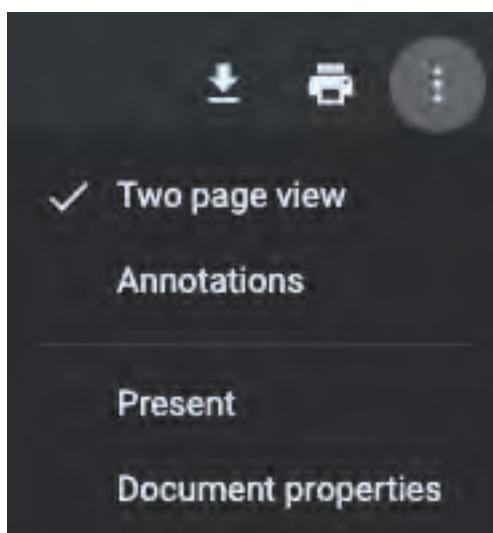


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THE GLASS AND GLAZING AUTHORITY • JANUARY/FEBRUARY 2026

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TECHNOLOGY

Why Most Companies Get AI Wrong

By Stefanie Couch, Grit Blueprint



SOFTWARE

Customizing Software for Your Business

By Chris Kammer, A+W Software



EVENT

GlassBuild 2025 Recap

By Max Perilstein, Sole Source Consultants



PROJECT SHOWCASE

The 13-story, mixed-use îlot Balmoral building, headquarters of the National Film Board of Canada, enhances the architectural landscape of downtown Montreal. The design provided a unique fabrication challenge as the façade employed more than 500 different glass sizes. Glazed by Group Lessard, the building features Guardian SunGuard SuperNeutral 68 coating on UltraClear low-iron and clear glass. Photo by Stephane Brugger.

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NORAH DICK
EDITOR

Looking ahead in 2026

Last year was eventful, no question. Economic changes brought uncertainty and turbulence into the market, causing difficulties for many. Looking ahead is critical for glass industry businesses to weather instability. For those planning for the year ahead, find a comprehensive market outlook in our yearly economic forecast on pages 56-66. In addition to this report, here are a few other Glass Magazine and National Glass Association resources that you can look to throughout this year in order to stay on top of market, regulatory changes and other trends that could affect your business.

Editorial reports. Glass Magazine's flagship products include its yearly Top Glass Fabricators report coming in the April edition, focusing on the glass fabricator and manufacturer segments, as well as the Top 50 Glaziers report coming in July, which includes analysis of trends for installers and contract glaziers. Both include forward-facing information about sales, growth and more based on compiled data straight from companies in the industry and are available free in print and online.

NGA's Advocacy and Technical Initiatives update. This last year ended with a major win for NGA's Advocacy and Technical Team, as well as the industry at large. Working with representatives from AIA and AEC, the coalition achieved success at the ICC Committee Action hearings promoting natural daylighting in schools, dormitories and apartments. Subscribe to their email updates to get timely information about vital regulatory updates, legislation that could affect the glass industry, and ways that you can get involved in advocacy for the glass industry.

Industry news, online and in print. Things change rapidly. Last year saw tariffs shift quickly, and sometimes daily. Find up-to-date information, analysis and more on Glass Magazine's website, GlassMagazine.com, where we post news daily. For a weekly update, subscribe to our weekly newsletters, Glass Magazine Weekly, as well as our social channels on LinkedIn and Instagram.

Thirsty Thursday webinars. Our webinar series features experts from inside and outside the indus-

try, speaking to the challenges that are affecting industry business. Recent topics include a review of recent code changes, school security, suicide prevention, and natural outdoor weather testing. Tune in every third Thursday, and find a backlog of recordings at glass.org/webinars.

Glass Cast podcasts. Listen to industry leaders in conversation with Glass Magazine's editorial staff. Topics include the challenges and opportunities facing their business, new innovations, industry trends and more. Find all podcasts on our YouTube channel.

Industry events, old and new. The National Glass Association's events share cutting edge information, deliver expertise from some of the industry's major leaders, and offer an opportunity for industry professionals of all segments to collaborate on problem-solving. This year's calendar again includes the industry's long-running annual gathering of glaziers at the Building Envelope Contractors Conference, March 1-3 in Louisville, Kentucky, as well NGA Glass Conference, which brings together the best technical expertise.

Additionally, we're adding a new event to the calendar: the NGA Glass Fabricator Conference, known as GFAB. To be held June 14-17 in Chicago, this inaugural conference will present three tracks of targeted content: the Executive Track, which will present programming for company decision makers and leaders; the NGA Glass Conference Track, which will draw together technical leaders for the meeting of the association's Fabricating, Forming and Advocacy Committees; and the GFAB Workshop: Quality Control in Glass Tempering, which will bring production floor leaders together for a day-long educational program at Chicago-based fabricator Skyline Design.

And of course, this year we return to Las Vegas Sept. 23-25 for GlassBuild America, which brings together exhibitors and attendees for the largest event of the glass and fenestration industries in North America. GlassBuild will once again be the venue for learning about market trends and product innovations to advance the industry. ■



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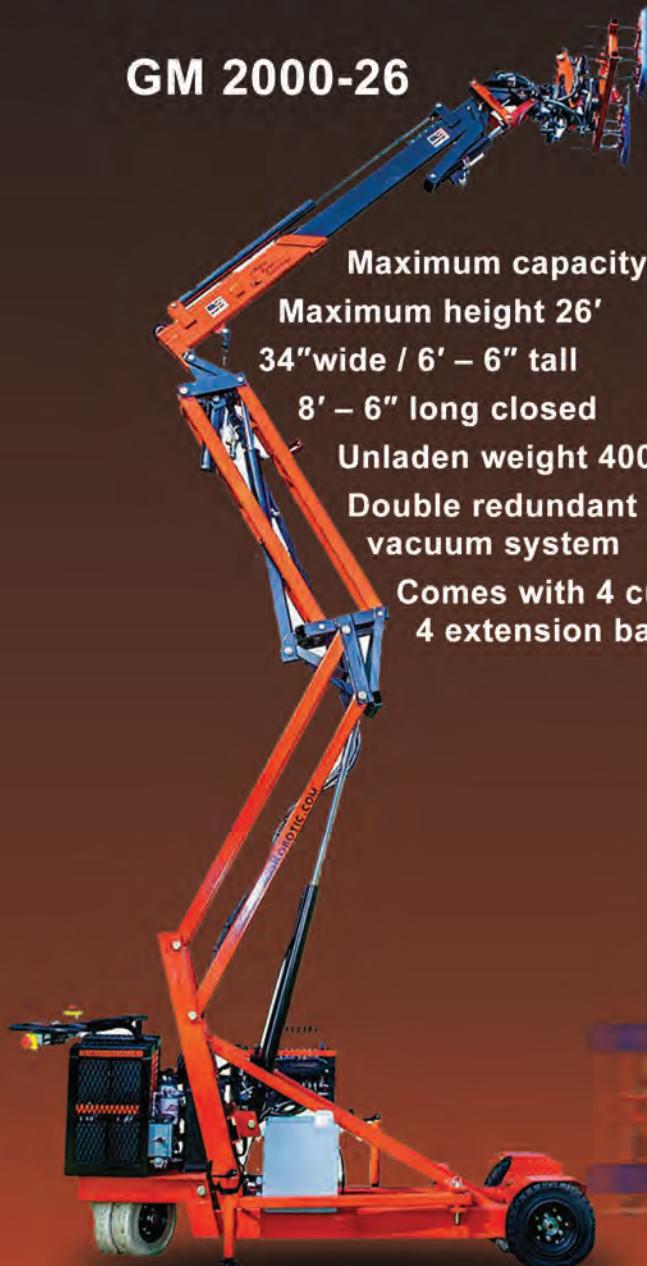
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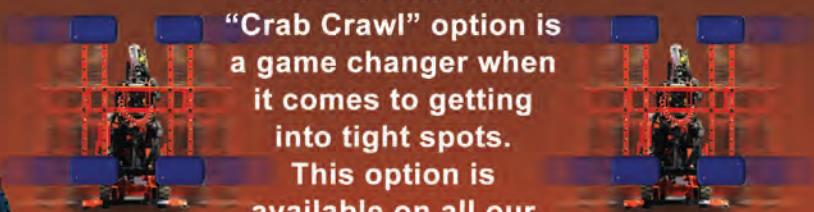


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YOUR ASSOCIATION AT WORK

■ NEED-TO-KNOW INFORMATION FROM THE NGA



GLASSBUILD 2025 BRINGS INDUSTRY INTO THE FUTURE

At GlassBuild America 2025, the future of glass and glazing was at the forefront of many conversations with those exhibiting at the show. From robotics to artificial intelligence, company leaders continue to innovate and automate.

Robotics, AI move from concept to factory floor

Billco Manufacturing partnered with Kawasaki to create the Billco Robotic Arm. It can manage loading and unloading throughout the factory. Salem Fabrication Technologies brought its AMR, or autonomous mobile robot, to GlassBuild. The glass-handling robot is also a result of a partnership with Kuka, a supplier of intelligent robotics. The

low-to-the-ground, square-shaped robot can lift and carry up to 1,200 pounds, say Salem reps, such as a pallet of glass. By reading QR codes affixed to a factory floor, the robot can then navigate its package to the next location.

AI has been a zeitgeist for several years now, and many people seem more comfortable using it in their own lives. Industry leaders say there's still further to go in explaining how AI can actually become part of their business.

A+W Software recently introduced Mira, its AI order entry system, which can read in-bound emails, including attachments, and then use Gemini and ChatGPT to complete order entry. Christian Weichelt, chief marketing



AI HAS BEEN A ZEITGEIST FOR SEVERAL YEARS NOW, AND MANY PEOPLE SEEM MORE COMFORTABLE USING IT IN THEIR OWN LIVES. INDUSTRY LEADERS SAY THERE'S STILL FURTHER TO GO IN EXPLAINING HOW AI CAN ACTUALLY BECOME PART OF THEIR BUSINESS.

officer of Cyncly, says he tries to demystify what AI can do for their customers' businesses, and discusses what's best for their individual company. "They need to pace adoption, and to have a goal in mind first so that we can help them reach it," he says. "It's about using tech in an intelligent fashion."

