manager
Jo Ann Binz · jbinz@glass.org

ADVERTISING AND SALES

Vice President of Development and Sales
Sarah Swango
sswango@glass.org
703/442-4890 ext. 135

Media Sales & Sponsorship Manager
Cameron Francis
cfrancis@glass.org
703/442-4890 ext. 132

Sales Consultant
Tristan Scoffield
tscoffield@glass.org
703/442-4890 ext. 194

Directory & List Specialist
Tim O'Connell
toconnell@glass.org
703/442-4890 ext. 129

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Sitting with Uncertainty

Top Glass Fabricators remain resilient



NORAH DICK
EDITOR

I was reviewing market predictions from Glass Magazine's 2026 Construction Industry Forecast, and a statement from Eric Gaus, chief economist, Dodge Construction Network, jumped out at me: "As of right now, the construction industry as a whole is sort of on the same knife edge as the rest of the economy. It's slowing down. It's not really clear whether it's in recession or not, but it is awfully close and very uncomfortable."

Though this statement was made last year, the description of the industry's "knife edge" tension was echoed in many of this year's responses to the Top Glass Fabricator survey. As usual, the responses are compiled from fabricator respondents and serve as the basis for the industry ranking and market report you can find on page 48. While fabricator challenges remain as complex as they have in previous years, the industry consensus seems to be that their major pain point is uncertainty.

Tariffs result in confusion, delays

Many fabricators report that tariffs were a major cause of uncertainty last year, and resulted in project delays. Chris Mobius, owner and vice president of operations at Garibaldi Glass, says that "tariff uncertainty and changes, as well as an unpredictable market" were major challenges in 2025, as well as "delayed or abandoned projects."

The changing nature of tariffs made it difficult for companies to plan ahead. "Uncertainty regarding tariffs that seem to alter on a weekly basis limits its planning and productive procurement," says a representative of Glaz-Tech Industries Inc.

"It's been a rollercoaster ride for our sales team and our clients to navigate the tariff game that is going on," says Derek Losee, sales manager, sedak. "Since many of the products our company produces can only come from overseas, the uncertainty of when and how long tariffs will apply has presented many challenges for us."

Companies also reported higher costs, including for raw materials. "Raw material prices moved higher mid-year while selling prices softened, creating a difficult price squeeze," says a representative for Press Glass Inc. Thirty-nine percent of responding fabricators say that tariffs affected raw glass last year.

"Economic uncertainty, tariffs on certain raw materials and supply chain issues have impacted our business," says a representative from Prelco. "In particular, higher costs and availability. To enable us to remain competitive, we have worked closely with our partners within our supplier network to ensure we have even stronger relationships and more product offerings going forward."

Hoping for a return to stability

Despite a difficult 2025, many fabricators expressed a positive, though realistic, outlook for 2026 and flat to small, slow growth in the year ahead. Despite uncertainty, some fabricators articulated specific plans for their own company's capacity expansion.

"We have a strong outlook for 2026," says Adam Mitchell, marketing manager, Agnora. "The important distinction over 2025 is a better understanding of the economic environment and a willingness for our partners to commit to a project."

"Despite broader industry indicators pointing to a cautious outlook, our business forecast for 2026 remains positive," says Spencer Raymond, director of business development, GGI. "Our anticipated sales growth will come from expanded product offerings, enhanced fabrication capabilities, and a continued focus on quality, lead times, responsiveness, and customer service." ■

"To enable us to remain competitive, we have worked closely with our partners within our supplier network to ensure we have even stronger relationships and more product offerings going forward."



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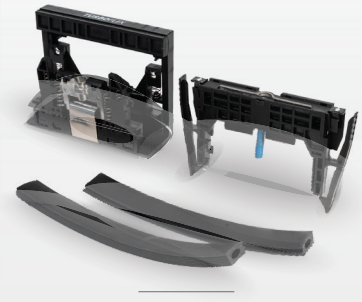

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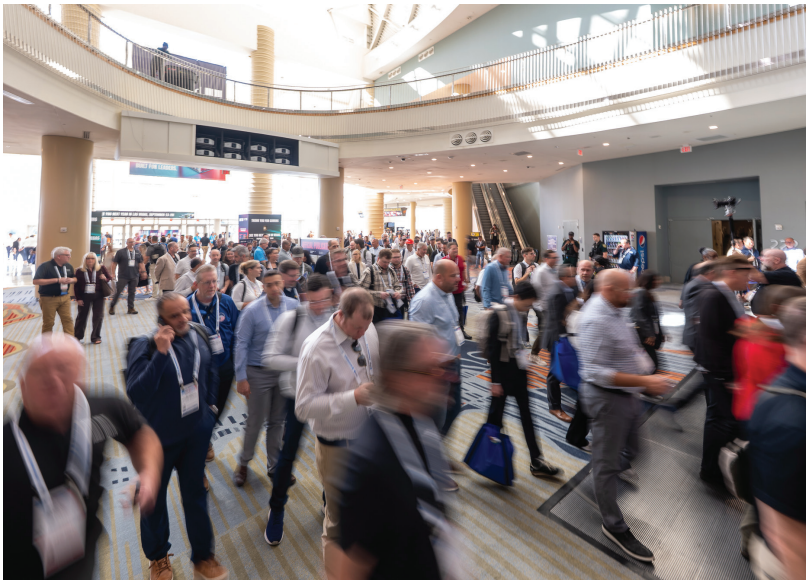

NGA PRESENTS 2025 ANNUAL REPORT

The National Glass Association celebrates 2025 as a year of new initiatives, resources and commitments to the glass and fenestration industries. In this past year, the association started, and continued, several initiatives to fulfill its strategic goals and serve its membership.

From amplifying its message at the largest GlassBuild America in Orlando, to celebrating the 75th anniversary of Glass Magazine and continuing to enhance the online learning experience with its updated MyGlassClass.com platform and new online training portal MyGlassFAB, as well as successfully advocating to promote natural daylighting in schools, dormitories and apartments, NGA is raising the bar on its commitment to help members succeed.

"I joined the NGA in July and leading this association has been a joy," says Lakisha A. Woods, CAE, president and CEO of NGA, in her message to members. "I'm energized by the unity of the people that I've spoken with... they lead with a passion that everybody shares for this industry. I look forward to helping to build on NGA's success and be a voice and hand to help move the association and industry forward." ■

View the report

SAVE THE DATE FOR NGA GLASS FABRICATOR CONFERENCE (GFAB)

The NGA Glass Fabricator Conference (GFAB) brings together the best of NGA Glass Conference and Glass Processing Automation Days (GPAD) to address real-time challenges for every role in your fabrication business, from the C-suite to the production floor. The comprehensive event takes place June 14-17, 2026, at the Radisson Blu Hotel in downtown Chicago.

At GFAB, fabricators will...

- Sharpen strategy
- Boost profitability
- Drive the industry forward
- Level up on the plant floor

3 Education tracks. 1 Powerful event.
GFAB will feature three elements to address the key needs of different fabrication personnel:

- **Executive Track**–Strategic sessions for decision makers: top trends, design insights, market updates, technology and AI, and more.
- **NGA Glass Conference Track**–The technical depth you love from NGA Glass Conference: committees, task groups, advocacy, and expert-led discussions.
- **GFAB Workshop: Quality Control in Glass Tempering**–Hands-on learning at Skyline Architectural Glass, covering quality control, glass tempering essentials, ROI considerations for the plant and more.

Don't miss it. Register at glass.org/GFAB. ■


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GLASS ADVOCATE



The National Glass Association's Installing Committee convened Nov. 4, 2025, at GlassBuild America in Orlando, to address the pressing challenges facing glazing contractors and installers.

NGA INSTALLING COMMITTEE ADVANCES CRITICAL INDUSTRY INITIATIVES AT GLASSBUILD 2025

BY TARA LUKASIK

The National Glass Association's Installing Committee met Nov. 4, 2025, during the Glazing Executives Forum at GlassBuild America in Orlando, where Acting Chair Courtney Little of ACE Glass led discussions on multiple task groups addressing pressing challenges facing glazing contractors and installers. The Installing Committee serves as the hub for discussion and activities related to contract glaziers, building envelope contractors and full-service glass companies, focusing on advocacy, technical resources, education, events and supply chain communication.

KEY TASK GROUP PROGRESS

Value engineering takes center stage

The committee's Value Engineering Task Group, chaired by Rob Carlson of Tristar Glass, revealed sobering survey results: 90% of respondents report value engineering products due to lead times, budget constraints and pressure from contractors, architects and customers. The task group is developing a comprehensive Glass Technical Paper to provide guidance on safe product substitutions while educating stakeholders about the long-term consequences of reducing glass performance to minimum code levels.

"The value engineering is coming from inside the house," committee members acknowledged, recognizing that glaziers themselves often initiate cost reductions to meet code minimums cost-effectively.

Project delivery methods

Matt Kamper of Woodbridge Glass is

leading efforts to define "design build," "design assist" and "delegated design" from the glazier perspective. The task group is developing clear guidance on expectations, deliverables, and contractual rights and responsibilities for each approach—critical information as project delivery methods continue to evolve.

Frameless shower resources
Task group Chair Danny Donahue of Frameless Hardware Company LLC will lead the next project: developing frameless shower enclosures design guidelines specifically for architects. This follows successful completion of the shower expectations flyer for consumers and builds on educational efforts at GlassBuild's Shower Design Challenge.

Specifications advancement
The Specifications Task Group completed reviews of security glazing, mirror, decorative and general glazing specifications, with fire-rated specifications under peer review. Curtain wall and storefront specifications are queued for upcoming review in coordination with Deltek.

Interior demountable walls challenge
Joe Kaiser of Herzog Glass chairs a task group examining how the MasterSpec classification of interior demountable wall systems Division 10—which also receive Section 179 tax benefits— creates competitive disadvantages for conventional glazing systems under Division 8. The group surveyed industry members about installation practices, labor assessment methods and market dynamics. Potential solutions include working with policymakers to reclassify these systems and educating designers about the cost-effectiveness and flexibility of traditional glass partitions.

RESULTS FROM A VALUE ENGINEERING TASK GROUP SURVEY SHOW THAT 90% OF RESPONDENTS REPORT VALUE ENGINEERING PRODUCTS DUE TO LEAD TIMES, BUDGET CONSTRAINTS AND PRESSURE FROM CONTRACTORS, ARCHITECTS AND CUSTOMERS.

NGA UPDATES

The committee welcomed Lakisha A. Woods, CAE, as NGA's new president and CEO, who outlined her vision for advancing the association's mission.

Educational expansion
NGA launched a comprehensive Glass Engineering Curriculum covering architectural glass as a material, practical applications, safety and security glazing, fracture mechanics, and sustainability. Developed with expertise from Bill Lingnell of Lingnell Consulting Services, the curriculum serves engineering and architecture students while providing valuable reference material for established professionals.

The MyGlassClass.com platform continues expanding with Glazier Training, Apprenticeship Curriculum, and MyGlassFab training. Task groups are forming for course updates and Spanish translation reviews.

Advocacy victories
NGA working together with the American Institute of Architects, Professor Juan Miro of University of Texas Austin, and the Aluminum Extruders Council achieved significant wins at the October 2025 IBC code hearings in Cleveland, securing preliminary approval for natural daylighting requirements for apartments, schools and dormitories.

New Resources
The committee highlighted new publications in 2025, including the Security Glazing for Schools AIA presentation, Glass Nomenclature technical paper and updates to technical papers on recyclability, decorative glass handling and laminated glazing edges. These resources are available at glass.org/store. ■

GLASS INFORMATIONAL BULLETIN



Example of handling a decorative glass lite during installation. Photo courtesy of Window Creations and Vibrantz Technologies.

HANDLING AND CLEANING DECORATIVE GLASS

Decorative glass demands specialized care at every stage

The following general guidelines are intended to help preserve the quality and integrity of decorative glass products and to help ensure their long-term performance. It is also imperative to consult the glass manufacturer for product specific recommendations.

Transportation and receiving

First, confirm that the handling equipment is adequate for the weight and size of incoming glass cases. Check shipments on arrival and document any potential quality issues (such as moisture being present) on the bill of lading prior to the driver leaving. If moisture is present, unpack the lites immediately and allow them to dry using an appropriate separating technique. Do not allow lites to remain in contact with wet protective pads. Using fans or forced cooling may be helpful in this effort. Finally, unpack lites as soon as possible to allow moisture caused by condensation to dissipate, especially if the lites have been subject to temperature changes during shipment.

Storage

Be sure that storage areas are dry, adequately ventilated spaces. Do not store lites in areas of high humidity, exposed to chemical fumes, or near high heat such as steam or water pipes. These conditions can promote staining and deterioration of any coatings on the glass.

Also, store lites vertically. Do not lay

lites flat. Even minor movements in a flat stack can cause surface abrasion and potentially glass breakage. Finally, when removing lites from the case, separate them from the pack one at a time before removal—do not slide lites when removing. Handle lites of glass one at a time.

Cutting and fabrication

Optical sensors, such as those used on automated cutting and fabrication lines, may have difficulty detecting some decorative glass substrates. To avoid risk of personal injury or damage to equipment, care must be taken first to test any optical sensors with a piece of the glass to be processed, prior to operating the equipment.

Use clean gloves when handling decorative glass products. When handling lites with suction cups, apply cups to the flat, untreated surface. If this is not possible, extra care should be taken to ensure that proper vacuum is achieved. Keep suction cups clean and free of dust.

Regularly vacuum or sweep cutting tables with a stiff brush to control dust and to minimize any glass grit and particles which could scratch the glass. Glass lites are cut most easily by scoring the flat, untreated side. If that is not possible, increased cutting pressure may be required.

Individual glass lites should be washed after cutting to reduce the chance of staining from cutting oil. Porous glass surfaces (i.e., sandblasted, acid-etched, etc.) may be susceptible to marking during machine-edging. For best results:

- Ensure that the machine's gripping pads have been scrubbed clean.
- Verify that the speeds of the front and back conveyors are identical.
- Check the glass thickness with a micrometer and adjust gripping pressure accordingly.
- Wet the glass before fabrication.
- Wash the glass immediately after fabrication.

Never allow coolant or cerium oxide to dry on the glass, as it may become a permanent stain on a porous surface. Decorative glass may be machine-washed or cleaned using lint-free cloths for washing and drying. Non-abrasive, mild detergents or glass cleaners that will not be harmful to the glass should be used, provided that all residue is removed and the glass is thoroughly dried. Consult glass component manufacturers for recommended washing procedures.

Cleaning and maintenance

As dirt and residue appear, decorative glass surfaces should be thoroughly cleaned by professional window cleaners according to the manufacturer's guidelines. If the glass is extremely dirty, for example, because of recent construction activity, soak the glass surfaces with clean water and mild soap solution to loosen dirt and debris. Apply a mild, non-abrasive solution uniformly to the glass surfaces with a soft, non-abrasive applicator (e.g., thick cloth or sponge). Immediately dry the glass surface with a lint-free cloth.

When the surface to be cleaned is a treated or decorative surface, special care and attention is required.

- Follow the glass supplier's specific cleaning recommendations.
- Clean a small area of the glass first to verify the procedures have not caused any damage.
- Do not use razor blades or scrapers for cleaning decorative glass.
- Do not allow dirt and residue to remain on glass for an extended time.
- Do not allow metal parts of cleaning equipment to contact the glass.

If adhesives or markers are required temporarily on porous glass surfaces (i.e., sandblasted, acid-etched, etc.), test to ensure removal is possible without damaging the glass surface. Products such as silicone adhesives, mastics, felt markers, wax markers, oil and grease may result in removal issues.

To clean glass products coated with non-ceramic paints and inks, use a soft, clean cloth, soft paper towel, or clean synthetic sponge. Use a soft cloth or squeegee for drying the surface. Do not use razor blades, scrapers, abrasive materials or chemically incompatible cleaning chemicals. Protect the glass from airborne debris during storage and inspect glass prior to field installation. Follow the manufacturers' cleaning guidelines. ■

This Glass Informational Bulletin is excerpted from NGA Glass Technical Paper FB19-25 Guidelines for Handling and Cleaning Decorative Glass. Download the complete document for free at glass.org/store.