Manufacturers prioritize user-friendly automation

As many companies continue to grapple with a lack of skilled labor, automation and user-friendly additions are being added to machinery. RazorGage exhibited an AutoPusher System that is fully automatic in direct response to this need from customers. A company representative said they are also open to exploring the possibility of using robots for automatic loading and unloading in the future. "With the current state of the workforce, it's increasingly important for customers to maximize yield, minimize mistakes and increase throughput," he says.

Urban Machinery also expressed that automation is always something

they are looking to increase with their machinery. While automating loading and unloading is difficult, they aim to create automated saws that help remove operator error. A company representative for Pertici says "Customers are always looking for user-friendly and intuitive" products and that "manufacturers like easy software" because employees working with machinery are not always skilled in that area. Rotox adds that customers need an easy and user-friendly interface. Matodi has also made an effort to create machinery that is user-friendly with pre-loadable templates to aid in the labor shortage.

Market demand drives bird-friendly innovation

Aside from technology and automation, bird-friendly glass is a product that is hot on the market. Several types of bird-friendly glass solutions were on display at GlassBuild, including options from Guardian Glass, Walker Glass and Vitro Architectural Glass. Guardian featured three of their bird-friendly glasses, two frits and their UV-coated option, which is mostly

invisible to the human eye. Guardian's Alex Sobolev says that selecting a bird-friendly glass can depend on a range of factors, from design to performance.

Some architects and other stakeholders still prefer an invisible solution, which the UV glass provides, Sobolev says, but advocates for bird safety tend to prefer a more visible option like a frit, since patterns that are more visible to humans also tend to be more visible to birds, he says. The range of bird-friendly glass regulations across the country also requires different types of glass.

Walker Glass also featured its new AviProtek Turbo glass, now available in larger sizes and shorter lead times. Founder Charles Walker says that legislation is definitely pushing adoption of these eco-friendly solutions, but also other institutions like LEED, which offers credits for bird-friendly glass. While the building industry may still be in an early adoption phase of bird-friendly solutions, awareness of bird-friendly glass is now very normal, he says.

Vitro Architectural Glass was exhibiting its new BirdSmart bird-safe glass. BirdSmart glass is a first-surface, laser-etched glass with a Solarban low-emissivity coating on the second surface, manufactured using laser etching. Vitro MSVD Product Manager Erin Casci discusses this more in-depth in an episode of Glass Cast, which was recorded live at GlassBuild. ■

YOUR ASSOCIATION AT WORK

NGA ANNOUNCES NEW BOARD OFFICERS

The National Glass Association announced new board officers for the 2025-2026 term on Nov. 3, 2025, prior to the start of GlassBuild America: The Glass, Window & Door Expo in Orlando. Board officers for the 2025-2026 term are Chair Tim Kelley, TriStar Glass Inc., Catoosa, Oklahoma; Chair-elect Jim Stathopoulos, Ajay Glass, Canandaigua, New York; Treasurer Courtney Little, Ace Glass, Little Rock, Arkansas; and Immediate Past Chair Rick Locke, Montana Sash & Door, Bozeman, Montana.

Returning board members are Tara Brummet, Vitrum Glass Group, Langley, British Columbia, Canada; Jodi Martinez, AllStar Glass Co., Spokane Valley, Washington; Syndi Sim, Q-railing, Tustin, California; Taylor Anderson, Anderson Aluminum Corp., Columbus, Ohio; Vipul Bhagat, Skyline Design, Chicago, Illinois; Mark Seeton, Vitro Architectural Glass, Pittsburgh, Pennsylvania; and Joey Aragon, Aragon Construction Inc., Montclair, California. Dan Reinhart, CEO of Salem Fabrication Technologies Group Inc., Winston-Salem, North Carolina, joins the board filling a supplier seat.

Departing the board is Ron Crowl, FeneTech, a Cyncly company, and Silas Koonse, Koonse Glass Co. Crowl served on the board from 2019-2025, and was named chair for 2023-2024 and immediate past chair for 2024-2025; Koonse served on the board from 2020-2025. ■



GLASSBUILD AMERICA RECEIVES TRADE SHOW EXECUTIVE GOLD 100 AWARD

GlassBuild America: The Glass, Window & Door Expo received a Trade Show Executive Gold 100 Award, recognizing the 100 largest shows held in the U.S. in 2024. This is the fourth consecutive year GlassBuild America has received this award. Lakisha A. Woods, CAE, CEO of the National Glass Association, owner and organizer of GlassBuild, and Molly Grend, vice president of event logistics for NGA, attended the ceremony in October at The Ritz-Carlton, Rancho Mirage in Palm Springs, California, to accept the award.

“I am honored to celebrate GlassBuild America being selected for the TSE Gold 100 Awards,” says Woods. “This show covers everything from education, machinery and tools that make the glass and fenestration industry strong. But most of all, it provides a chance to make connections. The importance of attending GlassBuild is about the people and building the strong network that drives you to succeed.” ■

NGA WELCOMES SARAH SWANGO

Sarah Swango joined NGA in October as its vice president of development and exhibit sales. In her role, Swango will focus on driving revenue growth through exhibition and sponsorship sales for GlassBuild America, the largest annual event for commercial and residential glass professionals in North America. She will also lead the development of the



NGA Foundation to further NGA’s mission and impact. Swango brings a strong background in strategic partnerships, fundraising and event sales to this new role at the NGA. Most recently, she led corporate and foundation relations at the National Institute of Building Sciences, where she oversaw all fundraising efforts and sponsorship sales for the Building Innovation Conference and other key events. Prior to that, she supported member engagement and sponsorships at Medicaid Health Plans of America and organized MHPA’s annual conference and tradeshow. Earlier in her career, Swango was an account executive at the National Association of Home Builders as a part of the team leading exhibition sales and sponsorships annually for the International Builders’ Show. ■

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GLASS INDUSTRY SECURES MAJOR WIN FOR NATURAL DAYLIGHTING IN SCHOOLS AND RESIDENTIAL BUILDINGS

The National Glass Association, working alongside key industry partners, achieved a significant victory in promoting healthier, naturally lit environments in schools, hotels and residential buildings. At the International Code Council's Committee Action Hearings held Oct. 22-30, 2025, in Cleveland, Ohio, two critical building code proposals requiring natural daylighting were approved with modifications. The collaborative effort brought together the NGA Advocacy and Technical Team, the American Institute of Architects, Professor Juan Miro of University of Texas Austin, the Glazing Industry Code Committee, and the Aluminum Extruders Council. These proposals will be incorporated into the 2027 International Building Code, marking a turning point for occupant health and wellness in the built environment.

Addressing windowless living spaces

The first proposal, G143-25, introduced by Professor Juan Miro of University of Texas at Austin and Miro Rivera Architects, targets residential daylighting requirements. It mandates that Group R habitable spaces intended for living and sleeping, such as bedrooms and living rooms in apartments, dormitories and hotels, must have natural light through exterior glazed openings or be provided with artificial light, with certain exceptions. The minimum net

glazed area must be at least 8% of the floor area of the room served, and these exterior openings should open directly onto a public way, yard or court.

Bringing daylight into classrooms

The second proposal, G144-25, focuses on educational facilities. Extensive research by Lisa Heschong shows that adequate natural lighting in educational settings improves student development. Introduced by Nicholas Resetar, an industry code consultant and shareholder at Roetzel & Andress representing GICC, along with Thom Zaremba of Roetzel & Andress (representing NGA) and Tom Culp of Birch Point Consulting (representing AEC), the proposal requires that in Group E occupancies, no less than 50% of all classrooms be provided with natural and artificial light, except in daycare facilities located within a different primary occupancy.

Industry reaction and next steps

The glass and glazing industry responded enthusiastically to these approvals, while acknowledging that work remains to defend these measures at the final hearings scheduled for next spring.

"A special thanks to Lisa Heschong for her pioneering research on daylighting and the 'right to light,' which provided the foundation for these proposals," says NGA's Urmilla Sowell,

vice president of Advocacy and Technical Services. "While we'll continue defending these measures in next spring's final hearings, this milestone marks a huge step forward for the built environment—and for every organization committed to occupant health, wellness and better design."

"By adding these provisions to the 2027 International Building Code, we have enabled everyone—whether they're relaxing in their homes or teaching or learning in their schools—to enjoy outdoor views while receiving the many mental and physical health benefits that comes with the natural daylight that only glass can bring into our homes and schools," says Zaremba. "The foundation for this successful mission lies in the non-stop commitment of the many members of the glass and glazing industry that have researched and developed the use of so many different types of glass in the construction of our buildings."

"The glass industry has done a good job recognizing and promoting the proven value of natural light and views in educational, health care and residential buildings," adds Resetar. "We have made it a specific mission to promote natural light and views because of the positive impact on society, and specifically in this case, the students and children who deserve to spend their school days in an environment that will have a positive impact on their health and ability to learn."

"This is a great win for healthy buildings, schools and students," says Culp. "We still have to defend these proposals in the final hearing next spring, but it is a great step forward for healthy, productive spaces." ■

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Excerpted from NGA Glass Technical Paper FB23-25
Approximate Weight of Architectural Flat and Laminated Glass.
Download the complete document free at glass.org/store.

APPROXIMATE WEIGHT OF FLAT AND LAMINATED GLASS

Design professionals, wall system manufacturers and construction managers often need the weight of materials for engineering and construction site considerations. Table 1 provides approximate weights of architectural flat glass by thickness designations as published by North American manufacturers.

Approximate weights do not apply to patterned glass or products incorporating multiple lites of glass fabricated into an assembled product. Additional glass thicknesses are available. Consult individual manufacturers for detailed product availability. Also, ASTM C1036 Standard Specification for Flat Glass addresses quality requirements. If the exact thickness is known, the exact weight may be calculated using a glass density of 156 pounds per cubic foot (2,500 kilograms per cubic meter).

Table 2 provides approximate weights of interlayer used in laminated architectural flat glass by North American manufacturers. Consult individual manufacturers for detailed product availability. ASTM C1172 Standard Specification for Laminated Architectural Flat Glass also addresses quality requirements for laminated glass units.

To calculate the approximate weight of a laminated product, add the weight of the interlayer thickness from Table 2 to the weights of the inner and outer lites of glass from Table 1. For example, for a $\frac{3}{32}$ -inch glass plus 0.035 Ionomer interlayer plus $\frac{3}{32}$ -inch glass makeup, add 1.2 plus 0.17 plus 1.2 to equal 2.57 pounds. ■

TABLE 1

Architectural Flat Glass—Published Approximate Weight

Assuming density 156 lb/ft³ (2,500 kg/m³)

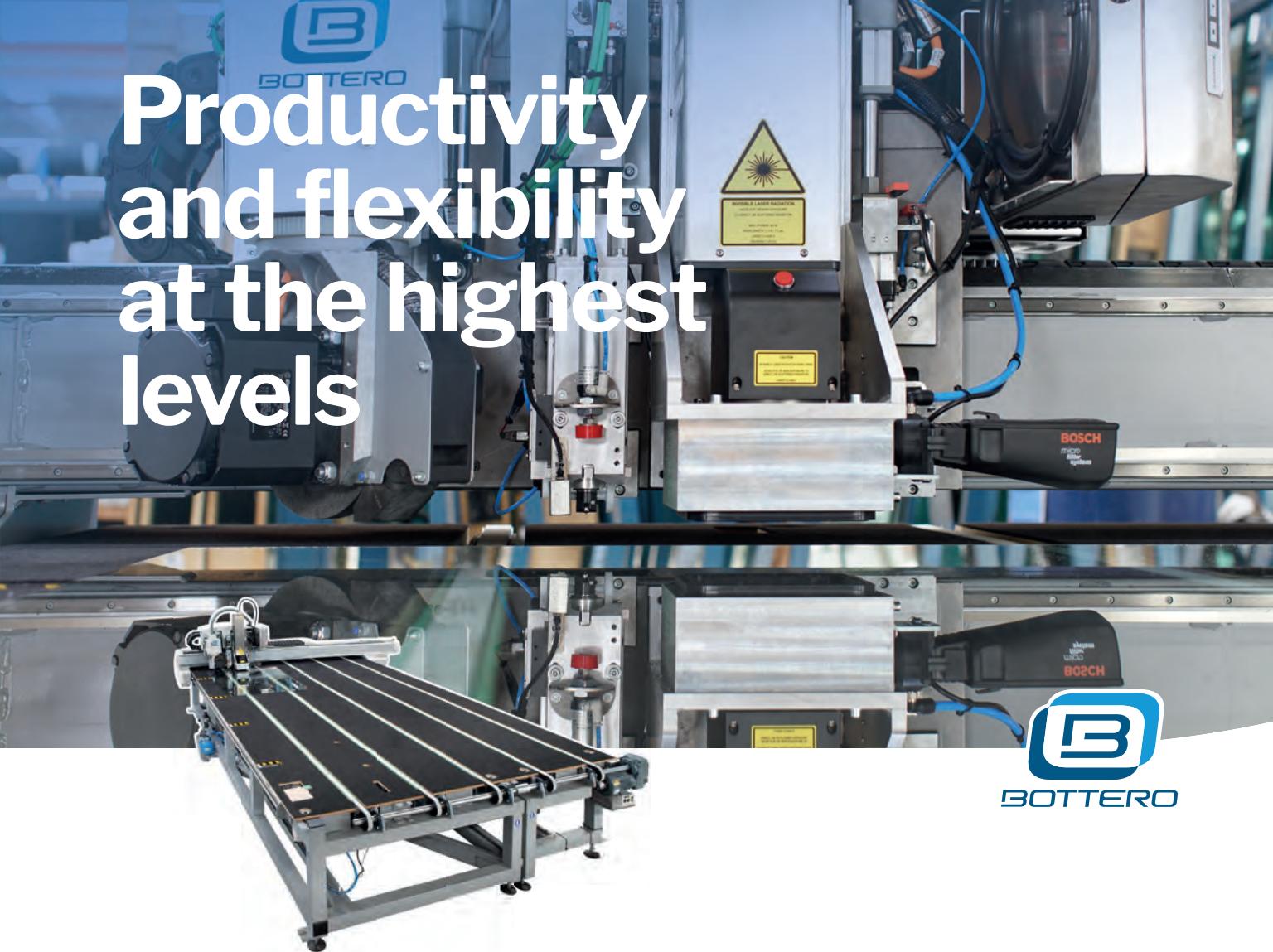
Glass Thickness Designation Inches (mm)	Approximate lb/ft ² (kg/m ²)
$\frac{1}{64}$ [0.5]	0.2 [1.3]
$\frac{1}{32}$ [0.7]	0.4 [1.8]
$\frac{3}{64}$ [1.1]	0.6 [2.8]
$\frac{1}{16}$ [1.6]	0.8 [4.0]
$\frac{5}{64}$ [2.0]	1.0 [5.0]
$\frac{3}{32}$ [2.5]	1.2 [6.3]
$\frac{1}{8}$ [3.0]	1.6 [7.5]
$\frac{5}{32}$ [4.0]	2.0 [10.0]
$\frac{3}{16}$ [5.0]	2.4 [12.5]
$\frac{1}{4}$ [6.0]	3.3 [15.0]
$\frac{7}{16}$ [8.0]	4.1 [20.0]
$\frac{3}{8}$ [10.0]	4.9 [25.0]
$\frac{1}{2}$ [12.0]	6.5 [30.0]
$\frac{5}{8}$ [16.0]	8.1 [40.0]
$\frac{3}{4}$ [19.0]	9.8 [47.5]

TABLE 2

Published Approximate Weight of Interlayers

Ionomer—Published Approximate Weight		PVB Interlayer—Published Approximate Weight	
Interlayer Thickness—inch (mm)	Approximate Weight—lb/ft ² (kg/m ²)	Interlayer Thickness—inch (mm)	Approximate Weight—lb/ft ² (kg/m ²)
0.035 (0.89)	0.17 (0.84)	0.015 (0.38)	0.08 (0.40)
0.060 (1.52)	0.31 (1.52)	0.030 (0.76)	0.17 (0.84)
0.090 (2.29)	0.47 (2.29)	0.045 (1.14)	0.25 (1.20)
0.100 (2.54)	0.52 (2.53)	0.060 (1.52)	0.33 (1.60)
		0.090 (2.29)	0.50 (2.50)
Urethane—Published Approximate Weight		UV Liquid Interlayer—Published Approximate Weight	
Interlayer Thickness—inch (mm)	Approximate Weight—lb/ft ² (kg/m ²)	Interlayer Thickness—inch (mm)	Approximate Weight—lb/ft ² (kg/m ²)
0.025 (0.64)	0.15 (0.73)	0.030 (0.76)	0.17 (0.83)
0.050 (1.27)	0.30 (1.46)	0.040 (1.02)	0.22 (1.07)
		0.060 (1.52)	0.33 (1.61)
		0.100 (2.54)	0.55 (2.69)
		0.120 (3.05)	0.66 (3.22)

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The **EVO** range machines are an actual automatic system to cut and “trace” the glass for subsequent factory machining. The identification of the glass from the first job (the cut) until delivery to the customer is an important challenge for the glassworking industry, in order to considerably reduce costs and to increase productivity.

Thanks to the option of equipping the machines with two additional tools besides the cutting tool, the **EVO** systems can be equipped, in addition to the low-e glass grinding, for example, for laser cutting or labelling of the processed piece.

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- Low-E removal system
- Low-E and TPF removal system
- Automatic labelling system
- Permanent marking system with CO2 laser





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Binswanger Glass Acquired by Private Equity Firm

Transom Capital Group, a Los Angeles-based private equity firm specializing in operational transformation, completed its acquisition of Binswanger Glass. Founded in 1872 and headquartered in Memphis, Tennessee, Binswanger operates 42 locations across 11 states, providing commercial and residential glass design, engineering, fabrication, and installation services. Binswanger serves a diversified base of commercial clients, including national retailers, corporate accounts and general contractors, while also delivering residential services through its regional service center network. Binswanger brings more than 150 years of continuous operation.

"We're excited to partner with Transom as we continue Binswanger's transformation and build on our long tradition of growth and excellence," says Binswanger CEO Blake Hancock. "We've been very focused on creating a stronger, more agile organization through strengthened systems, leadership and customer engagement, and Transom's operational approach will help us take the business to the next level. With Transom's expertise and investment, we are well positioned to support our team, elevate the customer experience and deliver innovative solutions throughout our national network."

Vitro Reaches Agreement to Manufacture VacuMax in North America

Vitro Architectural Glass, in collabora-

tion with VIG Technologies and LandVac, the developer of LandVac vacuum insulating glass technology, entered a long-term, exclusive agreement that will enable Vitro to produce and sell VacuMax VIG units in North America. This agreement marks the culmination of years of market development that first brought LandVac VIG technology to North America. Through this collaboration, Vitro intends to acquire the equipment and licensing necessary to commence domestic production to accelerate the adoption of fully tempered, high-performance VacuMax VIG units.

This continued collaboration comes at a time when the North American market shifts to high-efficiency façades and sustainable building envelopes, reflecting a global trend of energy-conscious architecture, say officials. It also secures a long-term runway for Vitro to exclusively establish this technology in the North American marketplace.

Alpen and Corning Collaborate on Thin Glass Systems

Alpen High Performance Products announced a collaboration with Corning Inc. Alpen will use Corning Enlighten Glass as the ultra-thin center pane for Alpen's triple and quadruple-paned glass units—helping to commercialize next-generation windows for the U.S. market. Alpen manufactures its glass units on two high-speed, automated glass lines, which have increased Alpen's production capacity by a factor of more than 10. In addition to manufacturing its own window and door systems, Alpen also supplies insulating glass. The

systems are used in new construction, retrofit and secondary glazing.

CRL and Shower Door Professionals Strengthen Partnership

CRL deepened its partnership with The Shower Door Professionals Co-op, an organization dedicated exclusively to elevating standards and collaboration within the frameless shower glass industry. For over 50 years, CRL has been involved in the shower glass hardware space. Now, the company is entering a new era of innovation and engagement. In the past two years, CRL released seven new hardware finishes aligned with the latest design trends, five sliding systems and five new hinge options.

As a sponsor of The Shower Door Professionals Co-op, CRL is providing special services and exclusive offers to co-op members. Regional representatives, such as CRL's Atlanta-based account manager Emilee Gilbert, have actively visited co-op members to gather feedback, share technical expertise and strengthen relationships.