The most-clicked news stories on GlassMagazine.com, brought to you by GLASS MAGAZINE WEEKLY*

FHC Opens New Jersey Super Center
Frameless Hardware Co. opened its Northeast Super Center in Teterboro, New Jersey. This 120,000-square-foot, LEED-certified facility represents an expansion of FHC's national footprint and a new resource for fabricators, glaziers and architectural partners throughout the Northeast. Located at 430 Industrial Avenue, near the New Jersey Turnpike, George Washington Bridge and Lincoln Tunnel, the new center is purpose-built to improve speed, accessibility and service for customers across the region.

Designed as both a high-volume distribution hub and a hands-on experience center, the new space includes a customer will call center for fast pickups; in-stock inventory of architectural hardware, tools and glazing supplies; 20 shipping and receiving docks for high-throughput order fulfillment; an architectural showroom showcasing FHC's full product line; dedicated sales, training and education spaces; a centralized location for optimized regional distribution; and door and frame fabrication.

To lead this major expansion, FHC has assembled an East Coast team, including Super Center Manager George Principe. Regional customers will also be supported by Doug DeRusha, vice president of sales. "This facility changes what customers in the Northeast can expect from a supplier," says Principe. "This isn't just a warehouse—it's a full-service hub designed around speed, support and accessibility. From express order pickups to project consultations, we've built this location to help our customers move faster, win more work and feel truly supported locally."

OBE Renews Partnership with AIA
Oldcastle BuildingEnvelope Inc. renewed its partnership with the American Institute of Architects. Now in its eighth year, this collaboration reflects OBE's commitment as the first building products manufacturer to establish a strategic partnership with the AIA, say company officials. This partnership represents a commitment to the AEC community that goes beyond standard collaboration, company officials say.

By actively engaging in joint research initiatives, developing AIA-certified continuing education programs, and providing specialized access and architectural support for glass, glazing and hardware, OBE and its experts from brands in its portfolio—including CRL and Graham Architectural Product—serve as a technical extension to design teams. The companies equip architects with the data and innovations necessary to solve complex building envelope challenges, ensuring that as the industry evolves, professionals have a supportive partner to help bring ambitious, high-performance visions to life, say company officials.

Şişecam Completes Bulgarian Glass Line
Şişecam completed a $23 million investment in a coated glass line at its flat glass manufacturing facility in Bulgaria. The line, with an annual capacity of 6 million square meters, will operate alongside the existing coated glass line at the flat glass facility. Şişecam aims to supply the European market with higher volumes of solutions, including coated glass offering high light transmittance and thermal insulation and bird-friendly glass.

"In line with our strategic priorities, Şişecam has adopted a growth approach focused on efficiency, cost discipline, cash generation and strengthening balance sheet resilience," says Şişecam CEO Can Yücel.

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

"I am very pleased to welcome NSP into Assa Abloy, an exciting technological addition that will reinforce our current offering within the hospitality business and provide complementary growth opportunities," says Nico Delvaux, president and CEO of Assa Abloy.

"NSP is a provider of electronic access control solutions to a broad range of customers across the student accommodation segment. NSP is an excellent addition to Global Solutions, and with its strong expertise in access control, expands our offerings across the hospitality business area. We welcome the

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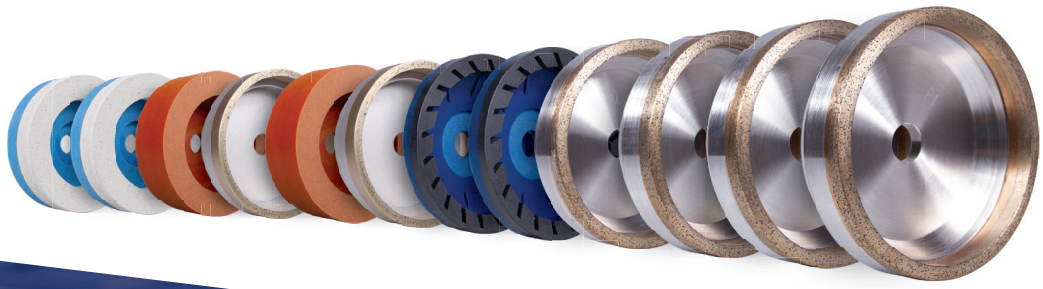

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team at NSP to the Assa Abloy family," says Stephanie Ordan, executive vice president and head of global technologies business unit Global Solutions.

Kuraray Opens New Office in Dubai

Kuraray's Advanced Interlayer Solutions division announced the opening of a new office in Dubai. The new regional Middle East office is an effort by Kuraray to support the evolution, growth and innovation behind the region's engineering, fabrication and architectural capabilities, according to company officials. Dubai was chosen not just because it is the region's logistics and business hub, but also because of the UAE's growth outlook, which is complemented by growing construction demand and real estate activity, say Kuraray officials. Population growth in the Middle East region is also driving demand for housing, offices, schools, hotels, stadiums, health care and retail developments.

FutureVu Brands Joins Prevention Project

FutureVu Brands announced that members of its executive leadership team will participate in the Active Shooter Prevention Project, a multidisciplinary initiative focused on advancing prevention-first approaches to safety, preparedness and risk reduction. The project brings together professionals across security, emergency preparedness, risk management and the built-environment sectors to support strategies that emphasize early identification of risk, stronger communication pathways and layered protection planning. The collaboration reflects a growing shift across industries toward proactive safety planning and resilience.

"We are honored to be invited into the Active Shooter Prevention Project," says Jeff Franson, chief executive officer of FutureVu Brands. "Our organization has long been committed to practical solutions that help protect people and property. Through ASPP, we look forward to contributing to a broader mission focused on prevention, preparedness and safer communities."

Safti First Hires New Sales Representative

Safti First announced the addition of Forefront Facades to its growing network of sales representatives. Forefront Facades started representing the Alaska, Montana, Oregon and Washington territories for Safti First on Nov. 22, 2025. Specializing in building façade products and systems, Forefront Facades also represents Oldcastle BuildingEnvelope/CRL, Keith Panel Systems, Boston Valley Terra Cotta, McGill Architectural Products, and LTS Drafting and Engineering.

Principal Evan Maros has over 17 years of experience in commercial construction. He began his career with a Seattle-based building envelope contractor, starting as an installer specializing in roofing, below-grade

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waterproofing and architectural façade systems. In 2014, he transitioned into architectural building products as a manufacturers' representative, joining his father's firm and focusing on Division 7 and Division 8 solutions. He has since acquired the business and now serves as the owner-operator of Forefront Facades, continuing the firm's 35-year legacy.

Apogee Architectural Metals Publishes New White Paper

"Health Care in Focus" is a new white paper from Apogee Architectural Metals addressing facility-focused design aspirations and evidence-based performance requirements to serve immediate and emerging patient needs. The 36-page publication details safety, wellness and resilience benefits and specification considerations for windows, entrances, curtain wall, storefront and other aluminum-framed fenestration systems. It is available for download now.

"Health Care in Focus" shares research-driven insights, statistics, trends, success stories and compliance considerations for health care facility owners and managers, architects, construction and installation teams. Aligned with increased demand for psychiatric and mental health care, the paper emphasizes window selection criteria for specialty and behavioral care facilities.

Quikserv Celebrates 40 Years

Quikserv is commemorating 40 years of service to the commercial, retail, health care and quick-service restaurant industries. Quikserv is a supplier of high-performance drive-thru windows and transaction equipment.

In an interview with Glass Magazine, CEO Jason Epps says the company has changed "dramatically" over the last four decades. "What started out as a small, family-owned glass and window company, has developed into a significant, world-wide player in transaction solutions and security fenestration products. Rapid growth, product development, company professionalization and market conditions are just a few of the challenges we have faced and overcome over the years," he says.

American Subcontractors Association Celebrates 60th Anniversary

The American Subcontractors Association is celebrating its 60th anniversary this year. Founded on the principle of "Better Construction Through Fair Construction," ASA has spent the last six decades championing ethical business practices, safety in the workplace and a more equitable construction environment. Through education, advocacy, networking and professional growth, the Association has built a national community dedicated to elevating the voices and interests of subcontractors across the industry.



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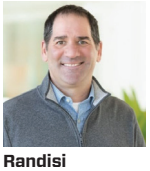
PEOPLE


Morawetz

Christian Morawetz assumed the position of chief operating officer of **Rath AG**, an internationally active refractory manufacturer headquartered in Vienna with eight production sites worldwide. As a member of the executive board, Morawetz is responsible for production, purchasing, research and development, quality management, and IT. The supervisory board has appointed him for a term of three years through Dec. 31, 2028.


Randisi

The new national architectural manager for the Mid-Atlantic territory of **Vitro Architectural Glass** is *Chris Randisi*. In this role, he will focus on providing innovative product, technology and service solutions to clients in the Virginia, Washington, D.C., Delaware, Maryland, Pennsylvania, West Virginia, and southern New Jersey areas.


Jensen

The company also appointed *Anthony Jensen* as new commercial account manager for the Northwest territory, covering the areas of Washington, Oregon, Idaho, Montana, Wyoming and British Columbia. Jensen brings over 10 years of experience in the glazing industry.


Samalot

Andluca appointed *Ivan Samalot* as executive vice president and chief operating officer. In this role, Samalot will help lead operational execution, product development and strategic growth initiatives.


Bushaw

LiteSentry, Softsolution and Strainoptics appointed *Tim Bushaw* as the group's new CEO. In this role, he will lead operations at facilities in the U.S. and Europe, supporting the companies' global customer base. Bushaw brings 25 years of experience leading teams in industrial automation.


Sachtleben

Winco Window Co. announced that *Sanford Sachtleben* is now serving the state of Arkansas as a Winco Window Co. sales representative. He is an industry veteran with more than 30 years of experience in architectural products and owns Sterling Architectural Products.

Wood's Powr-Grip hired *Alexandria Russell* as marketing and content creation specialist. Russell joins the Wood's Powr-Grip team to support product marketing, customer-facing content and communications related to the company's vacuum lifting and material-handling equipment used in glass fabrication, installation and industrial applications.

Jacob Johnson joins **Apogee Architectural Metals** as vice president of sales for the western and southern regions. Johnson reports directly to company president Troy Johnson (no relation), and works closely with Jon Close, who continues in his role as vice president of sales. Johnson also serves as a core member of Apogee Architectural Metals' leadership team assisting in shaping enterprise strategy, operating priorities and long-term growth decisions.

Leading the regional sales teams and associates, Johnson will focus on strengthening key customer relationships, while expanding geographic reach and market presence for EFCO, Tubelite and Wausau Window brand products. ■

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The exterior of the Glenny Glass facility in Milford, Ohio.

GLENNY GLASS CELEBRATES 175 YEARS

Midwest fabricator attributes longevity to family ownership

BY NORAH DICK

The entryway of the Glenny Glass Co. facility in Milford, Ohio, features a painting depicting the company's 19th-century origins; a horse-drawn delivery wagon sporting a full A-frame rack of flat glass. Founded in 1851 by William Glenny, the Cincinnati-based glass fabricator celebrates 175 years in business this year, which owners say make it the oldest continually operating glass fabricator in the U.S.

Family-driven success and succession-planning

According to a company history published during Glenny's centennial in 1951, the business was a family affair from the beginning; William Glenny founded the glass business in partnership with his father Samuel, a university professor. While glass was almost exclusively imported from Europe at the time of the company's creation, Glenny played a role in the development of domestically produced plate glass by funding the innovations of John Ford, who would later go on to found the Pittsburgh Plate Glass Co. with John Pitcairn.

The Glenny family's ownership of the business lasted until 1989, when the company was bought by Rufus Smith and his son, R. Braxton Smith. Now the company is transitioning to the next generation of the family, Braxton II and Joseph Smith, who both grew up with the business and worked at the company in high school. "We've been a part of it our whole lives," the brothers said in an interview at their Milford facility. "It gave us pride in what we do, growing up in it."

The brothers attribute much of the business's longevity to its family ownership, specifically the stability it's able to afford. "Business in this area is relationship-based, and we've built trust over the years through our partnerships," says Joseph. The company currently serves a five-state region, and has recently expanded service to Nashville, Tennessee.

While Braxton Sr. will continue to provide the company's business vision, the two brothers are now stepping into greater management roles. To prepare for this transition, Joseph and Braxton took classes at the University of Cincinnati's Goehring Center, which offered guidance in succession planning. "It was a chance to talk with second-, third- and even fourth-generation families and get advice on their processes," Braxton says. The course also helped the brothers outline a five-year plan for them to transition into a greater role managing the day-to-day business operations.

Joseph and Braxton also credit the long-term employees at Glenny in helping support the transition by playing a crucial role in their training. "There are people working here a long time, over 30 years, who were mentors to us," Joseph says. The brothers in turn attribute the length of Glenny employees' tenure to the family culture the company has built. "Our valued employees are the single most valuable assets we have," they say.

Major milestones and next steps

Originally located in a five-story building on Cincinnati's downtown riverfront, Glenny Glass relocated to a Blue Ash facility in 1968 after its original building was demolished to make way for Riverfront Stadium. The company later moved from Blue Ash to its current Milford, Ohio, location in 2006. The next major milestone was in 2016, Braxton says, when the company doubled in size and added automation and machinery, including a gantry system, a second cutting line, as well as tempering and insulating glass lines, all connected with FeneVision software. They've continued to invest in automation over the past few years, and at the time of my visit, were in the process of setting up their new Glaston thermoplastic spacer line, slated to be operational as of February 2026.

Braxton says the company plans to continue investing in machinery. Other next steps include expanding their reach to new customers in their service area and growing further in the commercial market as well as the window and door manufacturing sector. "We're looking for conservative, steady growth," he says. Glenny will be celebrating its 175th anniversary with an open house followed by a Cincinnati Reds game for 185 of its customers in June. ■



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NAVIGATING BUSINESS SALES

From noncompete clauses to consulting agreements, understanding critical sale terms can protect buyers and sellers

BY MATT JOHNSON

The sale of any business is a time where risk and legal issues can combine to overwhelm the expected excitement. This is not unusual because while both sides to a sale want a positive outcome, the balancing of interests and protections that both parties need can conflict. So, whether you are the seller or buyer, these are some deal terms to watch for.

Understanding the foundation

To weigh sale terms we must start with a fundamental understanding of why businesses exist. Whatever legal form they take, business entities allow individual people to make and market skills and services. Most business formalities operate to protect those individuals from personal liability and responsibility. So when a business is sold, not only must those protections be preserved, but the very nature of trying to move the skills and services to another person must be managed.

Getting the basics right

Managing that transition often begins by ensuring the business itself is properly formed and operating, and securing those representations in the sale agreement. Obvious categories like insurance and tax compliance are self-evident. Yet, while it can seem a mundane start to an exciting transaction, many small businesses have gaps in their formation and operational documentation that can cause real headaches at the time of a sale.

A frequent example is found in required yearly meetings, minutes and reporting, which some small businesses may forego. Observing and recording corporate formalities is important to show that the business is being treated as a separate entity that protects the owners. Where company formalities are not observed it can legally complicate separating the owner from the business in a way that protects the purchaser and allows the seller to obtain proper value.

Balancing owner interests and value

Because the goal of separation and transfer of ownership interests is a critical part of any sale, so too is

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WHERE OWNERSHIP INTERESTS ARE SPLIT BETWEEN FOUNDERS AND LEGACY, QUESTIONS OF VALUE CAN BE INTERTWINED WITH YEARS OF EFFORT AND DIFFICULTY THAT ARE NOT SHARED ACROSS ALL OWNERS.

balancing the different types of owners in any company. This is because the definition of proper value can vary greatly between different types of owners, and each owner's respective interests and entitlement to sale proceeds must be properly documented in a transaction.

For example, owners can be active or passive in their role with the company, with each feeling their role is worth more or less than the other. Or where ownership interests are split between founders and legacy, questions of value can be intertwined with years of effort and difficulty that are not shared across all owners. Sellers should be prepared to address these items before the market forces in a sale transaction impose extra stress.

Purchasers also have an interest in balancing prior owner interests. With a goal of any business sale being to secure knowledge, where that crucial asset is split amongst owners, or where the controlling owner lacks the critical skills that have the most real world value for a company, a purchaser can find the overall target devalued.