Erdman Automation and Corning Collaborate on IG Manufacturing Innovation

Erdman Automation Corp. and Corning Inc. joined forces on a new innovation in insulating glass manufacturing. This collaboration integrates Erdman's new TPS Cohesive Bond and Cohesive Bond High Speed lines with Corning Enlighten thin glass, enabling the production of lightweight, thermally efficient IG units, including triple and advanced triple configurations. Erdman's CB and

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CBHS lines are specifically designed to integrate Corning's ultra-thin Enlighten glass as the center lite for advanced IG units. These lines leverage a process that applies spacer material to both soda-lime lites of glass simultaneously. Enlighten glass aims to allow IG manufacturers to produce durable, lighter units that are easier to handle and install, especially in large-format or multi-pane builds.

NGA Helps Promote Natural Daylighting in Schools

The National Glass Association Advocacy and Technical Team, working together with the American Institute of Architects, Professor Juan Miro of the University of Texas Austin, and the Aluminum Extruders Council, achieved a major success at the International Code Council Committee Action Hearings. Two critical building code proposals promoting natural daylighting in schools, dormitories and apartments were approved. One, led by Miro, ensures minimum natural lighting (windows) in addition to standard electrical lighting for Group R occupancies. The second, jointly advanced by the Glazing Industry Code Committee, NGA and AEC, requires natural lighting in classrooms for Group E occupancies. These victories will help end the troubling trend of windowless dormitories and ensure healthier, more inspiring environments for students and residents.

Sightline Commercial Solutions Expands Manufacturing Facilities and Capabilities

Sightline Commercial Solutions recently expanded and reconfigured its manufacturing facilities, an investment designed to boost capacity and enhance efficiency. The renovation has also created opportunities for welders and machinists through jobs, enhanced training and certification programs. The newly expanded facility marks a boost in welding and machining capacity for Sightline, enabling teams to deliver projects faster and at greater

volume. Outfitted with new tungsten inert gas welding machines and advanced racking systems, the upgraded space streamlines workflows and enhances efficiency.

Pilkington North America Expands into Texas

Pilkington North America, a subsidiary of Nippon Sheet Glass, is the newest tenant at Gateway 10 Phase 2 in San Antonio, Texas. Stream Realty Partners, a national commercial real estate firm offering an integrated platform of services, announced that Gateway 10 Phase 2, located at 6719 Interstate 10 in San Antonio's Northeast submarket, is now fully leased following a new 33,580-square-foot commitment from Pilkington North America. The Gateway 10 Phase 2 business park is zoned for manufacturing and commercial/office use, as it includes both speculative warehouse space and a retail/commercial component.

First Solar Selects South Carolina for US Production Facility

First Solar Inc. announced that it will establish a new facility in Gaffney, Cherokee County, South Carolina, to onshore final production processes for Series 6 Plus modules initiated by the company's international fleet. The company expects to spend approximately \$330 million to establish the new facility, which is scheduled to commence commercial operations in the second half of 2026. The facility is forecasted to create over 600 new jobs.

The South Carolina facility was catalyzed by demand for domestically-produced energy technology created by the One Big Beautiful Bill Act. The facility is expected to increase First Solar's capacity to produce American-made solar technology that is fully compliant with anticipated Foreign Entities of Concern guidance.

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PEOPLE



Nolan

A professional headshot of Donald A. Nolan, a middle-aged man with short brown hair, wearing a dark suit, white shirt, and a patterned blue and white tie. He is smiling slightly and looking directly at the camera.

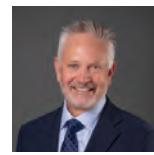
become executive chair of the board. Nolan brings decades of leadership experience. He joined Apogee's board in 2013 and was named chairman in 2020. He served as the CEO of Kennametal Inc., from 2014 to 2016, and was president of the Materials Group for Avery Dennison Corp., from 2008 to 2014. In addition, Nolan has served as a director for a number of privately held growth-oriented companies.



King

Vibrantz Technologies added *Mike King* to the company as president and CEO. King brings more than 20 years of global leadership experience in manufacturing. King succeeds *Mike Gosselin*, who served as interim president from January 2025. King most recently served as president and CEO of *Shawinigan Beverage Inc.*, and before that, he was president of *Graham Packaging*.

and FRAM Group, and senior leadership positions at TI Automotive and Lear Corp.



Plush

Frameless Hardware Co. appointed *Bob Plush* as vice president of sales for the Western region. With over 25 years

With over 25 years of experience across the glass, glazing and architectural hardware markets, Plush brings knowledge in business development and customer engagement. In his new role, he will lead sales strategy, regional growth and key account development throughout the Western United States. ■



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*All performance data based on clear glass, simulated as a 1" argon-filled insulating glazing unit.

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STRUGGLING TO KEEP PRODUCTION OR FIELD PERSONNEL?

TAKE A LOOK AT YOUR EMPLOYEE BENEFITS PACKAGES **BY JENNI CHASE**

Glass fabricators continue to report labor as a top challenge, particularly when it comes to finding and keeping entry-level and skilled production personnel. This reflects a national trend among manufacturers in general, with 67% citing the inability to attract and retain employees as their biggest issue, according to a recent Manufacturers' Outlook Survey from the National Association of Manufacturers and the Manufacturing Institute.

Labor remains a pain point for North American glaziers as well. In spring 2025, more than half of Glass Magazine's Top 50 Glaziers said recruitment was their most difficult labor challenge, citing glaziers and field labor positions as the hardest to fill. In an environment where the construction and manufacturing communities are facing a labor

shortage overall, how can glass companies fill these vital entry-level and skilled labor positions? While flexible work schedules and opportunities for advancement are important, robust benefit packages remain at the top of the pyramid when it comes to strategies to attract and retain employees. Nearly 80% of manufacturing executives responding to the most recent Deloitte and the Manufacturing Institute Talent Study said competitive employee benefits packages are most impactful.

Companies that can offer superior benefits are better positioned to keep their employee satisfaction levels high and their turnover rates low, according to Vault Consulting, which partners with the National Glass Association to produce the NGA Compensation & Benefits Study for Fabricating Companies. According to the

latest study, all of the glass fabricators that reported offering benefits provide medical (100%), followed by vision (85%) and dental (85%). Similarly, all companies reported offering paid leave (100%), with the majority offering paid sick leave (71%). Among retirement benefits, a 401K with company match was the most popular and offered by 68% of fabricators.

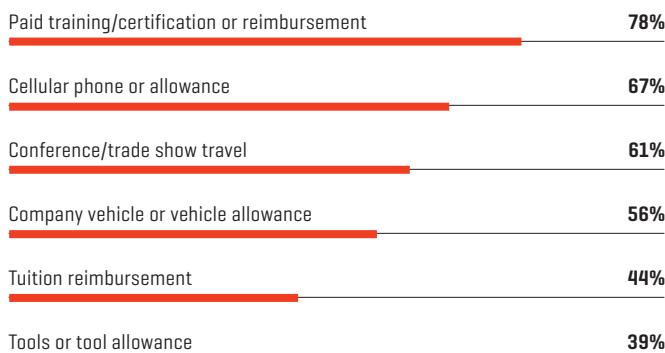
For contract glaziers, the latest NGA Compensation & Benefits Study for Contract Glazing Companies revealed that nearly all contract glaziers offering benefits provide medical (98%), followed by dental (91%) and vision (76%). Companies offering 401(k) with company match came in slightly higher than fabricators at 71%.

In today's market where labor is at a premium, you can't afford to not offer a competitive employee benefits package. To see how your company measures up, download the NGA Compensation & Benefits Studies from the NGA store at glass.org. ■

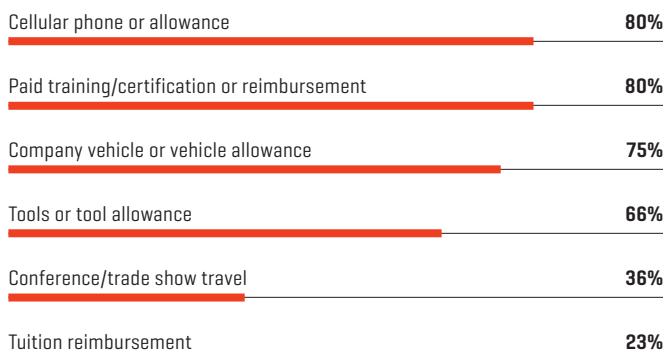


Jenni Chase is vice president of workforce development at the National Glass Association.

Other Employee Benefits Offered by Glass Fabricators



Other Employee Benefits Offered by Contract Glaziers



Source: NGA 2025 Compensation & Benefits Study for Fabricating Companies

Source: NGA 2025 Compensation & Benefits Study for Contract Glazing Companies



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MODULAR MASTERY

TAKING CONTROL OF THE COMMERCIAL GLASS DOOR INSTALLATION PROCESS THROUGH A MODULAR APPROACH
BY MARK SUEHIRO

The all-glass aesthetic for commercial facades continues to be a mainstay. Maximizing a facade's glass look with more glass as well as larger glass lites is more than a trend; it's an architectural movement. For example, a recent Glass Magazine survey found that "83% of respondents expect (glass) sizes to continue to grow."

The glazing community has a first-hand understanding of the immense popularity of glass designs. It has boosted the bottom line of many glazing businesses across the nation for years. Glaziers also understand the hurdles of installing commercial glass, particularly glass entrances which often serve as focal points. Successful installation of custom glass doors within tight timelines requires careful planning. The process for installing custom glass commercial doors may begin with specification, but manufacturers frequently dictate the

schedule. Fabrication and shipment of custom glass doors and components, including door rails, can sometimes be a major project bottleneck.

Whether it's supply issues, shipping delays, or manufacturing backlogs, any lag in delivery of custom glass doors brings the glazing contractor's workflow to a standstill. Project schedules are quickly impacted, and general contractors begin to agonize over the domino effect of delays.

A new, modular approach

These kinds of predicaments have pushed the industry to rethink the production and installation process for commercial glass doors. As a result, a new modular alternative to pre-built custom doors has surfaced, putting greater control in the hands of glaziers and temperers to better manage jobs and meet deadlines. From a technical standpoint,



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the modular approach deconstructs the standard door rail system that's widely available in the market today. Instead of the manufacturer shipping fully assembled top and bottom rails, glass professionals can order a simple kit that includes all of the components necessary to assemble one door rail. These kits can be stocked by the glazier or glass tempering shop, and assembled when needed, eliminating manufacturer lead times.

This new modular approach can be used to fabricate and install standard or custom door rails of various lengths in the shop or on-site, which enables improved speed, efficiency, and faster project completion. In essence, modular door rail kits give glaziers and glass temperers greater control over when, where, and how commercial glass doors are put together and installed. An added benefit of modular door rails is that the side covers can be slid on after the glass

door has been completely installed, thus preventing damage during construction. This keeps the door rails looking pristine at project completion. After years of use, the side covers can be easily replaced if needed without removing the glass door from the pivot.

Utilizing complementary modular door headers

Modular door rails have a partner in crime in the form of newly available modular door headers. These unique header systems can also be stocked by glass professionals, then cut to the desired length in the shop or on-site, eliminating manufacturer lead times for custom door headers. Using proprietary precision jigs, mounting holes can be drilled on-site to match the opening. No factory prep is required. When the entrance calls for a double door setup, included splice connectors can be used to create a

continuous door header up to 96 inches long. Modular door headers are typically shipped pre-drilled for door closers.

Glaziers and glass temperers need every advantage they can get when it comes to workflows and efficient project completion. Modular door rails and headers are set to revolutionize glass door customization and installation, providing a significant advantage in time savings. By stocking these innovative systems, manufacturer lead times for custom doors are eliminated, which puts glass professionals in complete control over how and when glass doors are assembled and installed. ■



Mark Suehiro is director of architectural hardware and entrances for CRL.



Innovation in Action: How PDS IG and Insul-lite Turned a Space Challenge into a Success Story

When Insul-lite decided to invest in a new automated IG line, they knew space was going to be their biggest obstacle. The company was moving into a new facility to accommodate growth—but the building's rectangular layout wasn't ideal for the straight-line design of most IG systems.

"We found a great building, but the line we initially looked at from PDS wouldn't fit," said Troy Layton, General Manager, Insul-lite. "We brainstormed with the PDS team, and we came up with a creative solution. The line now goes three-quarters down our floor, then makes a turn using a custom flipper they built. It was seamless—and something they'd never done before. It makes better use of our space and allows us to produce more efficiently than we thought possible."

That innovative spirit defines the partnership between Insul-lite and PDS IG. Rather than compromise production goals or remove features like protective film application, the PDS IG engineering team developed an L-shaped line that maintained full functionality while maximizing the available floorplan.

Most IG lines run straight," explained Mike Rapp, President of Sales, PDS IG. "But we wanted Insul-lite to have everything they needed. So, our flipper design turns and flips the glass 90 degrees, allowing both film applicators to be used without losing any capability. It also improves cleanup for installers because protective film is applied before the secondary seal."

The results speak for themselves. Since installation, Insul-lite's line has surpassed performance expectations, delivering smooth operation and high-quality output.

"We saw PDS as a partner from the start—and that's continued," Layton said. "Their support has been phenomenal. If we need help, they're just a phone call away, and if something needs hands-on attention, they're on-site within a day."

That level of responsiveness is backed by a service contract and ongoing communication. PDS IG technicians visit twice a year for preventative maintenance, and the teams hold regular calls to ensure everything runs at peak performance.

System Highlights & Performance Advantages

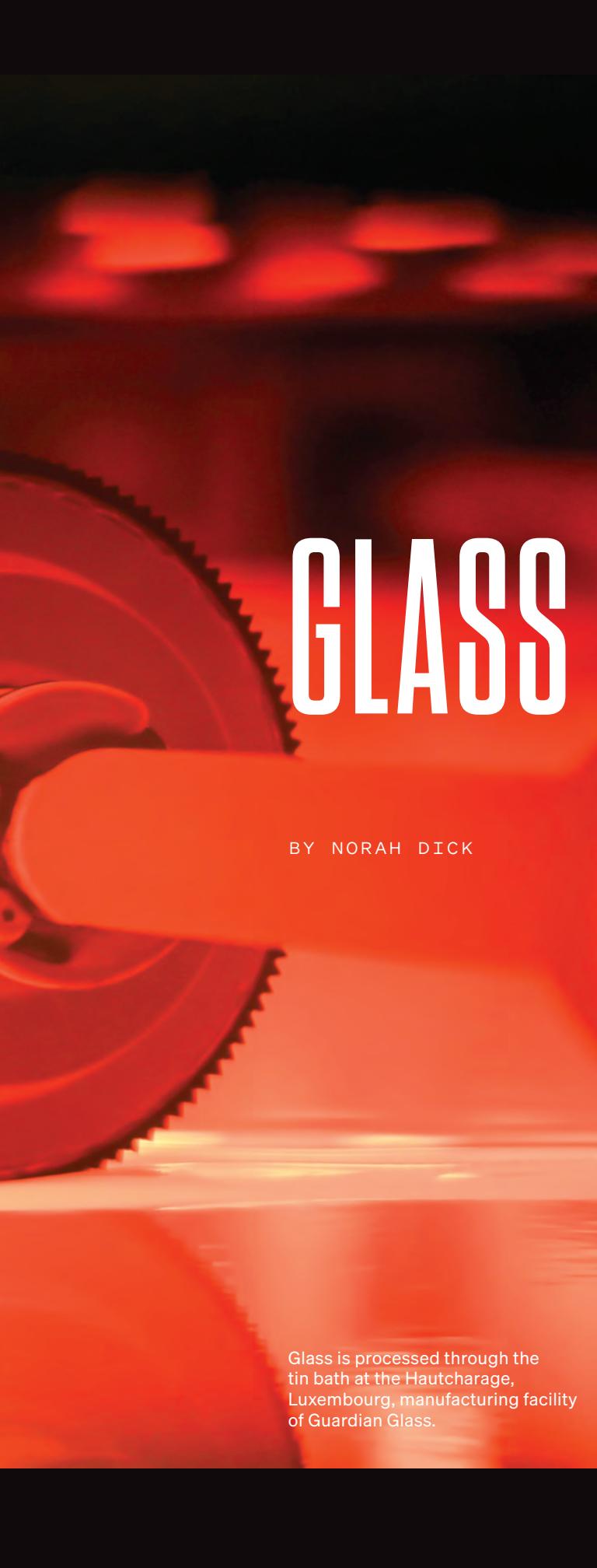
- ✓ Industry-leading spacer durability for long-lasting IG performance and reliability.
- ✓ Exceptional thermal efficiency, improving energy performance and helping reduce heat loss.
- ✓ Can meet customer needs with ability to produce dual panes, traditional triple panes, AND single spacer triple panes.
- ✓ Protective film application that significantly reduces handling damage and product returns.
- ✓ High-efficiency inline gas filling process for consistent, reliable gas retention.
- ✓ Engineered flexibility to adapt to challenging building layouts without sacrificing production capacity.

For both companies, the collaboration is proof that when customer commitment meets engineering ingenuity, challenges become opportunities — and innovation leads the way.

WORLD OF



FLOAT SUPPLY MAY RETURN TO CANADA AND HIGH-PERFORMANCE TECHNOLOGIES SEEK GREATER MARKET PURCHASE



GLASS

BY NORAH DICK

Glass is processed through the tin bath at the Hautcharge, Luxembourg, manufacturing facility of Guardian Glass.

The World of Glass used to be simpler, and smaller. I know from my time reading through back issues of Glass Magazine that architectural glass started life as a more standardized product, expanding in applications, competition and supply in the post-war era. And since the National Glass Association was founded in 1948, float and raw glass manufacturing has only continued to innovate across the world and across architectural applications to become a high-performance material.

Today's glass industry is anything but simple. The last year has seen significant economic turbulence caused by tariffs as well as rising inflation and costs. Despite this, glass industry companies have worked to secure, and even expand, float glass supply, while also continually innovating more energy-efficient and sustainable solutions in the form of vacuum insulating systems, solar patterned glass and now thin glass solutions.

TARIFFS RESHAPE FLOAT AND PATTERNED GLASS SUPPLY IN UNEXPECTED WAYS

Fernando Diez, vice president of marketing, Vitro Architectural Glass, says that the “new reality” resulting from tariffs have “impacted the supply chain at all levels, including our customers.” Nevertheless, the company has been working to increase domestic production capacity and local sourcing, he says. “Fortunately for Vitro, this has not impacted us given the flexibility of our manufacturing network, where we are able to leverage our capacity of shifting production across our North American assets to accommodate demand. We also anticipated these challenges and have been transparent with our network of customers to ensure minimal impact to operations.”

Alan Kinder, director of demand creation at Guardian Glass, says that the fluctuating tariffs have impacted fabricators and the glass industry more broadly. “Fabricators that have historically imported glass have changed to domestic sourcing or are sourcing from countries with lower glass tariffs,” he says. The new tariff environment is also pushing more onshoring of solar panel production and automotive glass, he says, which is consuming a large portion of North American glass supply. Unlike the increase in demand after COVID, Guardian Glass reps say a slow recovery over several years is more likely to see a return of market demand.

Glenn Leroux, president and CEO of Canadian Premium Sand, says the new tariff environment has had a negative effect on new investment and new ventures on the part of the company. Canadian Premium Sand announced in 2021 that it was planning to bring float glass manufacturing back to Canada after the country’s last float plant closed in 2008. Then, given the incentives the 2022 Inflation Reduction Act offered for the production of solar panels, the company revised their plan to instead produce solar patterned glass, Leroux explains. Canadian Premium Sand’s low-iron sand deposit is ideal for creating the ultra-clear glass that solar panels need, he says, and patterned glass manufacturing is “an easier business,” requiring a fairly standard product with the same coating for about five to six customers.

As of 2024, the company had been planning to open patterned glass facilities in Selkirk, Manitoba, in Canada near the company’s sand deposit, and was simultaneously reviewing two potential sites in the southern U.S., both former container glass factories, in order to establish an American location. But once the new tariff environment took hold in 2025, financing the project became much more difficult. “A number of the policies that were creating momentum for the U.S. manufacturing base, they still created momentum, but the

incentives related to that momentum were under threat and remain under threat,” says Leroux.