Securing protected value is the crucial motivator for both sides in any business sale, and also where conflict tends to exist. That is a reason purchase and sale agreements can be long and legally complex. Apart from quality due diligence to ensure proper formation and operation, and standard protections for representations and indemnity clauses, there are at least three areas to consider as terms that help manage the operational and ownership protections for purchasers and sellers.

Three critical deal terms to consider

Consulting and employment continuation. To maximize the transfer of knowledge and relationship-capital, many sale agreements include consulting or continued employment term clauses. Typically these require active owners and other critical employees to continue their service for the company post-close of the sale. This can be for a period of time or until set business metrics are met. These roles are usually compensated and can create conflicts as they are sometimes viewed as simply an unwanted increase of the overall purchase price. Moreover, where active owners are unwilling or unable to continue their service, devaluation of the transaction can occur. Careful consideration and express negotiation of these terms can help ensure positive further service, while also setting necessary limits to ensure new ownership can drive the company as it intends.

Noncompete agreements: Protection vs. restriction. Where a consultancy terminates, or former owners are no longer involved, new ownership will also often want a noncompete clause that prevents the prior ownership from starting or joining a rival business. In situations with multiple owners, the passive level may have no concerns with this idea, while active selling owners may not want to bind themselves to such terms. And while most buyers consider a noncompete agreement simply a part of the purchase price, attention to these terms and their scope must be made to avoid running afoul of policy justifications that prohibit market-manipulation, and risk voiding the clause in its entirety.

Dispute resolution: Planning for the unexpected. Because conflicts can become disputes even with thoughtful preparation and documentation, agreement terms that govern how disputes are resolved can help limit both their duration and scope. Required mediation or arbitration, as opposed to trial, are commonly known terms that can avoid court proceedings. Lesser used, but sometime more impactful, controls can include agreements to limit recoveries to a portion of the sale proceeds held in escrow for defined periods of time. Or, clauses that require attorney's fees to be paid commonly for competing owners can help parties start with demands that may be more reasonable and thus limit the potential for lengthy and expensive litigation. Setting rules for how sale contests are handled and limiting potential recovery often have the effect of stopping conflicts from blossoming into disputes in the first place.

Special considerations for small and family-owned businesses

The above issues gain more impact in sales of small businesses, which include most glass and glazing companies whether you measure by employees or total receipts. And with many also closely held family-run companies that are to be sold or transferred to family members, the business risk is complicated by family dynamics. Proactive due diligence and constructive sale terms can help maximize value for buyer and seller, whether family or friend. ■



Matt Johnson is president of The Gary Law Group, a nationwide risk management consultancy firm specializing in the identification, planning and managing of legal and product risks for the glass and glazing industry.

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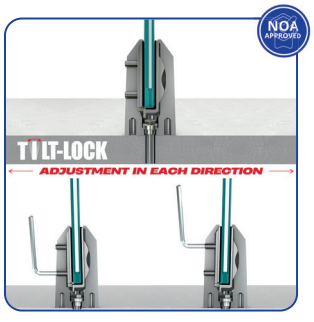

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IS YOUR BUSINESS CYBER-SAFE?

Small businesses face growing cyber threats from phishing, ransomware and hacking attacks **BY MARCO TERRY**

Is your small business safe from cyberattacks? The number and sophistication of cyberattacks against small businesses have been increasing every year. Artificial intelligence will only make the situation worse since cybercriminals can use it to increase the scale of their attacks.

Small businesses are not prepared for the level of sophistication and devastation of these attacks. Fortunately, there are some practical steps and strategies that can reduce your exposure to attacks and protect you against the most common threats.

Stolen or discarded devices can become major security vulnerabilities if the affected device contains sensitive information (e.g., payroll). The device can provide criminals with immediate access to data they can sell or exploit.

Phishing attacks trick your employees into providing sensitive company information (e.g., account login information, etc.) to a cybercriminal. Most attacks use a fake email from a well-known vendor. The email directs the user to a fake, but realistic, website that steals the credentials.

Malware and ransomware attacks occur when malicious software is used to steal your data or disrupt operations. Ransomware is a type of malware that encrypts your files so you can't access them. Attackers then demand a ransom payment to provide a decryption key. Ransomware attacks can be devastating and are often difficult to recover from.

Hacking attacks occur when a person or automated bot breaks into your company's network. Their objective is to steal your company's data or use your devices to conduct attacks on other networks (e.g., as part of a botnet, where several computers are infected with bots without the users' knowledge).

Action steps

Most small companies don't have the internal resources to manage IT security. The best strategy is to work with a knowledgeable IT consultant. The consultant can evaluate your company's security and provide a comprehensive plan to cover your weak spots. The following strategies should protect your company against most attacks. They provide a good starting point for your discussion with the IT professional.

01

Encrypt and lock up your computer

Encrypt every office computer to protect sensitive information in case a device is lost or stolen. For stronger protection, require a startup PIN to unlock the drive. On Windows PCs, this is done by enabling BitLocker and turning on "TPM with PIN." Remove all sensitive information from office computers before donating or recycling them. On Windows, use the "Reset this PC" function to remove sensitive information from the drive.

02

Don't reuse passwords

Using the same password for every business service account may be convenient. However, it is also very risky. All your accounts could be exposed if the password is stolen. The best strategy is to use a unique password for every account. Consequently, only one account is exposed if the password is stolen. Enable two-factor authentication for all important accounts, especially banking and payment accounts. This step offers additional protection in case the password is stolen. Lastly, consider using a password manager to organize all the different passwords. We use a password manager to generate secure passwords and to store the account information securely.

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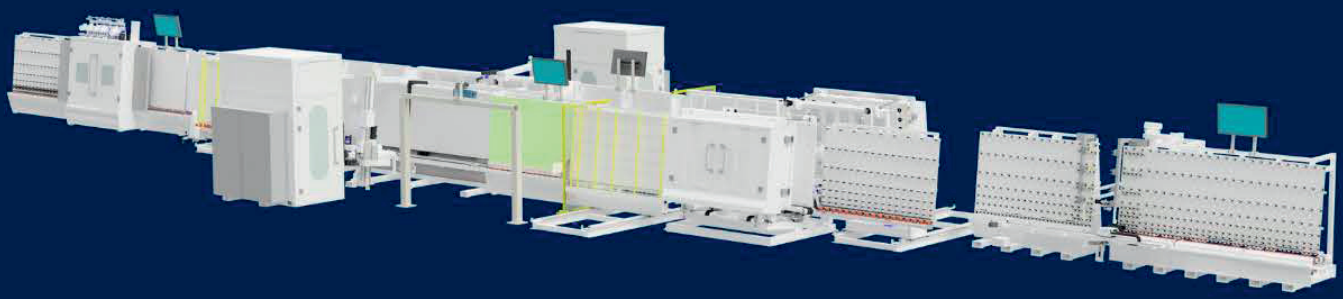

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03

Install and update your security software

Every computer in your office should have an antivirus/anti-malware application installed. It scans your computer's activity for threats and protects you against viruses, malware, phishing and ransomware attacks. This application is your first line of defense against most attacks and should be updated regularly.

04

Secure your network

A secure network is the cornerstone of effective prevention against cyberattacks. It can block threats before they reach your systems, while also preventing attacks from spreading through your network. Unfortunately, most small businesses fall short in this area. At a minimum, your company's network needs a firewall and routing capabilities. This setup allows you to block external attacks, segment your network, and monitor suspicious activity.

Block external threats. A firewall is a security device that monitors network traffic and limits unauthorized access. Firewalls limit your exposure against cyberattacks by stopping threats before they reach your systems.

Segment internal networks. Your network should support segmentation so you can separate devices into separate groups, each with its own security rules. This strategy lets you keep staff computers, sensitive systems (e.g., payroll) and guest devices on separate networks, each with specific levels of access. Segmentation offers a strong layer of protection. An attacker that compromises one part of your network (e.g., guest access) cannot move easily to other systems.

Monitor and block traffic. A firewall lets you block access to unwanted or risky destinations. This includes social media, gaming and illegal websites. Blocking these websites reduces your company's exposure to malware, phishing attacks and other threats.

05

Backups

Backups are essential tools for business continuity. They can help you recover your company's files if you suffer a ransomware attack. We run two daily independent backups. The on-site backup is used for quick restores, while the off-site backup (via a cloud service) provides redundancy. ■



Marco Terry is managing director of Commercial Capital LLC, a factoring company and provider of invoice financing to companies in the glass industry.




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Nevins (right) and Phillips (left) present at GlassBuild America.

CRACKING THE DIVISION 10 MARKET

Industry experts offer strategic insight to position glaziers to recapture interior partitions work **BY NORAH DICK**

In their presentation "Taking Back the Interior Partition Market" for attendees of the Glazing Executives Forum at GlassBuild America 2025 in Orlando, Travis Nevins with the International Union of Painters and Allied Trades and Jeff Phillips with Wilson Partitions, highlighted the challenges and opportunities for glaziers in the interior partitions, or Division 10, segment.

Getting in the door

The interior partition market is valued at $1.8 billion and growing, says Phillips, presenting a significant opportunity for glaziers to expand their scope and influence. Contract glaziers have the potential to do well in the interior glass market, he says, but are currently disadvantaged because furniture dealers have claimed such a large portion of the business.

One way into this work is through value-engineering at the end of a project, Phillips says. He encouraged glaziers to be ready to respond to calls from general contractors when they have pricing issues on demountable wall materials that have been selected. Given that glaziers are one of the last trades to work on a project, they are uniquely positioned to offer cost-effective solutions, Phillips says.

Phillips advises glaziers to have materials ready for systems that are both aesthetically pleasing and high-performance. By delivering a ready solution to general contractors, he says, glaziers are more likely to be called on for this type of work in the future. "Remember, [the general contractor] gets performance reviewed also, and they get bonuses based on executing complete projects on time, so they're looking to you as one of their key resources to help bring them through this and make sure they're on time."

Creating competitive strategies

Nevins continued the conversation by talking about actionable strategies and tactics that individual companies, and the industry, could implement to win back market share in Division 10.

Start with a vision and set goals. For individual companies to win more Division 10 work, they need a strategic vision, Nevins says, and should set goals for what they want to accomplish. A type of goal-setting could be becoming a demountable installer by 2030, he says. Companies should also analyze what capabilities they have and what they can do towards becoming the type of installer to win work in Division 10.

Track Division 10 projects. Part of creating realistic goals, for the industry and individual companies, includes researching actual Division 10 projects, Nevins says. Following interior glass projects, from pre-bid to completion, can help contract glaziers understand what is needed to win these projects and how they're being awarded, he says. "If we don't understand our competition, how are we going to go up against the competition?" Nevins says that the industry, and individual companies, should be tracking projects in their area to get the lay of the land and understand how these jobs are being sold so that contract glaziers can start winning this work as well.

Action planning. Once a company has set its goals, reviewed the competition and analyzed its own capabilities, it should create an action plan that formalizes its strategy, which should include a written plan and periodic meetings involving those on the project. Nevins recommends making one individual at the company an "owner" of this process, to ensure that one person is responsible for completing the process. They can work with a team to complete the plan, he says, and to set up deadlines and status updates.

Influence owners to mandate certifications. Nevins emphasized that glazier certification and training as tradespeople is a strength and should be presented as such to both owners and designers. By encouraging these project leaders to require glazier-friendly certifications like North American Contractor Certification and Architectural Glass and Metal Technician certification on a project, it's much more likely that glaziers will win the work, he says. ■

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The zebra board is a panel with black and white stripes that is placed above the unload table. When you look at the reflection of the zebra board in the glass, it helps show any bumps, waves, or problems on the glass surface that you might not be able to see in regular light.

IDENTIFYING AND MEASURING ROLLER WAVE DISTORTION

A step-by-step guide to inline and offline inspection methods

COURTESY OF MYGLASSFAB

Every glass lite you fabricate has a price tag—and if it's not right, that price comes in the form of rework and customer returns. For glass fabricators, quality issues in tempering aren't just a production headache. They're a direct hit to your company's bottom line.

One of those quality issues is roller wave distortion. After glass goes through the heat-treatment process and comes out of the quench, it immediately moves onto the conveyor where one of the tempering furnace operator's most important jobs begins: Inspecting it for quality issues. This step combines hands-on visual checks with offline inspection using special tools. Roller wave distortion is a quality issue that can lead to costly remakes. That's why it's important to learn how to spot it and measure it.

What is roller wave distortion?

Roller wave distortion is a type of surface waviness that can happen when glass is heat-treated. During the heat-treating process, the glass is heated until it becomes soft and then moves through the furnace on ceramic rollers. Because the hot glass is slightly flexible, it can sag a little between the rollers. This causes tiny waves or ripples to form on the surface. When the glass is quickly cooled—or quenched—those waves can become permanent.

This distortion can make reflections in the glass look uneven or wavy, especially in large glass expanses. The amount of roller wave distortion depends on things like how thick the glass is, how far apart the rollers are, and how evenly the furnace heats the glass. Thinner glass is more likely to show this effect because it bends more easily under heat.

Visual inspection at the zebra board

As the glass comes out of the quench and moves on the conveyor, it's time to check it for roller wave distortion. The first stop is the zebra board. This board is a panel with black and white stripes that is placed above the unload table. When you look at the reflection of the zebra board in the glass, it helps show any bumps, waves, or problems on the glass surface that you might not be able to see in regular light.

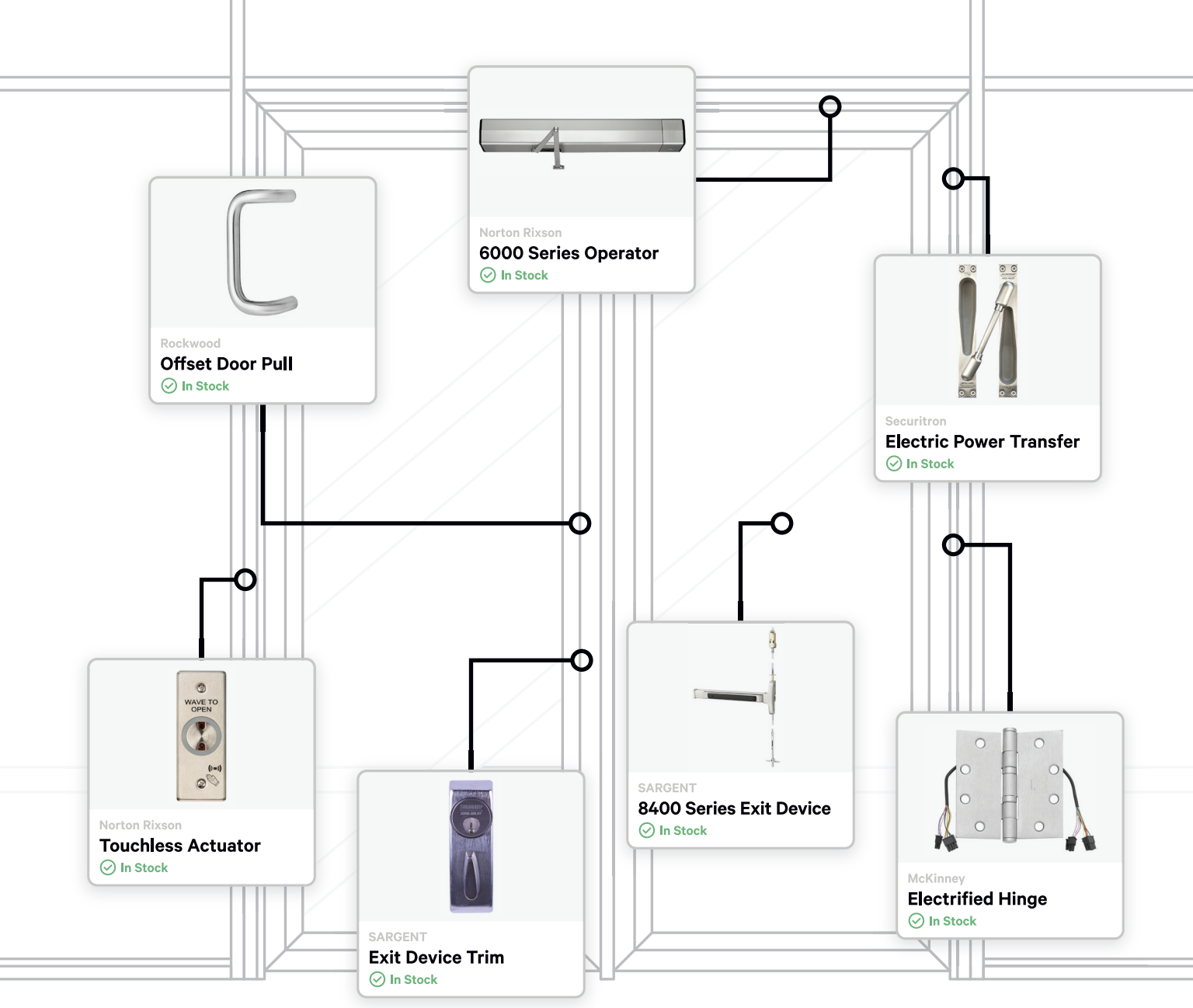
To use the zebra board, stand at an angle so you can see the zebra board's reflection clearly in the glass. Roller wave distortion will appear as wavy zebra lines going across the glass, usually in the middle of the lite. If the zebra lines look smooth and straight in the reflection, then the glass will pass inspection. However, if the lines look wavy, bent, or broken, you need to mark that lite of glass so it can be checked more carefully later away from the production line.