Leroux describes what followed as a “perfect storm,” as offtake agreements with potential customers, needed to ensure financing for the facility, became harder to come by as costs to complete the renovation fluctuated. To make matters worse, the cost of solar patterned glass fell below \$6 per meter, which also disrupted potential financing. Leroux says the reason for the drop in costs is a combination of factors, including cheap freight prices for solar glass imports—which for North America tend to come from China, Thailand and Malaysia—as well as the greater global capacity of solar panel manufacturing and increased competition worldwide.

“We certainly haven’t given up on the U.S. [solar patterned glass] project, and we absolutely have not given up on the Canadian project. But those are the headwinds that we’re facing, and they’re not trivial,” Leroux says. He also emphasizes that though financing has been difficult, and incentives for investing in the industry may be shifting, demand for solar panels is here to stay, largely driven by the need for cheaper power in the U.S. “We all believe that if we had a facility right now, and we were producing solar patterned glass, even in Canada, we’d sell out.”

Canadian Premium Sand is not the

VACUUM INSULATING GLASS AND THIN GLASS SECTORS EXPAND

only North American glass industry player interested or involved in solar panel manufacturing. At the beginning of 2025, NSG Group converted one of its float lines at its Rossford, Ohio, factory to produce transparent conductive oxide glass to supply solar panel manufacturer First Solar. First Solar also announced a \$330-million investment in a new North Carolina facility as of November 2025.

In 2024, Vitro Architectural Glass began investigating the possibility of adding patterned solar glass capacity to its facility in Wichita Falls, Texas. Vitro's Diez emphasizes that the Wichita Falls investment is still in process, and would not affect the company's architectural glass production, but says that domestic production of glass for solar panels has wide industry interest. "We know that current partners and potential clients are excited about supporting the production of American-made patterned solar glass. Domestic sourcing of this key solar module component simplifies supply chains and ensures reliable product delivery," he says.

In what could seem like an ironic twist, the changing economic environment has led Canadian Premium Sand to reconsider their original proposition: building a new float plant in Canada. Leroux says the company is officially "investigating the viability" of opening a float facility, the first Canadian float plant to be built in decades.

While solar panel production continues to grow, other innovative glass technologies are beginning to accelerate, including vacuum insulating glazing and thin glass for multi-cavity insulating glass units. Both high-performance technologies are poised for greater market adoption.

Regional codes and energy costs could push greater VIG adoption

As of 2025, all three of the major North American float companies supplying the commercial market have VIG options available, including NSG Group Pilkington's Spacia, Vitro's exclusive agreement for VacuMax in North America, and Guardian Glass's development partnership with Denmark-based Velux. This last year also saw some new players in North America, including Kolbe Windows & Doors' partnership with LuxWall to incorporate VIG into Kolbe's window and door products.

VIG provides similar or superior thermal performance to conventional double glazing, in the thickness of a single glass lite, according to the National Glass Association resource "Vacuum Insulating Glazing, an Introduction." The gas in the space between two lites of glass is extracted to create a vacuum, rather than filled with air or argon as a traditional IGU would be. The glass lites remain separated by pillars (also called microspacers) approximately 0.005 to

0.012 inch (0.15 to 0.30 millimeter) thick. The thin profile of a VIG can be installed in new construction; in restoration projects, including as a secondary glazing; and in refrigeration applications.

Despite VIG's strong performance, Vitro's Paul Bush, vice president, sustainability, technical services and government affairs, says that VIG will remain "niche" until current energy codes and stretch codes catch up to the product's insulating qualities. "Updating these codes and standards is crucial to fully leverage the potential of VIG and promote more energy-efficient buildings," he says. "Without the driver of code requirements, the adaptation will likely be slow and gradual, and it could take up to a decade to see any notable increase based on current codes."

Codes may not be the only potential driver of VIG adoption. Chris Fronsoe, national architectural manager for the Northwest region at Vitro, says that strained energy resources might result in more adoption of the high-performing solution. He points to the significant rise of data center building, used to support infrastructure for artificial intelligence. "Cities will likely have to share their energy grid with these installations, and that could mean that energy will be at a premium," he says. Data supports Fronsoe—AGC of America's Data Digest reported statistics from ConstructConnect that year-to-date data center spending



has increased 92.8%, amounting to \$32.9 billion in investment. Fronsoe says that such a strain on energy resources could push further adoption of an energy-efficient solution like VIG.

Guardian Glass's Kinder says the company sees the most demand for VIG in commercial retrofits of historic buildings and in luxury residential. He describes VIG as "an exceedingly small market that is at the beginning of its new product growth curve, about to take off," and says that many colleagues feel that it will be the glazing solution for northern climates in North America.

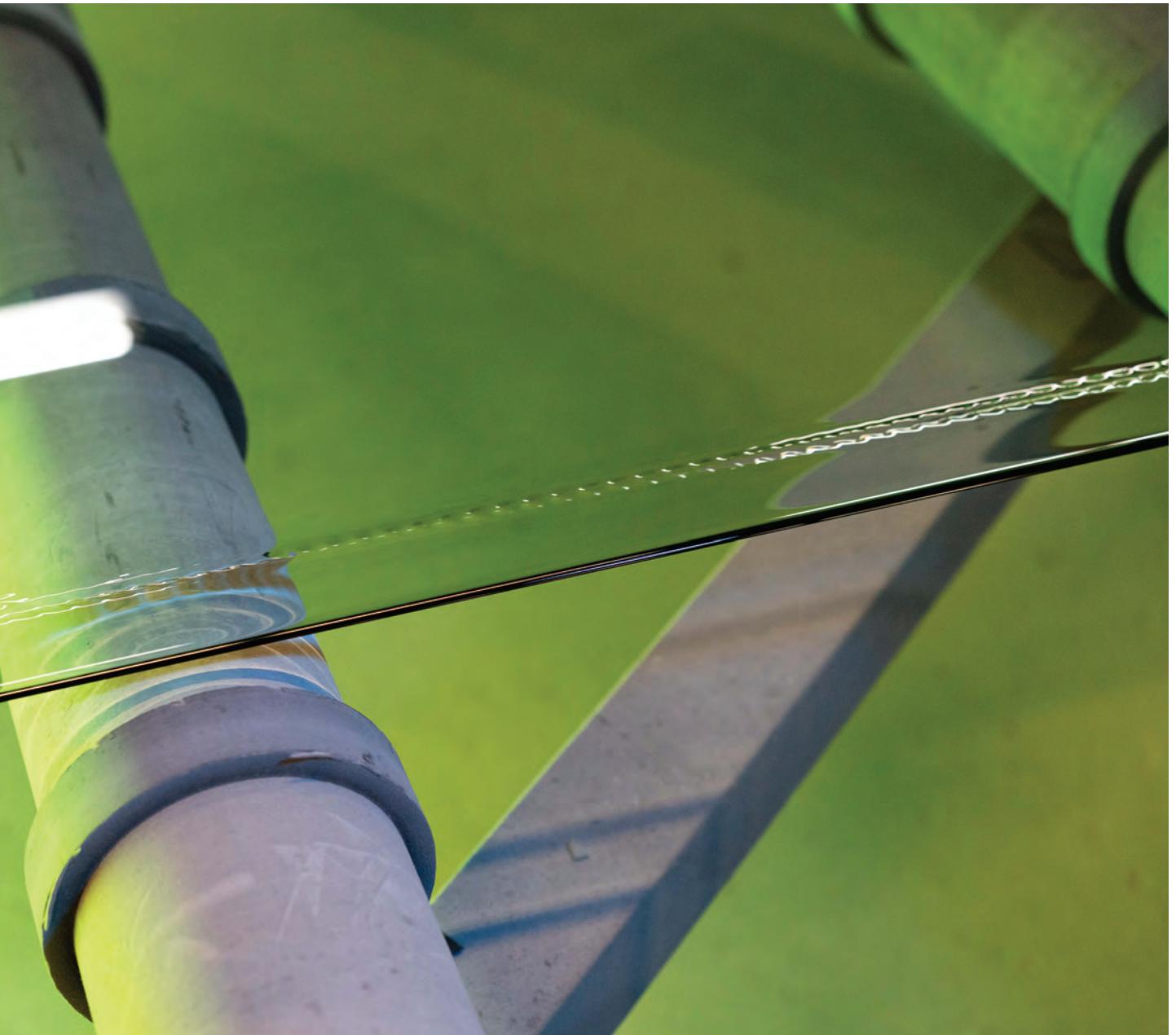
While VIG offers superior insulation performance, it also reduces embodied carbon compared to traditional systems, an indicator that industry leaders

say is still on the radar of the design community and regional governments. Guardian's Kinder says that architects, developers and regulators continue to demand "reliable, transparent data on the environmental performance of materials—and Environmental Product Declarations have become an important way to provide that information." Vitro's Paul Bush says that while there may be a perception that federal interest in the embodied carbon of building products is on "pause," state and regional legislative trends "indicate a continued focus" on this area of sustainability, as does customer interest. "This regulatory momentum at the state and region level underscores the imperative for a reduced carbon future," he says.

Left: The annealing lehr of a float line at the Hautcharage, Luxembourg, manufacturing facility of Guardian Glass.

Below: Flat glass being processed by Vitro Architectural Glass.





Resources from the National Glass Association

Download the following resources from glass.org/ store

- Vacuum Insulating Glazing, an Introduction (FB66-20)
- Introduction to Hybrid VIG Fabrication (FB72-21)
- Products for Energy Applications (FB63-19)
- NGA's GANA Glazing Manual – IYOG Edition

UPDATED WORLD OF GLASS MAP

Barriers for greater VIG scalability remain the capital costs required to install a VIG fabrication line, says Guardian Glass's Kinder. "It's significantly more expensive to install a VIG line compared to traditional IG production. Not every window manufacturer who currently creates IGs can create VIG."

Industry collaboration leads to innovation in thin glass systems

Another high-performance glazing option is multi-pane windows that use thin glass as the center lite(s). Currently, the companies that manufacture architectural thin glass include Cardinal Glass Industries, NSG Group, Asahi Glass Europe, Guardian Glass and Corning Inc. While no standard industry definition yet exists, thin glass is considered to be less than 0.098 inches (2.5 mm) thick.