Inline inspection systems

If your plant has automated inspection tools, use them first to check the quality of the glass while it is being heat-treated. These systems can detect several different problems, including roller wave distortion.

When using an automated system, watch the display screen to see the live readings as each lite of glass moves through the machine. Review the roller wave numbers that appear on the screen and check the pass or fail results based on the limits that your company has set for acceptable glass quality. If the system identifies a lite of glass as "out of spec," which means it doesn't meet the requirements, pull that lite off the production line and check it again

The following is an excerpt from the "How to Inspect Heat-Treated Glass" course, courtesy of MyGlassFAB. For the full course, create an account at MyGlassClass.com



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more carefully away from the machine.

Note, while inline inspection is useful for catching major distortion problems early, it's not enough on its own. For the best results, use both inline inspection and offline inspection methods together.

Offline inspection

Offline inspection takes place away from the production line where you can carefully measure roller wave distortion in a more detailed and precise way than the quick visual checks done on the line.

You can check for roller wave using handheld roller wave gauges. Before using your gauge, make sure it is clean, calibrated correctly, and working well.

To manually test for roller wave distortion:

1. Prepare the surface.
Place the glass on a clean, flat table. Clean any dirt from the glass that could affect the measurement.

2. Perform the test.
Position the gauge correctly on the glass. Hold the gauge so that it is placed parallel with the direction the glass traveled through the furnace. Start measuring in the middle of the glass; make sure you are at least 12 inches away from the edge to avoid getting edge errors in your measurement.

Slowly move the gauge along the glass—without pushing down on it—while keeping the gauge straight. Watch the gauge carefully as it moves so you can see the high and low points on the glass surface.

3. Record results.
Record the results of your measurement. Write down the peak and valley values that you see on the gauge. Record your measurements in millimeters or inches, according to your company's inspection rules. For larger lites of glass or jobs with very high quality standards, you may need to take more than one measurement across the surface of the glass. If so, log each spot and write down the result for each one.

The tolerance limits for roller wave depend on the type of glass you are working with, how thick the glass is, and what the customer needs. Common peak to valley measurement limits usually range from 0.003 to 0.012 inches over a 12-inch span. Check your company's quality standards or look at the customer's order to see what measurements are acceptable for that specific lite of glass.

Operator Tip: After measuring the roller wave, look at the glass at the zebra board. Doing this often will help you understand what level of roller wave is acceptable when looking at it on the line. ■

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Canyon-inspired façade of One River North features high-performance Vitro Architectural Glass configurations. Photo courtesy of Tom Kessler.

GREAT GLAZING: ONE RIVER NORTH

ARCHITECT
MAD Architects

GLASS MANUFACTURER
Vitro Architectural Glass

GLASS FABRICATOR
Millet Glass Industry

GLAZING CONTRACTOR
Alliance Glazing Technologies

Located in Denver's River North Art District, the One River North mixed-use tower is defined by a striking cracked-open façade that carves a four-story canyon both horizontally and vertically through the structure. Inspired by natural erosion, this design feature incorporates over 13,000 square feet of landscaped terraces and amenity spaces, creating a unique connection between the urban and natural environments.

THE CHALLENGE

The One River North project required complex design solutions to execute its canyon-inspired "cracked" façade. Achieving this vision necessitated intricate geometric modeling to harmonize aesthetic intent with structural integrity. Key technical challenges included fabricating and installing varied, non-standard glass modules and engineering a curved façade illusion using flat components. Success relied on balancing transparency and reflectivity while integrating biophilic elements, and early multi-team collaboration.

THE DESIGN

MAD Architects designed a building that offers residents stunning views of the Rocky Mountains and the Denver skyline. A canyon-like structure cuts through the façade, merging the natural and built environments. To achieve this vision, the project utilized two high-performance products from Vitro Architectural Glass to meet its aesthetic and performance goals.

For most of the tower, architects specified Solarban® R100 Acuity® glass. Its neutral aesthetic and high reflectivity allow the façade to mirror the Rocky Mountains. This combination of a solar-control low-emissivity coating with high-clarity low-iron glass provides superior thermal efficiency and visual transparency, offering occupants clear views and privacy. In contrast, Solarban® 72 Acuity® glass was used for the retail podium and residential patios. This choice offers superior transparency with proven energy efficiency, creating a brighter, more open envelope at the pedestrian level. It also improves daylighting within public spaces and deeper interior areas of the residential spaces.

THE RESULT

One River North successfully integrates biophilic design with high-density urban architecture, establishing a new benchmark for mixed-use developments. Through the innovative use of Solarban® R100 Acuity® and Solarban® 72 Acuity® glasses, the building achieves a precise balance of reflectivity, transparency and energy efficiency, making One River North a visually striking, sustainable structure in the heart of Denver.

Visit vitroglazings.com for more information about Vitro's high-performance architectural glass. ■

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MEET THE EXPERTS

LEADING PARTNERS IN GLASS FABRICATION HEAD TO CHICAGO FOR GFAB

JUNE 14-17, 2026
CHICAGO

The challenges facing fabricators today—economic pressures, workforce development, evolving technology and more—require real solutions. The National Glass Association is launching a new event for fabrication companies, to help leaders address those challenges head on—GFAB, the NGA Glass Fabricator Conference.

From June 14-17 in Chicago, glass fabricators and their supplier partners will gather for GFAB. The conference will deliver hands-on training, strategic insights, and networking that directly impact fabricator success. Key to that success is connecting fabricators with experts in the field.

In the following pages, learn more about some of those experts who will be onsite in Chicago. Behind every precision-cut panel, every code-compliant application, every automated fabrication line is a person who has spent years—sometimes decades—mastering their craft.

Meet the Expert gives companies the opportunity to put their people front and center. Not their products. Not their logos. Their people. The program highlights the subject matter experts who answer strategic, technical, and business leadership questions and solve real problems for fabricator customers every day.

Each profile invites experts to share their top areas of expertise, and pull back the curtain on what their companies actually do. It's part industry education, part thought leadership—and wholly human. Meet the Experts and GFAB both recognize that the glass industry's greatest asset is not any single piece of equipment or technology. It's the people who understand how to use it, improve it and pass that knowledge on.

MEET THE EXPERT

Sebastian Dick



JOB TITLE
Manager, A+W Clarity Innovations

COMPANY NAME
A+W Software

YEARS IN INDUSTRY
24

CONTACT ME
Find all company contacts at a-w.com

My top areas of expertise

- Project delivery and process optimization
- Shop floor operations
- Product ownership and portfolio strategy

Most surprising thing I've learned

When I started at A+W, I was 22 and knew very little about glass. It was far more sophisticated than I imagined. What surprised me most was how differently companies operate. Even within the same country or region, three fabricators can approach the same challenge in completely different ways. I underestimated just how complex the processes are and how much variety exists across the industry.

My definition of success

Early in my career, it was pretty straightforward. Success meant finishing tasks and closing out project deliverables. Over time, though, the question changed from "Did we deliver?" to "Did it truly make a difference?" Today, success means creating something that genuinely benefits the people using it. You see an idea take shape, move into production and then hear from customers that it's actually helping them. When you can see that real impact, that's when I consider it a success.

How I stay ahead of the curve

For me, it really starts with enjoying what I do. If you're genuinely interested, staying ahead doesn't stop at 5 p.m. It's about staying curious, paying attention to what's changing, and keeping an open mind. I also try to look outside our industry because some of the best ideas come from completely different fields.

What I'd change about how our industry operates

From a software perspective, I would love to see more consistent industry standards. Many customers don't understand why connecting machines and software can take so long, or why it sometimes feels harder than it should. From the outside, it looks simple. In reality, every manufacturer has its own interfaces, protocols and history. Bringing all of that together is much more complicated than it seems.

What you might not know our company does

There is quite a bit happening at A+W right now. We are expanding A+W Smart Factory with a dedicated solution for manual production. This solution brings the same kind of dynamic production control into areas that are not fully automated. At the same time, we are integrating the A+W Logistics Optimizer more deeply into our existing products to further strengthen the pull-based workflow within A+W Smart Factory.

Anything else to add?

If you want to stay up to date on what we're working on, I recommend following me on LinkedIn. I regularly share insights, product news and early looks at upcoming initiatives. You're also welcome to connect with me there. ■

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A+W
Software for
Glass, Windows & Doors

MEET THE EXPERT

Nate Huffman



JOB TITLE
Regional Sales Manager – North America East

COMPANY NAME
LiteSentry-Softsolution-Strainoptics

YEARS IN INDUSTRY
20

CONTACT ME
nate.huffman@litesentry.com, 317/753-9330

My top areas of expertise

- Advanced quality inspection technologies
- Process optimization and cost-of-quality reduction
- Business development

Most surprising thing I've learned

Early on, I learned how much of the industry still relied on manual processes despite operating highly sophisticated equipment. We had advanced cutting tables, CNC machines and tempering furnaces, yet production tracking, quality documentation and even inspections were often driven by paperwork, handwritten logs and subjective visual checks. Manual inspection, in particular, stood out—critical quality decisions were frequently based on sampling with individual judgment rather than 100% inspection with traceable quantified data.

My definition of success

I defined success as delivering a piece of equipment, installing it properly and ensuring it performed as promised. It was about execution and doing the job well.

Success now means being a true value-added partner to my customers—bringing expertise, insight and solutions that measurably improve their productivity and profitability. I want customers to view me not just as someone who supplies equipment, but as an integral part of their long-term performance and continuous improvement strategy.

How I stay ahead of the curve

The most effective way to stay ahead of the curve is simple: listen to our customers. They're the ones navigating the fast-changing landscape every day—facing labor challenges, evolving quality expectations, tighter tolerances and increasing performance demands. Our role is to truly understand their pain points and anticipate what the next challenge will be before it becomes widespread.

What I'd change about how our industry operates

One thing that we are trying to "change" is how the industry quantifies/measures distortion in glass. The industry is a bit archaic and used to have a lot of manual processes and standards in place. One in particular is the roller wave standard that measures distortion using a manual roller wave gauge that doesn't truly quantify what the eye sees. We are trying to educate the industry to reevaluate those standards and to focus more on optical distortion measured in millidiopters as that best reflects what the eye actually sees.

What you might not know our company does

An exciting development is the latest generation release of our distortion and anisotropy inspection platform, the Osprey®25, which integrates surface quality inspection, and represents a significant step forward in providing comprehensive, full-field optical and surface quality measurement in a single solution. ■

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MEET THE EXPERT

Jeff Spicer

JOB TITLE
Co-President and COO

COMPANY NAME
IGE Glass Technologies Inc.

YEARS IN INDUSTRY
21+

CONTACT ME
jspicer@igesolutions.com, info@igesolutions.com, 800/919-7181, 561/741-7300

My top areas of expertise

- Financially structured automation planning
- Long-term service partnerships
- Operational flow and accountability

Most surprising thing I've learned

I learned that this industry runs on trust, but trust must be backed by numbers. Relationships open doors, but financial discipline keeps them open. Customers want confidence not just in performance, but also in the return that their investment in IGE's solutions will generate for them.

My definition of success

Early on, I measured success by the total number of sales and successful installations. While I still use these markers as factors in measuring success today, my definition of success has evolved to consider sustainable return. I now define success when a customer achieves their projected payback window, stabilizes labor, improves their uptime and then returns to us for the next project; that is success.

How I stay ahead of the curve

IGE partners with specialized global manufacturers in cutting; CNC processing for drilling, milling, countersinking, polishing and waterjet technology; closed-loop water filtration; tempering; intelligent storage; bird-friendly laser marking; digital glass printing; carbon fiber impellers; and other emerging technologies. We have always searched for the cutting-edge technologies, and the only way to successfully bring them to market is to partner with the right manufacturers to support staying ahead of the curve.

What I'd change about how our industry operates

Increased attention to financial modeling in equipment selection. I believe that automation decisions should include ROI exercises such as energy analysis, uptime and lifecycle planning.

What you might not know our company does

I think it speaks volumes that IGE Glass Technologies has been in existence for almost four decades, with our CEO and founder, Michael Spellman, pioneering automation in this industry since 1978. We've always been on the forefront of introducing the greatest technology to the market, and we've been an integral part in advancing many of the major lines in the North American market.

Anything else to add?

I think an important topic that isn't often addressed in businesses is continuance, succession and long-term plans. After more than four decades of IGE providing solutions to the glass industry, its senior management and ownership have put together a succession plan that will allow IGE to carry on with our team, and continuously provide new technologies that solve the problems fabricators face. ■

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MEET THE EXPERT

Dave Miller



JOB TITLE
Business Development Executive

COMPANY NAME
Cyncly

YEARS IN INDUSTRY
25+

CONTACT ME
dave.miller@cyncly.com

My top areas of expertise
- Workflow automation
- Glass fabrication
- System integration

Most surprising thing I've learned
How hungry fabricators and manufacturers are to improve. Early on, I saw their drive to move faster and connect more closely with customers, but many were fighting against a patchwork of disconnected systems that they'd adopted over the years. It was eye-opening to see how much potential was being held back simply by software that couldn't connect islands of automation and promote streamlined workflows.

My definition of success
Over the years, I've moved from a project mindset to a partnership mindset. Two decades ago, success was getting a new system live. Today, I'm more focused on long-term objectives. I'm now working with companies I first met 20 years ago, which gives everything a new perspective. That means success for me is less about the go-live date, and more about keeping those partners working optimally as technology and global competition evolve.

How I stay ahead of the curve
I try to listen more than I talk. I spend as much time as possible understanding the specific bottlenecks fabricators face daily. I'm also in a unique position at Cyncly where I can tap into a massive R&D engine and a wide range of complementary technologies. Being part of a larger organization allows me to see cross-industry trends and bring those best-of-breed innovations back to my customers in the glass space.

What I'd change about how our industry operates
I'd love to see a faster move toward full digital integration across the entire supply chain. Our industry is incredibly resilient, but we still deal with silos of information. If we can get manufacturers, dealers and contractors all speaking the same digital language, we can eliminate the lead-time delays and mistakes that currently feel normal but are actually avoidable.

What you might not know our company does
I'm incredibly excited about how Cyncly is connecting the shop floor directly to the in-home and dealer sales experience. We are building an ecosystem where design, manufacturing and installation exist in one seamless workflow. This ensures that what is measured is exactly what gets cut on the table—no manual re-entry, no sketches and no mistakes. This connection helps every business in the chain sell more, faster.

Anything else to add?
Just that the future of glass fabrication is bright. With the right technology partner, the challenges of labor shortages and rising material costs become manageable. At Cyncly, we're committed to making sure our customers can lead the way through these new shifts in the market. ■

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Cyncly

MEET THE EXPERT

Scott Mashuda



JOB TITLE
Founding Partner

COMPANY NAME
REAG

YEARS IN INDUSTRY
25+

CONTACT ME
smashuda@reag.com, info@reag.com, 833/333-7324

My top areas of expertise

- Lower middle market M&A advisory and deal execution
- Private market M&A intelligence for founder-led companies
- Human-centered legacy transitions

Most surprising thing I've learned

How much emotion goes into an owner's decision to sell. Coming from a family of entrepreneurs, I've always understood that motivation goes beyond the financials. Owners often focus on whether a buyer will preserve the culture they've nurtured, provide opportunities for long-tenured employees or continue serving their community in a way that reflects the company's values. Money matters, of course, but it's rarely the driving force; it's the responsibility they feel to everyone connected to the business.

That level of emotional weight behind each decision has been both surprising and incredibly grounding. It's a reminder that M&A is fundamentally a people-driven process, and that guiding owners through it requires as much empathy and communication as it does technical skill.

My definition of success

True success is measured by what happens after the signatures dry. It's a founder who, two years later, still feels confident and at peace with their decision—not just relieved on closing day. It's about employees who remain in stable jobs, customers who continue receiving great service, and a legacy that not only survives the transition but grows because of it.

How I stay ahead of the curve

By staying entrenched in the market—constantly talking to buyers, tracking active and closed deal flow, and understanding what drives valuations and deal structures. But honestly, the best intelligence comes from conversations with owners and operators in the industry. They see shifts in demand, supply chain pressures and competitive dynamics before they show up in any report.

What I'd change about how our industry operates

I'd like to see more transparency around what businesses are actually worth and what drives value. Too many owners operate on outdated assumptions—that their business is worth some arbitrary multiple they heard years ago, or that revenue is what matters most. In reality, buyers in this space are looking at adjusted EBITDA, customer diversification, product and end market diversification, equipment condition, and management capability.

What you might not know our company does

REAG has closed over 100 transactions across 25-plus industries, with deep experience in manufacturing, fabrication and building products. We recently completed the sale of New Angle Beveling—a multi-generational glass manufacturer—to Aldora Aluminum & Glass. ■

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MEET THE EXPERT

Cliff Green



JOB TITLE
President and Founder

COMPANY NAME
TSS Glass Machinery Sales Inc.

YEARS IN INDUSTRY
22+

CONTACT ME
tss-sales.com

My top areas of expertise

- Glass fabrication machinery, operational optimization, and customer plant design and development assistance
- Technical support, troubleshooting and equipment performance improvement
- Spare parts sourcing, installation services and long-term equipment lifecycle planning

Most surprising thing I've learned

How dramatically small details can influence the entire production process. Early on, I realized that a minor adjustment—a calibration, a worn part, a workflow change—can make the difference between smooth production and costly downtime. That insight shaped my approach to service and support from day one.

My definition of success

At first, success meant fixing the immediate issue. Over time, it became about preventing problems before they happen. Today, success means helping customers build stable, efficient operations that support long-term growth. It's about being a trusted partner, not just a service provider.

How I stay ahead of the curve

I stay connected to the production floor and to the people running it. By listening to fabricators, monitoring equipment performance trends and maintaining strong relationships with manufacturers, I can identify emerging needs early and bring practical, effective solutions to customers before issues escalate.

What I'd change about how our industry operates

I'd shift the mindset from reactive to proactive maintenance. Too many operations wait for equipment to fail before addressing issues. A stronger preventative maintenance culture would reduce downtime, extend equipment life and significantly improve overall productivity.

What you might not know our company does

TSS Glass Machinery Sales is built on real fabrication floor experience. We're not just a sales organization—we provide spare parts, technical support, installation services and plant design assistance backed by decades of hands-on knowledge. Our facility allows us to stock essential parts and respond quickly to customer needs. We're committed to long-term partnerships and helping fabricators keep their operations running at peak performance.

Anything else to add?

The glass industry is built on precision, craftsmanship and trust. My goal with TSS has always been to honor those values by providing honest guidance, reliable support and solutions that genuinely help fabricators succeed. I'm grateful for the relationships we've built and look forward to supporting the industry for many years to come. ■

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TSS GLASS MACHINERY SALES INC.
SPECIALIZING IN GLASS MACHINERY AND SUPPLIES

THE LIST
An industry ranking of leading architectural glass fabricators
P.52

GROWTH
Total market sales, regional growth and glass supply.
P.62

LABOR
Hiring, training and employer benefits.
P.64

PRODUCTS
Glass capabilities, product demand and recycling capacity.
P.66

INVESTMENT
Capital investments, headwinds and tariffs.
P.68



TOP GLASS FABRIC



An employee of Top Glass Fabricator Prelco. This year's industry ranking and market report includes a special section on labor, including relative difficulty of hiring, positions that are difficult to fill and employer benefits.

CATORS

LEADING BUSINESSES PREDICT SLIM GROWTH AND SLOW RECOVERY IN THE YEAR AHEAD

BY NORAH DICK

At the time I write this in February, "cautious optimism" has become almost a clichéd term for describing the 2026 market outlook after the market uncertainty that defined 2025. If it's possible to characterize Top Glass Fabricators' mixed outlook moving forward, I would instead call it "resilient optimism" given the difficulties even leading companies have experienced over the past decade.

And while responses from the Top Glass Fabricator survey suggest that almost all fabricators felt 2025 was a difficult year, many say that 2026 has the potential to be better, while also recognizing that the same market uncertainty may remain.



Skyline worked with architecture firm Studio Gang to create a unique design for this bird-friendly glass. While the pattern may appear as dots, it displays small silhouettes of animals native to the area around the project, Kresge College at the University of California. Phot by Jason O'Rear Photography.

And 2025 was a difficult year. The Trump administration began to enact tariffs in February, escalating to "Liberation Day" tariffs in April. In June, tariffs on aluminum and steel rose to 50%. Fabricators report that machinery, hardware and metal products were the top three products affected in their section of the industry. "Most hardware comes from overseas that is sold domestically, and we saw an increase from our vendors," says a rep from Glassfab Tempering Services. To learn about fabricator capabilities and fabricated glass products most in demand, see Products on pages 66-67.

According to a plurality of survey respondents, tariff rates also had the effect of delaying and slowing projects. "Tariff introductions and inconsistencies created uncertainty and volatility, causing hesitation and paralysis in the market. Projects were delayed," says Garrett Ames, president of Dillmeier Glass. For more on tariffs and capital equipment investment, see pages 68-69.

Tariffs compounded existing issues, and led to general market uncertainty and cost increases, according to fabricators. "In 2025, the most significant challenges to our business stemmed from cost volatility, supply chain complexity and project uncertainty, all of which disproportionately affect specialty glass fabrication," says a rep from Isoclima Specialty Glass. "Tariffs and pricing fluctuations on key raw materials—such as base glass, interlayers, coatings and specialized components—made cost forecasting and long-term pricing more difficult, particularly on projects with extended lead times."

Big closures from Top Glass Fabricator Oldcastle BuildingEnvelope compounded this sense of uncertainty and volatility—the company closed three facilities in Hauppauge, New York; Highland, Michigan; and Louisville, Kentucky, in August of last year.

Still, fabricators responding to the Top Glass Fabricators survey in January seemed to feel that some market pressures were beginning to ease at the start of this year. "There are clear signs that more projects are beginning to receive the green light after a period of hesitation, and the gradual easing of interest rates should further support this momentum," says Max Fisher, vice president, Eastern Glass Resources. "As financing conditions improve, developers and building owners are likely to move forward on projects that had previously been delayed, helping to stimulate broader market activity." For more on 2025 sales growth and regional market activity, see Growth on pages 62-63.

Labor remains a major issue across the industry, and workforce development has become a priority initiative at the National Glass Association. In recognition of this complex and enduring issue, this year we asked fabricators about hiring, training and employee benefits. Find that information on pages 64-65.

The Top Glass Fabricators report is also a time to celebrate the growth and persistence of leading fabricators in our industry. Find the long-running industry ranking of North America's leading fabricators on pages 52-60.

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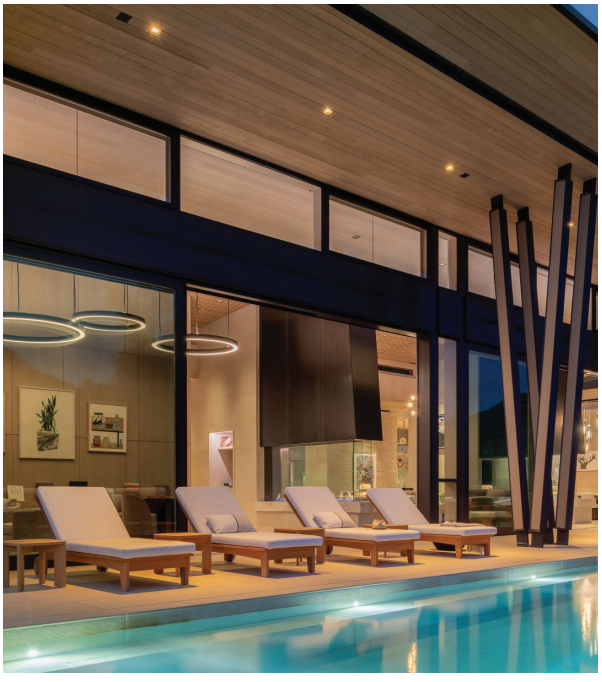





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THE LIST





THE 69 COMPANIES ON THIS LIST REPRESENT SOME OF THE LEADING FABRICATORS IN NORTH AMERICA. IF YOU FEEL THAT YOUR COMPANY BELONGS ON THIS LIST, PLEASE CONTACT ASSOCIATE EDITOR, RACHEL VITELLO, RVITELLO@GLASS.ORG. IT IS ONLY WITH CONTINUED INDUSTRY COOPERATION THAT WE CAN COMPILE THE TOP GLASS FABRICATORS REPORT. FOR MORE INFORMATION ABOUT THE NORTH AMERICAN FABRICATION MARKET, SEE OUR UPDATED FABRICATOR MAP ON GLASS.ORG/WORLD-GLASS-MAP.

Left: Headlands Technologies new workspace, located within the Bank of America building in Chicago, caters to the requirements of a leading global quantitative trading firm. A striking circular staircase, adorned with Glasshape's distinctive TemperShield bent architectural glass, serves as a focal point in the office's distinctive two-story open void foyer. Photo by Glass Solutions Inc.

500 million - 1 billion+

1

Oldcastle BuildingEnvelope
obe.com
Dallas, TX

2

Tecnoglass
tecnoglass.com
Miami, FL
Plants: 1
Employees: 3,760

3

Trulite Glass & Aluminum Solutions
trulite.com
Alpharetta, GA
Plants: 41
Employees: 2,800+

100-500 million

4

Novatech
novatechgroup.com
Sainte-Julie, Québec, Canada
Plants: 14
Employees: 1,300

5

Viracon LLC
viracon.com
Owatonna, MN
Plants: 1
Employees: 1,000

6

Isoclima Specialty Glass
isoclimagroup.com
Blairsville, PA
Plants: 2
Employees: 1,000+

7

Custom Glass Solutions
customglasssolutions.com
Upper Sandusky, OH
Plants: 4
Employees: 560

8

Aldora Glass
aldoraglass.com
Coral Springs, FL
Plants: 8
Employees: 560

9-15

Basco Manufacturing
bascoshowerdoor.com
Mason, OH
Plants: 4
Employees: 400+



50-100 million

Safti First contributed fabricated glass to the new Tesla Diner, a supercharging station that also features a "classic American diner and drive-in experience" according to Tesla.

9-15

Glasswerks LA Inc.
glasswerks.com
South Gate, CA
Plants: 4
Employees: 650

9-15

Hartung Glass Industries
hartung-glass.com
Tukwila, WA
Plants: 8
Employees: 800

9-15

PRL Glass Systems
prlglass.com
City of Industry, CA

9-15

Prelco
prelco.ca
Riviere du Loup, Québec, Canada
Plants: 3
Employees: 650

9-15

HMI Glass
hmiglass.com
Louisville, KY
Plants: 2
Employees: 500

9-15

Vitrum Glass Group
vitrum.ca
Langley, British Columbia, Canada
Plants: 3
Employees: 400+

16

Glassfab Tempering Services
glassfabusa.com
Tracy, CA
Plants: 4
Employees: 377

17-18

Grupo Tecnovidrio
grupotecnovidrio.com
Ciudad de México, México
Plants: 5
Employees: 1,200

17-18

Safti First
safti.com
Brisbane, CA
Plants: 4
Employees: 280

19

Tristar Glass
tristarglass.com
Catoosa, OK
Plants: 3
Employees: 225

20

GGI – General Glass International
generalglass.com
Secaucus, NJ
Plants: 1
Employees: 230+

21

Press Glass Inc.
pressglass.us
Ridgeway, VA
Plants: 1
Employees: 387

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NMSDC National Minority Supplier Development Council

TB THERMALLY BROKEN

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22

Total Security Solutions
tssbulletproof.com
Fowlerville, MI
Plants: 2
Employees: 130+

23-26

Agnora
agnora.com
Collingwood, Ontario, Canada
Plants: 2
Employees: 132

23-26

Clarus
clarus.com
Fort Worth, TX
Plants: 1
Employees: 200

23-26

Garibaldi Glass Industries Inc.
garibaldiglass.com
Burnaby, British Columbia, Canada
Plants: 1
Employees: 240

23-26

Millet Glass Industry
milletglass.com
Mérida, Yucatán, México
Plants: 1
Employees: 740

30-50 million

27

Tvitec | Cricursa
tvitecglass.com | cricursa.com
Ponferrada, León, Spain
Plants: 11
Employees: 800

28

Glass Enterprises Inc.
geiglass.com
Bensalem, PA
Plants: 2
Employees: 140

29

Glaz-Tech Industries Inc.
glaztech.com
Tucson, AZ
Plants: 9
Employees: 270

30

Blue Star Architectural Glass
bluestarglass.net
North Brunswick, NJ
Plants: 2
Employees: 135

31

Paragon Tempered Glass
paragontemperedglass.com
Antwerp, OH
Plants: 2
Employees: 110

32-33

Insulite Glass
insuliteglass.com
Olathe, KS
Plants: 2
Employees: 160

32-33

Splendor Glass
splendorglass.com
Holland, OH
Plants: 1
Employees: 128

34

Dallas Flat Glass Distributors
dallasflatglass.com
Carrollton, TX
Plants: 1
Employees: 193

35

Dillmeier Glass
dillmeierglass.com
Van Buren, AR
Plants: 1
Employees: 130

10-30 million

36

The Glenny Glass Co.
glennyglass.com
Milford, OH
Plants: 1
Employees: 110

37

A3 Glass Fabricator
a3glassfabricator.com
Houston, TX
Plants: 1
Employees: 107

38

High Performance Glazing Inc.
hpglazing.com
Concord, Ontario, Canada
Plants: 1
Employees: 42

39

Cristacurva
cristacurva.com
Houston, TX
Plants: 2
Employees: 250



40

Goldray Glass
goldrayglass.com
Calgary, Aberta, Canada
Plants: 1
Employees: 60

41

Minneapolis Glass
minneapolisglass.com
Brooklyn Park, MN
Plants: 1
Employees: 95



Georgetown University's 111 Massachusetts Avenue NW used to be known as the "Darth Vader" building because it was so dark. Since an adaptive use renovation, and the use of architectural glass solutions provided by GGI, the building has been transformed into a modern academic hub.

42

General Glass
general-glass.com
Vancouver, WA
Plants: 1
Employees: 90

43

GlasPro Inc.
glas-pro.com
Santa Fe Springs, CA
Plants: 1
Employees: 75

44

Southern Wholesale Glass
southernwholesale.glass
Americus, GA
Plants: 1
Employees: 75

45

Thermalsun Glass Products Inc.
thermalsun.com
Santa Rosa, CA
Plants: 1
Employees: 50+

46-50

AGF Glass
agfglass.com
Springfield, MO
Plants: 1
Employees: 80

46-50

Kensington Glass
kensingtonglass.com
Ijamsville, MD
Plants: 1
Employees: 60

46-50

Maryland Glass & Mirrror Company Inc.
marylandglass.com
Baltimore, MD
Plants: 2
Employees: 50

46-50

Over the Mountain Glass
otmglass.com
Bessemer, AL
Plants: 3
Employees: 65



Employees of Glassfab Tempering Services.