While thin glass and its use in glazing systems is not new, recent industry collaboration has resulted in an increase in production capacity for the specialty glazing. Partnership among Lawrence Berkeley National Laboratory, or LBNL—as well as industry players like Corning, Alpen High Performance Products, Miter Brands and machinery manufacturers like Glaston, Erdman and Hegla—are allowing for greater potential use of the material in glazing applications. Other machinery manufacturers like Forel also offer machinery for fabricating thin-triple IGUs.

LBNL was instrumental in innovating the first thin-triple pane window in the 1980s, according to the lab's website. Conventional triple-pane windows had

existed since early in the decade, offering more insulation than double-pane IGUs. However, the addition of an extra glass lite means by definition more weight, larger width and higher cost. Berkely Lab researchers developed a thin-triple-pane window in response to these difficulties, creating a glazing solution to cut energy costs while also creating a lighter, narrower system. LBNL researchers say the technology was put on hold until there was a way to manufacture large sheets of thin glass.

That technology arrived in the late 2000s spurred by new thin glass applications in smartphones and other media technologies, creating demand and reducing manufacturing costs. NSG Group developed their 0.3mm Ultra Fine Flat, or UFF, glass for electronic applications in the early 1980s, according to the company's website, and built a float line for mass production of the glass in 1988. In 2014, NSG released its glanova thin glass, a clear, chemically strengthened composition glass manufactured through the float process. They began to expand applications of the glass, including architectural applications, the next year.

Not all thin glass has to be produced using a float glass method, where raw materials are melted on a bath of molten tin to form flat glass. The thin glass manufacturing process developed by Corning scientists Dr. Stuart Dockerty and Clint Shay in the 1960s instead used gravity, according to the company's website. During this process, molten glass is flowed into an open trough,

The National Glass Association hosts the World of Glass Map, a comprehensive industry resource working to represent the glass building products supply chain. The World of Glass offers two ways to interact:

Find an interactive map at glass.org/world-glass-map. Map users can find information about global float glass manufacturing locations, top-grossing North American glass fabricators and their fabrication capabilities, as well as U.S. recycling facilities. Locations can be browsed or searched for by name and location. The online map is continually updated with new information. If you don't see a location you feel should be included, let us know!

Download the World of Glass Map database. Newly updated as of August 2025, this sortable spreadsheet features three separate databases representing different parts of the supply chain: a global float manufacturing database, a North American glass fabricator database, and a U.S. glass recycling database.

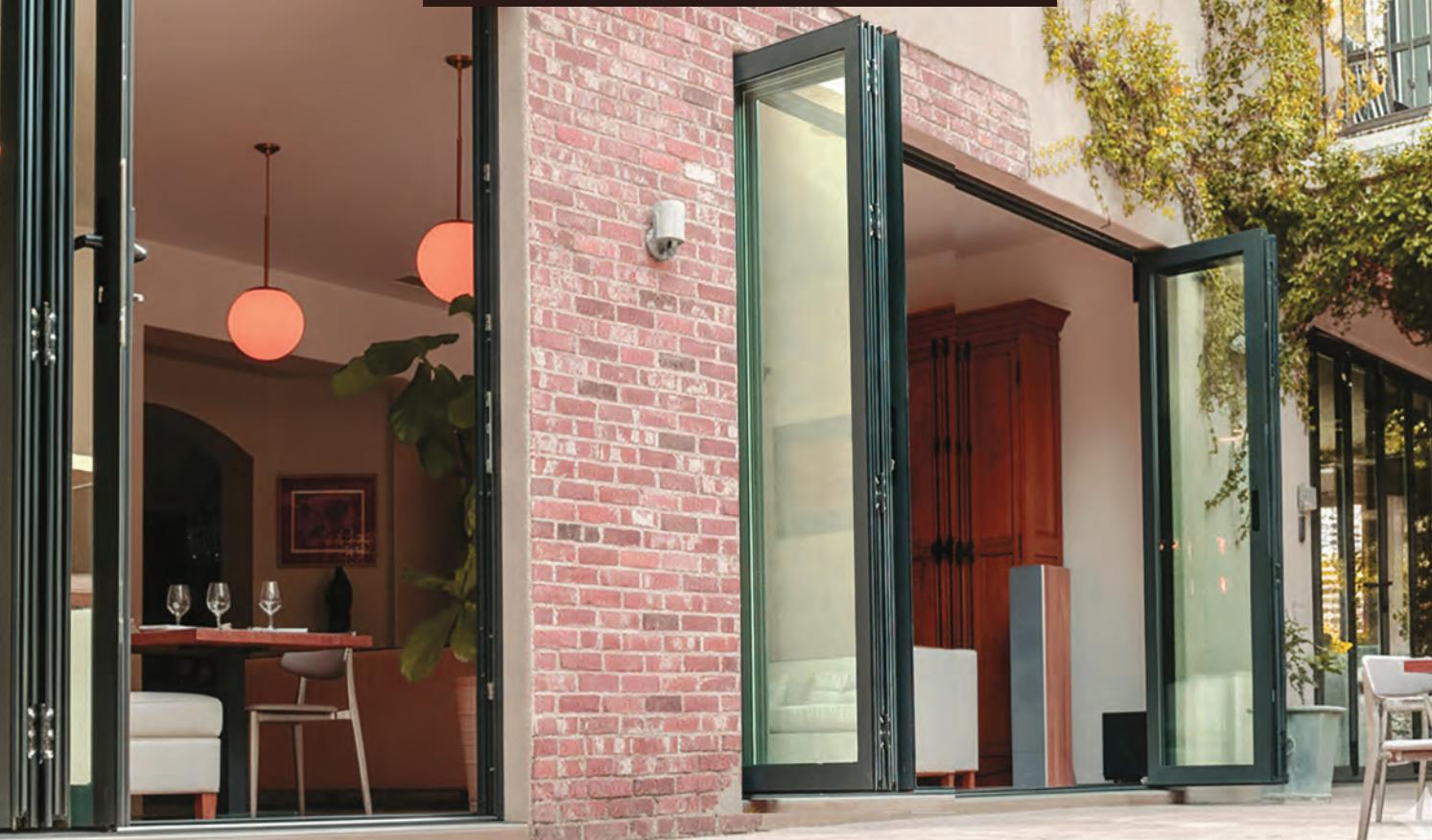
Float, fabricator and recycling databases all include company name and location information. Additionally, the float database includes the number of float lines (as is available) and the fabricator database features reported fabrication capabilities.





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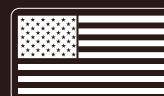
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The newly renovated Hugel Welcome Center in Markle Hall on the campus of Lafayette College in Easton, Pennsylvania, is the first project in the U.S. to feature VacuMax VIG by Vitro Architectural Glass. Photo by Jim Cunningham.



shaped in a V. The force of gravity then pulls the glass down on either side, with streams meeting at the point of the V, which are eventually drawn into a sheet.

Chelsea Tracy, director of architecture at Corning, says that compared to traditional soda lime float glass, “thin glass has better performance in terms of breakage, less embodied carbon, more uniform appearance and is more optically clear due to having 50% less iron content.”

Safety glazing certification remains a hurdle to broader market adoption

Despite its performance and sustainability benefits as part of a multi-pane IGU, one hurdle to thin glass architectural adoption in the

U.S. remains its ability to be certified as safety glazing, a topic discussed by industry and technical leaders at NGA Glass Conference: Ann Arbor in 2025. To be certified, the thin glass IGU would need to be approved by the Safety Glazing Certification Council to have passed testing by ANSI Z97.1, which requires that all lites in a glazing system must be tempered or laminated glass. The challenge for these systems is that thin glass cannot be tempered, and to laminate it would eliminate the other benefits of a thin glass IGU. Currently, the thinnest glass certified monolithically is 0.098 inches (2.5 mm), according to Kristin Best, program manager for SGCC.

Stephen Morse, associate teaching professor and head of the Architectural

and Structural Glass Research and Testing Lab at Michigan Tech, shared strength testing results of different thin glass systems at NGA Glass Conference: Ann Arbor, which suggested that broken pieces of thin glass would not result in laceration, though data collection is ongoing. Robert Hart, principal scientific engineering associate at LBNL, questioned the industry as to whether ANSI Z 97.1 is even the correct standard to evaluate thin glass. “Tempering was designed as a proxy for safety. You’re not testing if the glass is safe or not, you’re testing if it breaks into a small size,” he says. “Thin glass breaks differently—do we need a different test?” Discussions will continue at ANSI, SGCC and NGA as more test data becomes available. ■



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BUILDING RESILIENCE

IN THE FACE OF A DYNAMIC MIX OF CHALLENGES AND OPPORTUNITIES, LEADING CONSTRUCTION ECONOMISTS SAY RESILIENCE AND INNOVATION CAN HELP COMPANIES POSITION THEMSELVES FOR SUCCESS IN 2026

BY TARA LUKASIK

ILLUSTRATION
BY CORY THACKER

A large, bold, red letter 'S' is positioned in the upper right quadrant of the page. It is rendered in a thick, sans-serif font and is partially cut off on the right side, creating a sense of depth or a large initial.

ince our forecast last year, the editors at Glass Magazine have continued to watch a rapidly changing economic environment, paired with a policy environment that still remains very fluid. Long-term interest rates remain stubbornly high, inflation rates have stalled, home building activity levels remain disappointing, tariff rates for construction continue to rise and shift, and construction labor shortages have grown due to restrictive immigration policies. Despite all this, the outlook for 2026 is largely unchanged from what we reported in January 2025—challenging for U.S. construction, with reasons for optimism in the coming year. Maybe it's the American ethos of self-reliance—the sentiment that when times get hard, we respond with hard work, initiative and resilience to create opportunities and prosperity—that has the leading construction industry economists responding with “silver lining” forecasts while also hinting that we may be on the brink of a recession. ▶

ECONOMIC OUTLOOK

An economic slowdown is emerging

The construction industry entered 2025 with strong momentum driven by major government investments like the Infrastructure Investment and Jobs Act and CHIPS Act, along with substantial private-sector spending on data centers for cloud and AI infrastructure. However, the macroeconomic environment has since deteriorated greatly thanks to rapid policy changes that have created uncertainty in the industry. Consumer spending has stalled, housing sales have declined and the job market is weakening.