Under 10 million

46-50

Skyline Glass
skyline.glass
Chicago, IL
Plants: 1
Employees: 65

51-52

Bear Glass Inc.
bearglass.com
Queens Village, NY
Plants: 2
Employees: 50

51-52

Northwestern Glass Fab
nwglassfab.com
Fridley, MN
Plants: 1
Employees: 54

53

RGT Glass America
glassrgt.com
Saddle Brook, NJ
Plants: 1
Employees: 40

54

Eastern Glass Resources Inc.
eglassr.com
Harrison, NJ
Plants: 1
Employees: 70

55-56

Consolidated Glass Corp.
cgcglass.com
New Castle, PA
Plants: 1
Employees: 55

55-56

sedak
sedak.com
Gersthofen, Bavaria, Germany
Plants: 2
Employees: 240

57

D3 Glass
d3glass.com
Fort Myers, FL
Plants: 1
Employees: 53

58

Imagic Glass Inc.
imagicglass.com
Vaughan, Ontario, Canada
Plants: 1
Employees: 35+

59

Shape Glass LLC
shapeglass.net
Sarasota, FL
Plants: 1
Employees: 50

60

L.A. Glass and Mirror
la-glass.com
Miami, FL
Plants: 1
Employees: 32

61

Privacy Glass Solutions
privacyglasssolutions.com
Coral Springs, FL
Plants: 2
Employees: 42



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dow.com/buildingscience

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62

Our Terms Fabricators Inc.
West Babylon, NY
Plants: 1
Employees: 30

63

Adriatic Glass & Mirrors Ltd.
adriaticglass.com
Concord, Ontario, Canada
Plants: 1
Employees: 50

64

GlassTemp Inc.
glasstemp.com
Bellwood, IL
Plants: 2
Employees: 28

65

Pennsylvania Insulating Glass
pennsylvaniaig.com
Lewistown, PA
Plants: 1
Employees: 35

66

Glasshape North America LP
glasshape.com
Auckland, New Zealand
Plants: 1
Employees: 45

67

Troy Systems
troysys.com
Manassas, VA
Plants: 1
Employees: 35

68

Washington Glass Fabrication
washingtonglassco.com
Manassas, VA
Plants: 1
Employees: 62

69

Dundy Glass & Mirror Corp.
dundyglass.com
Springfield Gardens, NY
Plants: 2
Employees: 17

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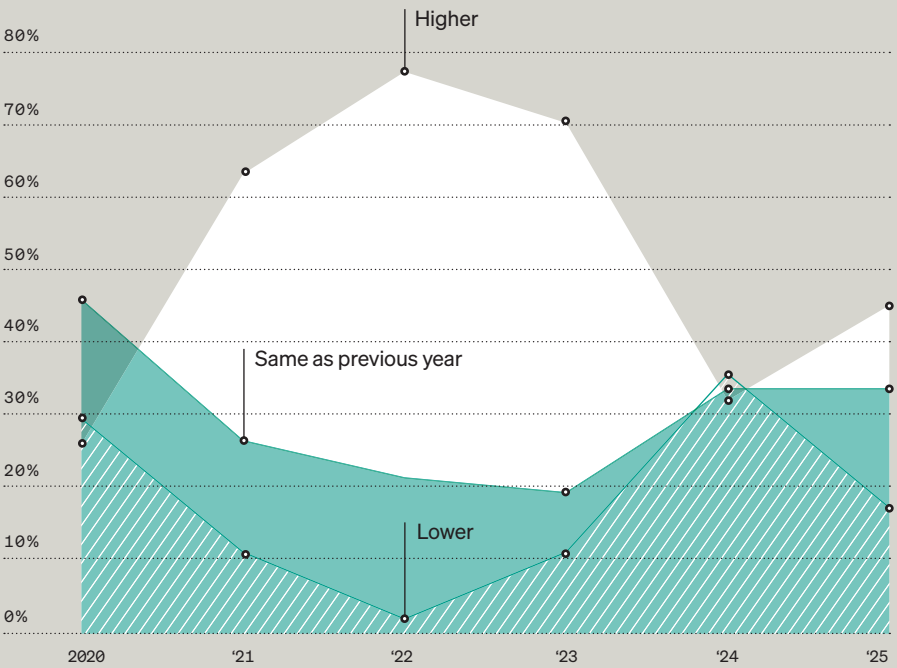
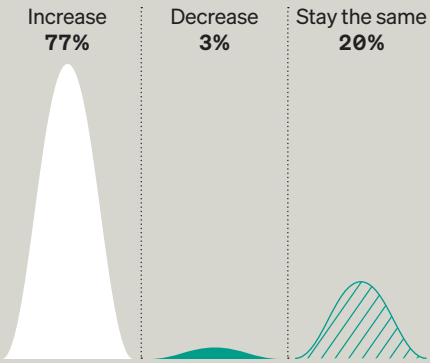
GROWTH

How did 2025 sales compare to the previous year?



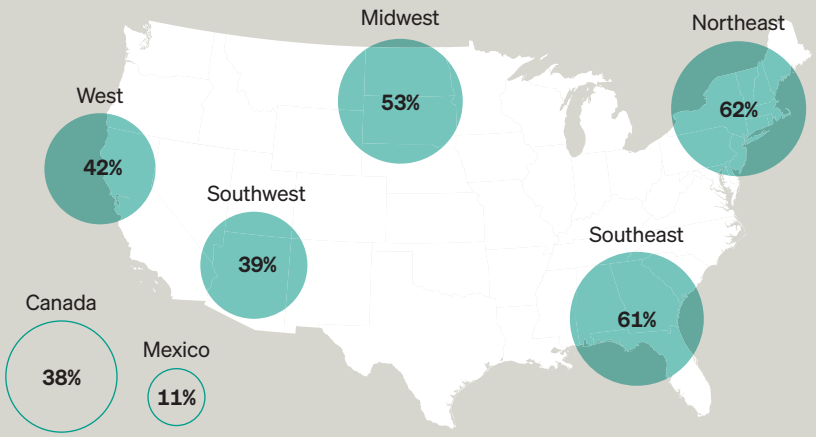
How do you expect sales to change in the coming year?



What percentage of your business is retrofit (0-100%)?



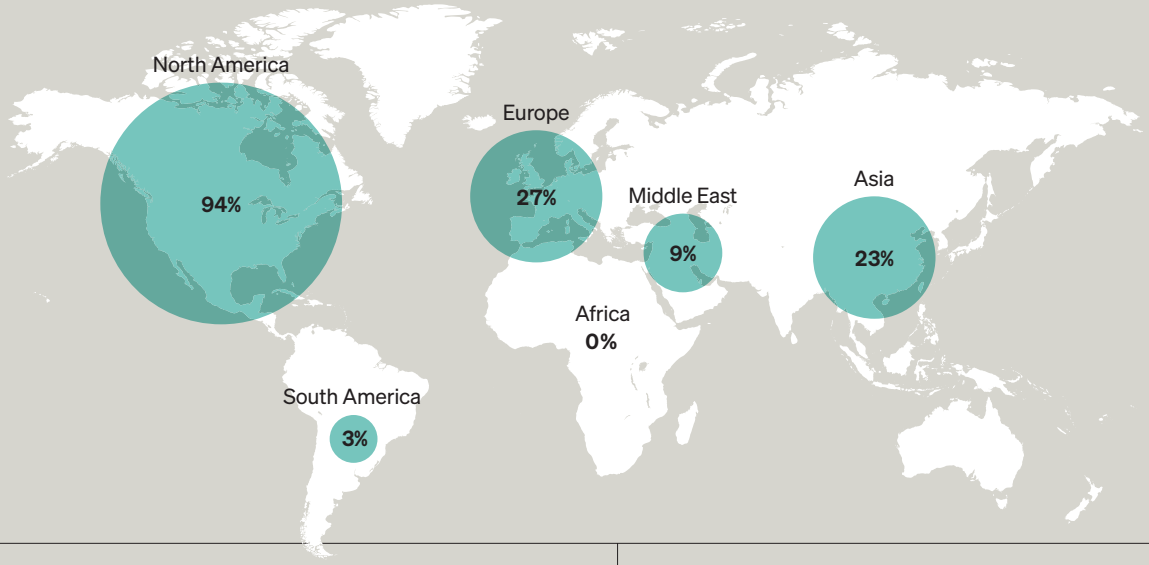
Where fabricators operate in North America.



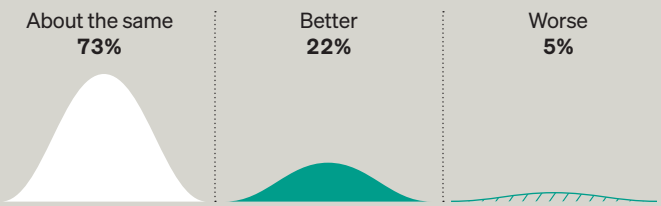
20%

percent of fabricators changed where they purchased glass in 2025

Where did you purchase raw glass from in 2025? Fabricators could choose more than one region.



How did the raw glass supply in 2025 compare to the previous year?



WHILE ALMOST ALL RESPONDENTS REPORTED THAT GLASS SUPPLY WAS EITHER THE SAME OR BETTER IN 2025 COMPARED TO 2024, 39% ALSO SAID THAT TARIFFS AFFECTED RAW GLASS PURCHASES LAST YEAR

Last year saw a return to higher year-over-year sales growth, according to leading fabricators. Almost half, 45%, of responding fabricators reported higher sales in 2025 compared to the previous year, a 13-point increase. Over three-quarters of respondents said they expect sales to continue increasing in the coming year.

While that's good news for the industry, fabricators' expectations for 2026 were mixed—uncertainty about market conditions tempered expectations for potential growth. A majority reported "cautious optimism" and flat to moderate growth for the year ahead, especially due to lowering interest rates. "We forecast a slight increase in business as interest rates continue to drop," says Jeff Wilkins, production manager and business development, Pennsylvania Insulating Glass. "We expect that lowered interest rates will increase home sales, renovation and construction projects."

As is common during times of market instability, more respondents report they did retrofit work in 2025 than during the previous year. Sixty-four percent of fabricators said retrofit comprised 25-100% of their business last year, compared to 46% the previous year. "Retrofit activity is expected to remain strong as owners upgrade existing buildings to meet new performance, energy and security standards," says a representative for Isoclima Specialty Glass about the coming year.

While almost all respondents reported that glass supply was either the same or better in 2025 compared to 2024, 39% also said that tariffs affected raw glass purchases last year (See Investment on page 68). While it didn't appear to affect the global geographic region in which the glass was purchased—North America remains the primary place responding fabricators purchase glass—about 20% of respondents say they changed where they purchased glass last year. Fabricators cited price increases as the main cause for seeking a different source for float glass.

A plurality of respondents with businesses operating in all U.S. regions say that construction in the South and the Sun Belt regions is growing, especially Florida, due to population growth. These reports are supported by U.S. Census Bureau data for 2025, which indicates that Texas, North Carolina and Florida received the largest influx of domestic migration last year. By percentage—meaning the amount of growth compared to the state's existing population—South Carolina is the fastest-growing state.

LABOR

How would you rate the difficulty of finding qualified workers in 2025 compared to 2024?

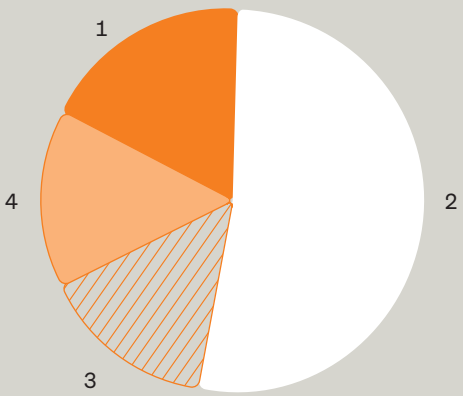
Much easier to hire **0%**

1 Somewhat easier **15%**

2 About the same **53%**

3 Somewhat more difficult **18%**

4 Much more difficult **15%**



What jobs were the hardest to fill in 2025?

1 Production personnel **42%**

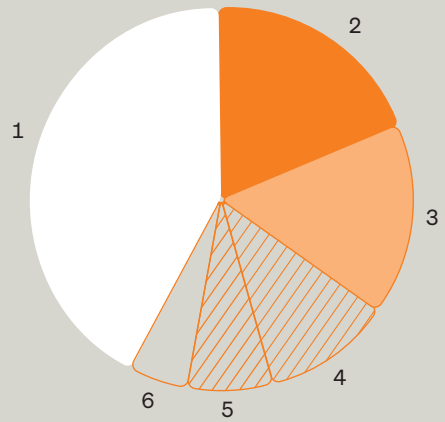
2 Production supervisor **19%**

3 Sales/marketing **16%**

4 Logistics/ Transportation **11%**

5 Other **7%**

6 Administrative support staff **5%**



How would you rate the difficulty of finding qualified workers in 2025 compared to 2024?

Medical insurance	**97%**
Dental insurance	**85%**
Vision insurance	**80%**
Bonuses	**76%**
401(k)	**73%**
Cellular phone or allowance	**68%**
Reimbursed conference/trade show travel	**61%**
Professional development	**54%**
Parental leave	**47%**
Company vehicle or vehicle allowance	**44%**
Tools or tool allowance	**32%**
Profit sharing	**22%**
Tuition reimbursement/other training	**19%**
Other*	**8%**
Onsite childcare	**0%**

*Doctor onsite, massage therapy, sports, monthly staff events, life insurance

How did shifts change during 2025?

Number of shifts stayed the same **82%**

We added shifts **15%**

We got rid of shifts **3%**



60%

of fabricators say they have a training program

"THE COST OF LIVING FOR SHOP WORKERS IS STILL VERY HIGH, SO THEY NEED TO MOVE TO A [PLACE FAR FROM WORK] WHERE THEY CAN AFFORD A HOUSE TO RENT, AND ARE NOT EVEN THINKING OF BUYING A HOUSE"

A third of responding fabricators found it more difficult to hire in 2025. Production personnel and supervisors were the hardest positions to fill, according to respondents. The size of the workforce seems to have remained the same year-over-year—a significant majority of respondents, 82%, said shifts stayed the same, and only 3% reported removing shifts.

Given the National Glass Association's focus on workforce development and training, this year we also asked respondents about the benefits their companies offer to employees. Medical, dental and vision insurance topped the list of benefits most companies offer, followed closely by bonuses and a 401(k) account. About half of the responding companies say they offered parental leave.

About 60% of companies reported having a current training program, and a little less than a third say they plan to invest in one this year (see Investment on page 68). When asked about their training course content, commonalities across fabricator programs include:

- Establishing production quality standards early in the onboarding process.
- Gradual exposure to different departments in the business, including front-of-office operations.
- 30/60/90-day check-ins
- One-on-one training with a team leader or experienced staff member, which can include workday shadowing or a kind of buddy system.

For GlassTemp Inc., the process of onboarding can also offer the new hire and staff an opportunity to see which position might suit both the company and the individual. President Bob Becker says that during the training program, "The employee is exposed to each workstation throughout this process. This allows both the employee and management to decide where mutual interest lies."

At some companies, the training does not end after 90 days. "We have continuous improvement lunch-and-learn [events] to help staff learn about glass more thoroughly," says Adam Mitchell, marketing manager at Agnora.

Though companies appear to be offering a range of benefits, Nelson Morello, CEO of L.A. Glass and Mirror, also underlined the pinch workers are feeling outside of their jobs. "The cost of living for shop workers is still very high, so they need to move to a [place far from work] where they can afford a house to rent, and are not even thinking of buying a house," he says.

IMPROVE ROI ON THE TEMPERING LINE

Introducing MyGlassFAB and GFAB—two solutions for glass fabricators who are serious about transforming their operations into a competitive advantage.

MyGlassFAB, available through MyGlassClass.com, now features a six-course bundle for purchase that walks furnace operators through the entire tempering process, training them on best practices to help ensure high product quality. From the basics of heat-treating, to how to prepare glass and equipment, to how to operate a furnace, how to inspect the final product, and how to maintain equipment.

Pair that with **GFAB: NGA's Glass Fabricator Conference**, June 14-17 in Chicago, and glass fabricators have the tools to tackle the two biggest levers for ROI improvement in tempering: your people and your technology.

Attendees to the new GFAB Workshop: Quality Control in Glass Tempering will walk away with:

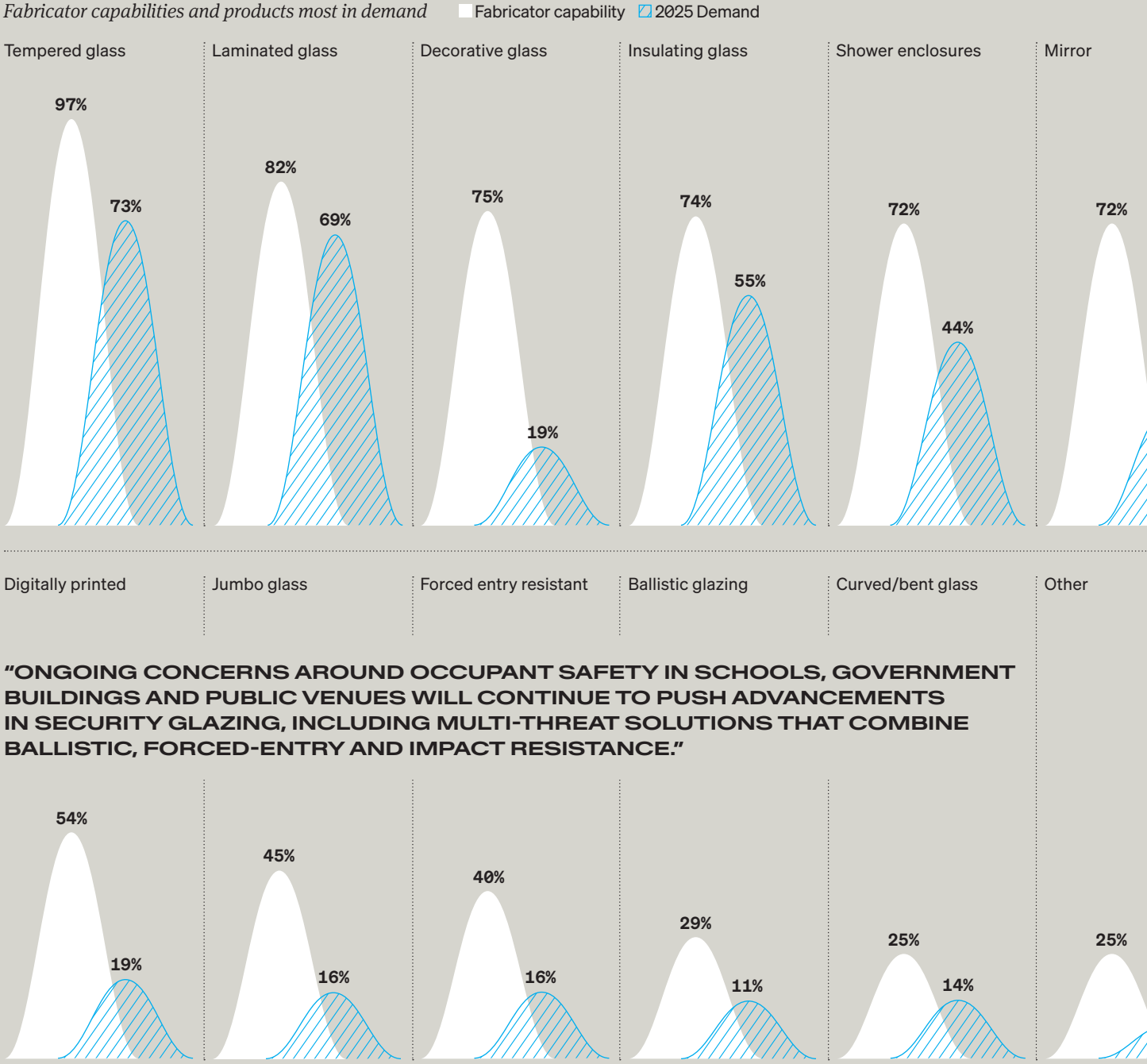
- A clear understanding of how operator training improves quality control, reduces rework and builds a workforce that can grow with your business.
- A hands-on look at the latest advancements in automated inspection systems and what the ROI case actually looks like for companies your size.
- Peer connections with fabricators across the country who are facing the same pressures

The glass companies winning in today's market aren't just buying better equipment or training more people—they're doing both, strategically. The ones falling behind are still treating training as a cost and technology as a gamble.

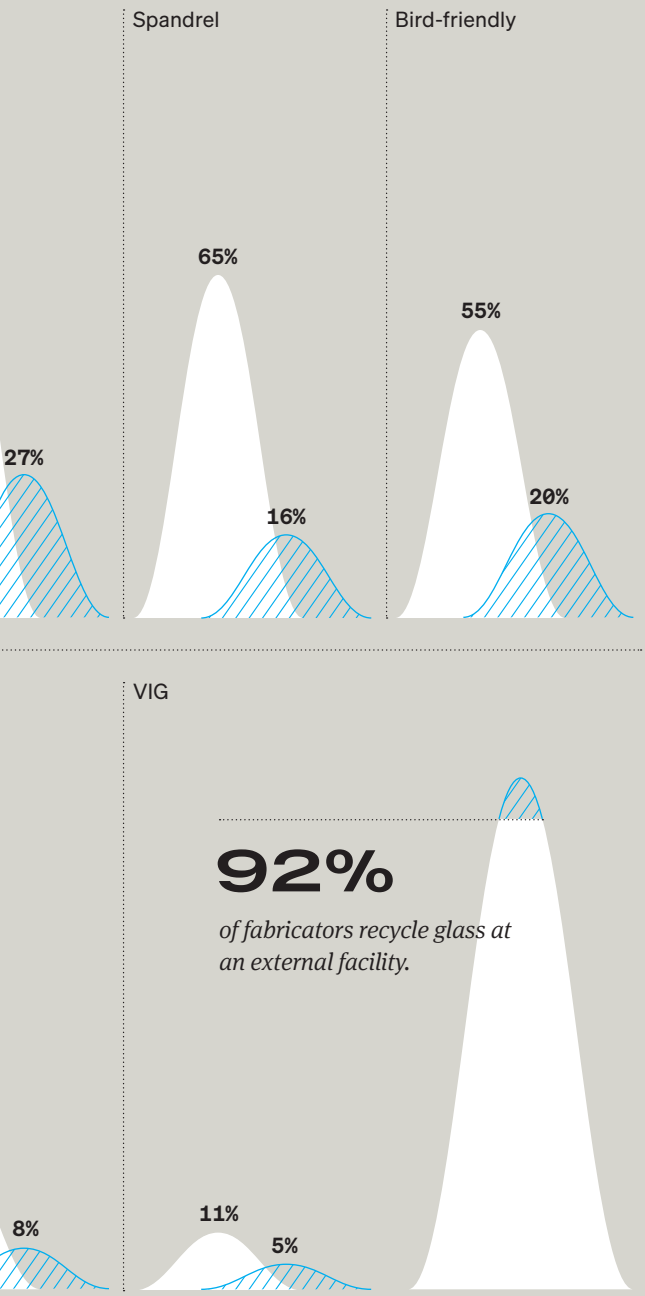
You can't afford to leave either lever untouched. Learn more at myglassclass.com and glass.org/gfab.

PRODUCTS

Fabricator capabilities and products most in demand



"ONGOING CONCERNS AROUND OCCUPANT SAFETY IN SCHOOLS, GOVERNMENT BUILDINGS AND PUBLIC VENUES WILL CONTINUE TO PUSH ADVANCEMENTS IN SECURITY GLAZING, INCLUDING MULTI-THREAT SOLUTIONS THAT COMBINE BALLISTIC, FORCED-ENTRY AND IMPACT RESISTANCE."



Fabricator capabilities remained relatively similar year-over-year. Shower enclosures remain a major product category, with greater demand than for jumbo glass, according to respondents. Part of the reason may be increased residential work, says Kristina Buckett, director of sales and business development, Dallas Flat Glass Distributors, who attributes the robust demand for enclosures to "high-end residential remodeling and new construction. Since homes are struggling to sell, people are doing all they can to upgrade, including updating windows and shower enclosures." Joseph Smith, warehouse operations manager, The Glenny Glass Co., added that demand for European-style shower doors appears to be "steadily increasing year-over-year."

Several respondents say regulation also drove product innovation last year. "Demand in 2025 was driven primarily by regulatory pressure, safety concerns and evolving design expectations in the U.S. Stricter building codes and sustainability requirements increased the use of high-performance insulating and laminated glass to meet energy, acoustic and thermal standards," says a rep for Isoclima.

Respondents say that security and sustainability will both drive demand for fabricated products in the coming year. "We expect innovation to be shaped by new building codes, with higher expectations around safety, and stronger sustainability goals. Areas like security glazing, bird-friendly solutions and energy-efficient glass will continue to influence product development," says Kevin McMahon, vice president of sales and marketing, Goldray Glass.

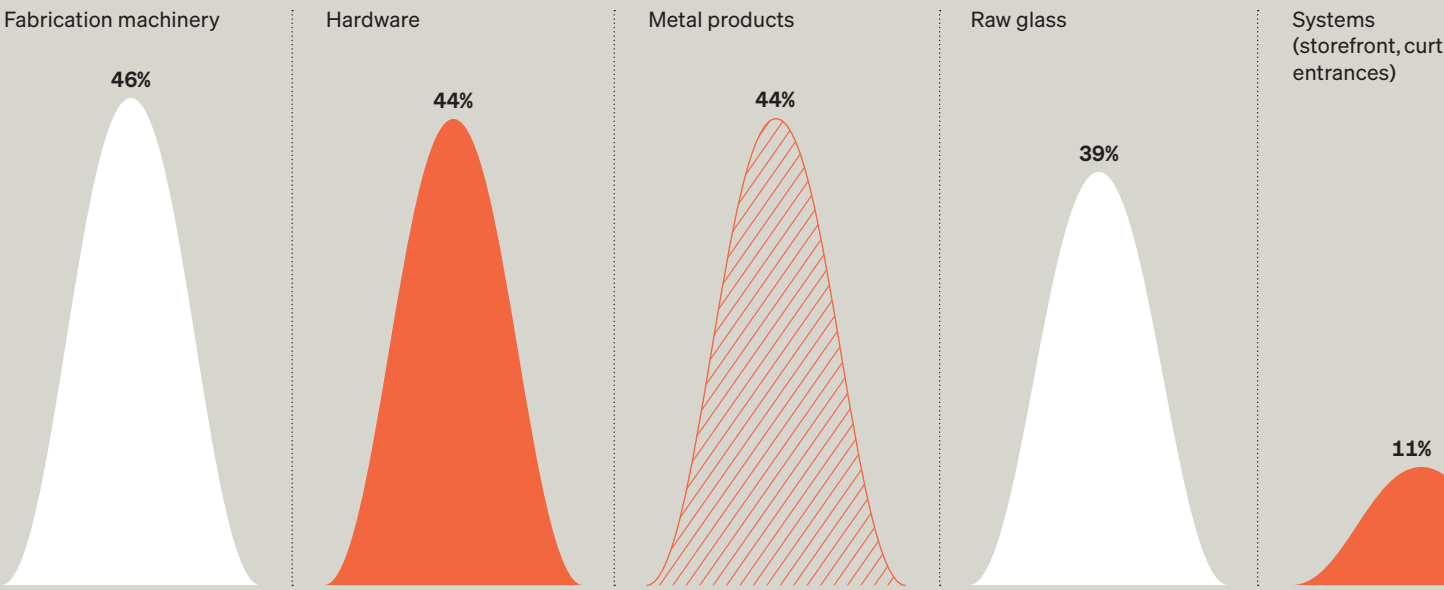
"Looking ahead to 2026, product innovation is expected to be driven by a convergence of security, sustainability, performance and regulatory requirements," says an Isoclima rep. "Ongoing concerns around occupant safety in schools, government buildings and public venues will continue to push advancements in security glazing, including multi-threat solutions that combine ballistic, forced-entry and impact resistance."

Related to sustainability, about 92% of fabricators say they recycle glass at an external facility, like a municipal recycling facility, or MRF. While many fabricators reported no issues with recycling—some reported the ability to recycle glass in-house and with suppliers as well—barriers to recycling remain for fabricators. The most common is complicated logistics and the lack of facilities near the business able to recycle specialty glasses.

"There is no local source to go to [for recycling]. Also, separating out all of the types of glass still proves to be too difficult and costly to consider shipping out," says GlassTemp's Becker. "Much of the glass we produce is laminated, coated, multi-layered or engineered for security and performance, which makes separation and traditional recycling more challenging than standard float glass," says a rep for Isoclima. "In addition, access to facilities equipped to process specialty glass varies by region, and transportation costs can be a limiting factor."

INVESTMEN

What products were most affected by tariffs?



What kind of production capacity did you add in 2025? Fabricators could select more than one option

Invested in capital equipment	82%
Software	48%
Launched new product lines	42%
Facility expansion	31%
Added locations	17%
Other*	11%
None	8%
Made acquisitions	8%
Investment and expansion have been put on hold	2%

*Delivery trucks, R&D

What are your company's expansion and investment plans for 2026? Fabricators could select more than one option

Invest in capital equipment	69%
Launch new product lines	50%
Invest in a training program	28%
Invest in sustainability/energy-efficiency upgrades	27%
Add locations	14%
None	13%
Make acquisitions	6%
Facility expansion	5%
Investment and expansion will be put on hold	3%
Software	3%
Other	3%
R&D, increasing workforce, adding shifts	

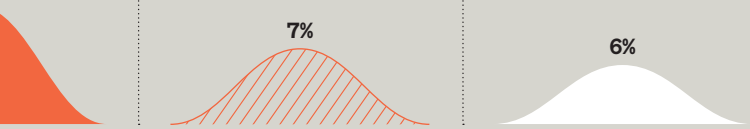
NT

ain wall,

Other*

*Canadian products, paint, frit and tooling

Handling equipment



What is your top concern moving forward?

Economic slowdown	19%
Competition from imports	12%
Inflation	12%
Tariffs	11%
Trade uncertainties	11%
Logistics/trucking	9%
Healthcare/insurance costs	7%
Energy costs	5%
Raw material costs	5%
Supply chain issues	4%
Other*	4%
Material shortage	2%

*Increased competition, economic uncertainty

Capital equipment purchases topped the list of fabricator investments in 2025. When asked about the reason for their equipment or machinery purchases, fabricators pointed to growing demand and the need for greater capacity, requiring them to scale operations. "Our 2025 investments in new machinery were centered on supporting growing market opportunities. Updating our end-of-life equipment ensures we stay dependable, while new machinery allows us to improve speed, consistency and capability," says Goldray Glass's McMahon.

New machinery also allowed for new capabilities for some fabricators. "Investment in machinery in 2025 was driven primarily by the need to increase capacity, improve efficiency, and meet growing demand for high-performance and specialty glass products. Rising requirements for security, laminated and code-driven glazing pushed the need for more advanced fabrication capabilities and tighter quality control," says a rep for Isoclima.

For those fabricators who wanted to purchase capital equipment, but did not plan to in the coming year, market uncertainty and potential tariffs topped the list of reasons preventing them from making the investment. "In addition to consumables, most machinery if bought new will also incur new tariffs. These costs are difficult to pass on to the customer in this market," says one Top Glass Fabricator.

Given how dramatically Artificial Intelligence, or AI, usage has spread throughout the last year, Glass Magazine also asked respondents to share how the company had invested in AI, and what tools were being used. Many fabricators report not using AI at all, and the overall tone was tentative, with many respondents saying they were planning to explore the technology.

For those businesses that did implement AI tools, responses suggest they deploy it for research, data analysis and as part of ERP software.

"We use AI primarily to support efficiency, analysis and decision-making, rather than to replace core manufacturing expertise," says a rep for Isoclima. "On the business and marketing side, AI is used for data analysis, performance reporting, content development and workflow optimization, helping us better understand demand trends and communicate more effectively with customers. Operationally, AI-assisted tools are used to support process evaluation, quality consistency and documentation, particularly in areas where precision and repeatability are critical. Overall, AI is viewed as a tool to enhance productivity, insight and accuracy while allowing our teams to stay focused on engineering, fabrication and problem-solving."

"We are currently in a testing phase using AI to optimize production scheduling," says Amanda Gonzalez, head of communications, Tecnoglass. "Because we develop our software and internal systems in-house, we are able to apply artificial intelligence in a targeted way, focusing on our specific operational needs and improving overall efficiency." ■



CLEAR VIEWS + SAFE

BIRD-FRIENDLY GLASS SOLUTIONS PROTECT BIRDS WITHOUT COMPROMISING AESTHETICS, PERFORMANCE

BY RACHEL VITELLO

AviProtek by Walker Glass



SKIES

According to the American Bird Conservancy, an estimated one billion birds die from glass collisions in the U.S. every year. This is because clear and reflective surfaces in the built environment can be invisible threats to birds. So, how can the glass industry help lower this number? Interrupting reflections on architectural glass by creating visual markers or patterns at a specific spacing and geometry can significantly reduce bird collisions. Adding these patterns and coatings to glass transforms it into bird-friendly glazing.



NSG Pilkington AviSafe



Bird1st UV by Guardian

BirdSmart Glass by Vitro



BIRD-FRIENDLY PRODUCTS ON THE MARKET

INFORMATION IN THIS SECTION IS TAKEN FROM THE NATIONAL GLASS ASSOCIATION'S "BEST PRACTICES FOR BIRD-FRIENDLY GLAZING DESIGN"

Bird-friendly glass can take many forms, ranging from patterns that are visible to the human eye, to strategies that are almost invisible to humans but visible to birds. Here are a few common bird-friendly solutions:

- **Acid-etched.** Acid etching is a process by which the glass surface is modified to create a light translucent satin appearance while preserving light transmittance properties of the glass. Acid-etched patterns are typically applied to the outside surface of the glass and have high resistance to wear, scratching and staining.
- **Laser etched.** Decorative glass that has had an image engraved into the surface using laser technology. Laser etching can provide a high detail, crisp engraved image.
- **Ceramic Frit.** Ceramic frit is a permanent coating consisting of engineered glass and inorganic pigments designed to be applied to any surface of the glass. They are highly durable, resistant to UV and outdoor elements and some may be applied to surface 1. Visual markers meeting the above prescriptive guidelines may be applied via screen print or digital printing processes.
- **Ceramic Enamels** (other than Ceramic Frit). Ceramic enamel is a permanent coating consisting of engineered ceramics and inorganic pigments. They are highly durable, resistant to UV and outdoor elements, but cannot be applied to surface 1. Visual markers meeting the above prescriptive guidelines may be applied via screen printing.
- **Glass Laminates.** Glass laminates are two or more plies of glass bonded together by an interlayer. Visual markers may be incorporated within the interlayer, on the surface of the interlayer or between interlayer layers creating a highly durable system which prevents wear, scratching and staining of the markers. These visual markers should be incorporated within the laminate of the outboard lite.
- **Silicone Coatings.** Silicone coatings are used on surface 2 of the glass and are spray applied utilizing patterned stencils.
- **UV Coating.** Research indicates that UV markers in the range of 300-400 nanometers are visible to some birds. Markers made with UV coatings and film interlayers can be effective at reducing the risk of bird collisions for birds that can see UV.
- **Films and Decals.** While the other glass product solutions mentioned in this section are not suitable for post-installation and retrofit situations, films and decals may represent the best option in such cases. They can also be used in new construction projects when applied on the exterior surface of the glazing system but may not be as durable as the other solutions.

Almost all U.S.-based primary glass manufacturers selling to the commercial market, and many glass fabricators, offer a range of bird-friendly solutions, and continue to broaden their product portfolios. Guardian Glass introduced its newest Bird1st UV-coated solution and Bird1st Etch. Vitro Architectural Glass' BirdSmart Bird Safe Glass, launched in March 2025, is the company's first proprietary bird-friendly product that combines laser-etched dot patterns on the first surface. NSG Group offers a patterned UV enhanced coated glass, Pilkington AviSafe, first introduced in 2020.

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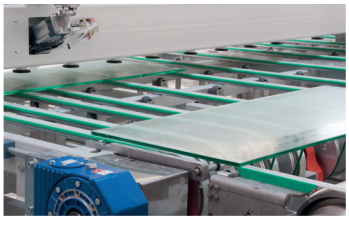

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Many glass fabricators also manufacture bird-friendly solutions, including Walker Glass, which debuted its updated AviProtek Turbo at last year's GlassBuild America. The new product line offers bigger sizes and faster lead times to meet growing demand. "It positions our bird-friendly program to respond to the growing demand for effective bird-friendly glazing solutions meeting applicable standards and legislation across Canada and the United States," says Marc Deschamps, Walker's vice president of products and business development

Glass fabricator Andluca won the 2025 Glass Magazine R&D award for its Innovio with Safelight UV system, a bird-friendly photovoltaic glass. The laminated system uses the company's bird-friendly interlayer which, though transparent and color neutral, features a UV pattern, helping to reduce bird collisions. The award-winning system combines bird-friendly technology with its Innovio solar energy generation technology, incorporating multifunctionality in sustainability needs by offering renewable energy generation.

LOCAL REGULATION CONTINUES TO DRIVE ADOPTION

"Public awareness and demand for bird-friendly glass has increased significantly over the past decade. What was once a niche consideration has become a more common component of façade design, particularly as municipalities have introduced bird-friendly building requirements," says Alexander Sobolev, Guardian Glass channel marketing manager and bird-friendly glazing subject matter expert. "Adoption accelerated in recent years following New York City's implementation of Local Law 15, which made bird-friendly glazing a requirement for new construction. At the same time, both new-glazing and retrofit technologies continue to evolve to address emerging project needs and constraints."

Sobolev adds that demand for larger glass sizes has increased. Guardian offers its Bird1st UV solution in multiple sizes, including 130 inches by 102 inches, jumbo, 130 inches by 204 inches and super jumbo, 130 inches by 240 inches, sheet sizes.

"Vitro's bird-friendly glass offerings have evolved significantly over the years, driven by advancements in technology, growing environmental awareness and the increasing demand for sustainable building practices," says Chris Fronsoe, director of innovation, commercial segment, Vitro. "Beyond product development, we've also prioritized education, creating articles for our Glass Education Center and drafting white papers to inform architects, builders and the public about best practices for bird-safe architecture. Over the years, our bird-friendly offerings have grown from addressing a niche environmental concern to becoming a leader in how technology and environmental stewardship can coexist in modern architecture."

The codes and standards around bird-friendly glass have also evolved. "The biggest change in codes/standards is likely that bird friendly glazing has become a requirement rather than only existing as a recommendation," says NSG Glass Technology Manager Kayla Natividad. "As more jurisdictions adopt bird-friendly requirements, and more products have been tested for efficacy, there has been a greater understanding of what makes an effective solution for adoption."

Pilkington AviSafe also evolved over the years. It was originally designed as a single coated product, but the product offering was recently expanded to include a low-emissivity coating on surface 2. This has allowed glazing configurations to meet energy requirements and mitigate the need of a laminated outboard, says Natividad.

Andluca's bird-friendly solutions have evolved through close collaboration with the American Bird Conservancy and glass fabricators over the past several years. The company first certified SafeFlight UV in laminated glass. Building on that foundation, Andluca expanded certification to IGU configurations, allowing SafeFlight UV to support a broader range of applications and market needs. In parallel, ongoing materials development has produced new interlayer formulations with optimized UV contrast for birds, which Andluca expects will further improve collision deterrence as these materials progress toward future production, says a company spokesperson.

GREATER ADOPTION WILL PUSH TECHNOLOGY, STANDARDIZATION

"The future of bird-friendly glass depends on advancing technology, wider adoption and integration into sustainable building practices," says Vitro's Fronsoe. "As awareness of bird collisions grows, more regions are likely to pass laws mandating bird-safe glass in public and private buildings. This will drive innovation, prompting manufacturers like Vitro to refine technologies and develop solutions that further enhance bird safety while maintaining energy efficiency and aesthetics."

Fronsoe adds that education and collaboration are key to progress. "Architects, builders and planners need resources to integrate these solutions effectively. Partnerships between manufacturers, conservation groups and regulators will help establish standardized tests and performance benchmarks to ensure consistent quality. The next phase of bird-friendly glass will focus on making it a standard feature of sustainable architecture while meeting the demand for energy-efficient building materials."

Deschamps says that as the demand for bird-friendly glass continues to grow, new technology will be introduced and further enhancements will be achieved with existing technology. "We must also keep in mind that bird-friendly components will have to be compatible with new glazing technologies as they emerge, including ones designed to achieve better solar performance, such as triple-glazed units or VIG," he adds. "We expect that more cities, counties and states in the United States will continue to adopt some form of voluntary bird-friendly guidelines or mandatory codes. There's still a long way to go on that front." ■



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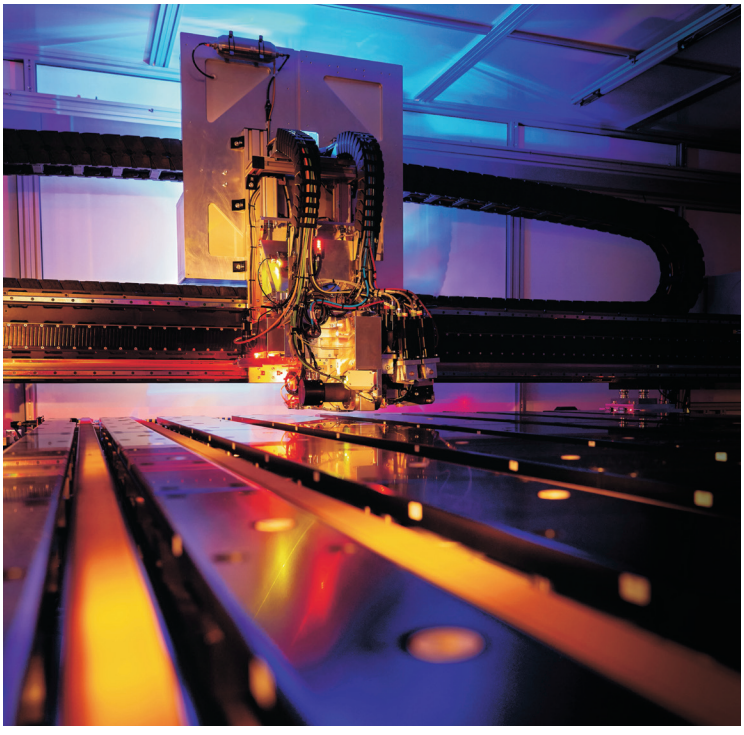

KEY FEATURES

- Processes original ceramic frits (unlike inkjet)
- Superior precision with 150 µm lines
- Silver frits for conductive applications
- Eliminates screen costs and setup times
- Wet-on-dry multi-layer printing capability

SOLUTION: LPKF NOVAPRINT – DIGITAL GLASS PRINTING WITH LASER TRANSFER TECHNOLOGY

The glass industry faces a persistent challenge: producing small batches and custom designs efficiently without incurring the high costs and time-consuming setup of traditional screen printing. Creating, storing and maintaining expensive screens for every new design limits flexibility and drives up costs, especially for specialized projects.

The LPKF NovaPrint addresses this issue with its Laser Transfer Printing, or LTP, technology. This industrial printing system transfers ceramic frits directly to glass using precise laser pulses in a completely non-contact process, eliminating the need for screens, as well as expensive print heads.

How it works

A continuously coated, endless belt supplies ink to the digital laser transfer unit. When the laser beam hits the ink-coated belt, it vaporizes portions of the solvent, creating a vapor bubble that forms and ejects an ink droplet. This droplet lands with precision on the glass substrate.

Unlike inkjet systems, LTP processes ceramic frits at their original, screen-printing particle size, ensuring proven adhesion and durability after firing. Inkjet technology requires specially formulated inks with smaller particles, which often compromises material properties and requires complex qualification. LTP's climate-controlled system delivers consistent results while inkjet technology remains susceptible to environmental influences and nozzle clogging.

LTP can produce fine lines as small as 150 µm with clean edges, whereas inkjet technology struggles with droplet formation and edge quality. Precise laser control allows for variable layer thicknesses in a single pass; inkjet technology requires multiple passes with limited control. The system currently supports black and silver ceramic frits.

Applications and handling

Silver printing enables conductive applications, such as automotive defrosters, antennas and more. Its wet-on-dry capability allows for multiple printing passes without prior drying. First, a fine black base layer is printed to prevent the silver from appearing yellow on glass. Then, the silver is printed on top with precision.

The system can handle glass ranging in size from 300 by 300 millimeters to 2,000 by 3,000 mm and in thickness from 1.4 to 8 mm. It offers productivity of up to 90 square meters per hour. Switch between designs digitally. Print serial numbers or QR codes for traceability.

Visit ltp.lpkf.com for more information, or email info.ltp@lpkf.com or call +(49) 3682-8924. ■

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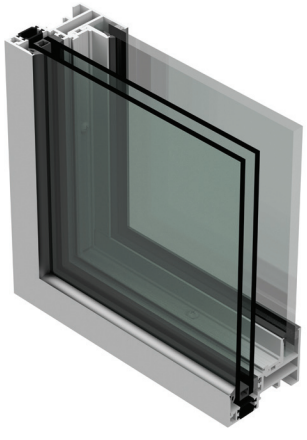

02

01. Textured Glass

GlasPro added two products to its Low Iron Textured Glass Collection. Etched Standard Reed comes with two different size options: sheet size of 82 inches by 144 inches and the pattern is 144 inches long, or option two is a sheet size of 82 inches by 130 inches and the pattern is 130 inches long. Scallop Bold is 5/16 inches with a sheet size of 82 inches by 130 inches and the pattern goes 130 inches long. Scallop bold has 1-inch wide reeds.

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02. Fully Fixed Windows

The new Wausau 4000i-DTFX fully fixed windows with optional between-glass blinds ensure high levels of patient safety, security and privacy for behavioral, psychiatric and mental health care settings. Saving time and labor in the field, Wausau 4000i-DTFX can be installed from either the interior or exterior and are stackable. Durable, abrasion-resistant finishes make it easy to maintain the windows' appearance and functionality.

800/866-2227 | APOGEEARCHMETALS.COM

03. Aluminum Windows

Crystal Window & Door Systems introduced three new Opus window and door model lines: SL38, ML8 and MP. Available styles for the SL38 include fixed, casement, hopper, awning and a terrace door. ML8 windows are available in several styles: fixed, in-swing casement, project-out hopper, project-in awning and a center-pivot, with four frame profile options. The MP Lift-Slide door has a 7-⅛-inch jamb and is readily compatible with the ML8 products. All three feature narrow sightlines, slim frames and thermal breaks. The Opus windows and doors are tailored for high-rise luxury properties, institutions and other commercial buildings.

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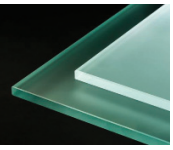

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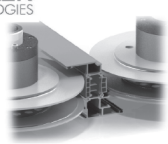

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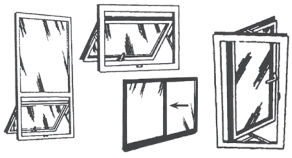

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From left: Lakisha A. Woods, CAE, president and CEO of the National Glass Association; Sheronda Carr, CEO of the National Association of Women in Construction; and Stefanie Couch, founder of Grit Blueprint at GlassBuild America.

THE TABLE IS BIG ENOUGH

Women leaders on breaking barriers in glass and construction **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."

A workforce crisis looms

The conversation quickly turned from personal motivation to industry urgency. Women make up 51% of the U.S. population yet remain dramatically underrepresented across construction and glass. For Woods, that's not just an equity issue, it's an existential one. "Five to 10 years out, it actually keeps me up at night when I think about what's coming," she says. "How can women show up and get what they need to move into leadership roles?"

Carr, whose organization represents roughly 6,500 women across 120 local chapters nationwide, pointed to a retention gap as the core problem. "We bring in one, and three leave," she says. "We focus a lot on workforce development—bringing women into the industry—but we're not retaining them very well."

The solution, both leaders suggested, is not relying on programs alone. It's culture, and making sure women's voices are valued once they're in the room, not just hired into a company.

Championing one another, without exception

Perhaps the most pointed moment of the conversation came when Woods was asked to finish the sentence: The future of women in glass and construction will be stronger when... . Her answer was direct, "It's when women champion other women. So often, we get to that place where we're finally promoted, and instead of helping the next woman up, it's other women saying the negative things. We have to learn to trust each other. Know that we can make the table bigger. There's plenty of space." ■



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