The One Big Beautiful Bill Act, or OBBBA, will provide limited short-term economic stimulus while creating long-term fiscal challenges through increased deficits and debt, according to Dodge Construction Network. The near-term benefits come primarily from business incentives, including the qualified business income deduction, R&D expense provisions, and qualified opportunity zone renewals, though these last renewals-related construction projects won't begin until 2027. Then there's the bill's fiscal cost: the Congressional Budget Office estimates OBBBA will add \$3.4 trillion to deficits over 10 years, pushing the debt-to-GDP ratio from approximately 100% currently to around 130% within a decade, potentially causing severe long-term economic damage.

Examining the economy from a broad perspective, Michael Guckes, chief economist at ConstructConnect, says the "GDP forecast shows modest growth for the foreseeable future, with projections of just over 2% for 2025 and 2.3% for 2026—nothing to get too excited or write home about."

"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," says Eric Gaus, chief economist, Dodge Construction Network.

ECONOMIC OUTLOOK TAKEAWAYS

- Economic growth is expected to be below potential, which correlates to a sizable downside risk in the near term for construction activity.
- Consumer spending is expected to slow down, from 2.8% growth in 2024 to 2.1% in 2025 and 1.1% in 2026.
- The labor market is expected to weaken; unemployment will tick up from 4.0% in 2024 to 4.2% on average in 2025 and 4.7% in 2026.

18%

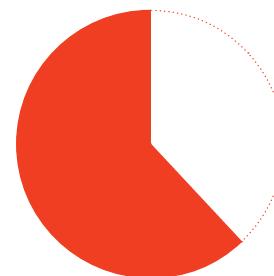
of workers in the glaziers' trade are foreign-born

Labor market cools off

The construction industry's most significant direct impact from OBBBA stems from the massive expansion of Immigration and Customs Enforcement and the resulting large-scale deportations. Foreign-born workers constitute approximately 30% of the construction workforce nationally, according to statistics from the U.S. Census Bureau, though this figure reaches 35% to 40% in some states like California and Texas, with a substantial portion being undocumented. This concentration of foreign-born labor has attracted ICE attention, though numerous uncertainties make it difficult to predict the exact impact. Beyond construction specifically, Dodge says increased ICE enforcement has significantly altered projections for household formation, which has been primarily driven by immigrant rather than domestic population growth.

Immigration policy presents the most significant wildcard for 2026, says Ken Simonson, chief economist, Associated General Contractors of America, who emphasizes that construction is "much more dependent than the broader economy, 34% versus 18% of the broader workforce, on foreign-born workers," with some states like California, Texas, New Jersey, Maryland, and Washington, D.C., showing "50% or more foreign-born" workers in construction trades. While "not many firms have been affected yet

GLAZING FIRMS ARE STILL STRUGGLING TO FIND WORKERS



62% say recruitment is biggest hurdle

Most difficult positions to fill:

Glaziers and field labor 53%

Project managers 51%

Estimators 27%

by jobsite raids," Simonson warns that "the Department of Homeland Security has gotten tremendous boost in funding and staffing... and next year could be an active one for affecting jobsites."

Simonson also notes that "total construction employment has been tapering off pretty steeply over the past three years." The employment picture reveals a stark divide: residen-

tial construction “has been shedding jobs on a year-over-year basis since early this year,” while non-residential construction continues to add jobs “but it’s also slowed down.” The weakness is spreading geographically, with only 28 states showing employment increases compared to 35 to 45 states a year earlier, and the decline now affecting previously strong regions, including the West Coast, Northeast, Rocky Mountains, and for the first time, some Southeast states.

Construction firms continue to compete aggressively for workers through wage increases. “Construction is spending more to entice people to come and work in construction and stay in the field,” says Simonson, with average hourly earnings staying “above a 4% increase for several years now.” However, firms appear hesitant to expand their workforce, as hiring rates remain near historic lows and job openings have “plunged” by 38%. Simonson realizes this “might sound pretty ominous,” and while he says the data on layoffs and worker retention suggest a wait-and-see approach across the industry, he remains optimistic that there will be more work in 2026.

“We’re seeing a long-term slowdown in employment in the construction industry,” says Dodge’s Gaus. “We’re also seeing a slowdown in average hourly earnings. Some of that might be due to businesses not making decisions about going forward with construction projects.”

Challenging material costs

Construction cost pressures are mounting on multiple fronts, according to ConstructConnect’s Guckles, and material costs are currently up about 5% year-over-year, but he warns that “we are in early innings when it comes to construction material prices and where they could go.” He draws comparisons to 2018-2019 when 25% tariffs on aluminum and steel drove construction material prices as high as 8%, noting that current trade policy “is much more aggressive this time around.”

FROM UNCERTAINTY TO STRATEGY: BRIGHTER CONSTRUCTION MARKET AHEAD

Is the worst behind us? As economic uncertainty begins to fade, Connor Lokar of ITR Economics offered a data-driven perspective on what lies ahead. In his annual economic forecast, “Gearing Up for 2026,” Lokar cut through the noise to reveal a clearer economic outlook of the next business cycle through mid-2025 and into 2026—one shaped by rising industrial production, stabilizing construction backlog, and strategic opportunities amid inflationary pressures. With rates-of-change analysis and global trends pointing toward a cautiously optimistic outlook, the data tells a compelling story: while challenges remain, the foundation for growth is already forming.

“The economy is not collapsing today, and it’s not going to collapse tomorrow. It is not going to collapse next year,” says Lokar. “For the first time in basically two years... we have positive growth. The economy is growing. It’s not going to stop growing. It’s going to accelerate in 2026.”

Beyond the Noise: A Clearer Economic Picture for 2026

Lokar’s message is clear—don’t let headlines and political distractions cloud your strategic vision. His forecast emphasized the importance of focusing on economic fundamentals and leveraging reliable forecasting tools that allow businesses to plan with confidence, even in a volatile environment. Lokar highlighted the use of rates-of-change analysis, which helps define and anticipate shifts in the business cycle, offering early signals for strategic pivots. As of mid-2025, the data suggests that the economy is entering a phase of recovery, with industrial

production expected to grow modestly through 2026.

The Data Tells the Story: Construction, Inflation, and Opportunity

The construction sector serves as a microcosm of broader economic trends. Lokar pointed to diverging paths within the industry: single-family housing is poised for a rebound in 2026, while multi-family and nonresidential construction face continued softness. Yet, not all segments are slowing—data center construction is booming, with growth exceeding 40%, making it a bright spot for investment and development.

Backlogs are stabilizing, and the Architecture Billings Index has been signaling a shift since early 2024. These indicators suggest that while the sector is navigating headwinds, the worst may be behind it. Lokar encouraged businesses to be geographically specific in their planning, noting that population growth and regional dynamics will play a critical role in shaping demand.

Inflation remains a central theme. While the easing of price pressures seen in 2023 and 2024 may be over, Lokar warned that costs are rising again, especially in construction inputs like lumber, structural metals and labor. CPI and PPI are both forecasted to climb in 2026, reinforcing the need for robust cost management strategies.

Strategic Imperatives for the Next Cycle

Lokar’s advice is both pragmatic and forward-looking. He urged

CONT'D ON PAGE 60

CONT'D FROM PAGE 59

companies to digitize and embrace AI to stay competitive, develop inflation strategies that go beyond short-term fixes, focus on cost control and margin protection, especially in asset-heavy sectors, and plan for a pivot between 2028 and 2032, when demographic and fiscal pressures may reshape the landscape.

He also cautioned against expecting dramatic interest rate cuts in 2025, noting that government spending and rising debt levels are likely to fuel long-term inflation. With the U.S. requiring 18% of its revenue just to service interest payments, the fiscal outlook remains a concern.

Conclusion: Clarity Through Data

Lokar closed with a call to action for leaders who want to navigate the next phase of the economy with clarity and confidence. By focusing on the data—not the noise—businesses can position themselves for resilience and growth. “Most businesses in this room are going to have a better 2026 than they’re going to have here in 2025, and I want to make sure that you’re ready for that,” Lokar says. “A lot of businesses are going to go under... and a lot of people are going to make more money than they’ve ever made before. This is an opportunity if you see it coming. Be the buyer, not the seller. Leverage that. Grow your business... and be ready to attack 2030 and not fall victim to it.”

The key to navigating these economic headwinds, says Guckes, is being ruthless in controlling costs. “If you want to protect your profitability, you have to be absolutely ruthless in terms of controlling costs this year and next year,” says Guckes. “Figuring out creative ways to manage the supply chains, to control your profit margins, because we’re already seeing pressures everywhere. Firms have been sacrificing their profit margins to help keep prices stable, but that is only a temporary fix. For 2026, be ruthless, control costs and make sure that you’re bidding.”

COMMERCIAL BUILDING OUTLOOK

Overall market outlook

Rising uncertainty around tariffs caused many business owners and developers to delay project decisions in the first half of the year, and continued uncertainty will continue to weigh on construction starts, according to economists of Dodge’s 2026 Outlook. As a result, total nonresidential construction is anticipated to expand by a moderate 4% in 2025 and 3% in 2026. Much of that growth will be from continued strength in data center construction and ground-breakings on high-value megaprojects in select sectors. Higher materials price assumptions and more construction activity pivoting to the alteration side of the market will also prop up the dollar value forecast. From a square footage perspective, total nonresidential construction will decline 2% in 2025 before re-expanding by 3% in 2026.

According to AIA, the Consensus Construction Forecast economists predict that overall spending on nonresidential buildings not adjusted for inflation will increase only 1.7% this year and grow very modestly to just 2.0% next year due to high long-term interest rates, falling consumer confidence and labor shortages as factors limiting growth.

ConstructConnect’s Michael Guckes notes that non-residential building faces particular challenges with a projected decline of 6.7% in the U.S. for next year,

with manufacturing being a major factor in that weakness due to a projected decline in new manufacturing facility construction.

Data Center Phenomenon

Data centers are experiencing remarkable expansion and are the primary driver of growth in commercial construction. Without data centers, commercial construction remained mostly flat through most of 2024 and into early 2025, indicating the sector was essentially stagnant aside from this one segment. Dodge’s Eric Gaus notes they’re “going gang-busters,” stating: “If there’s growth in the DMI [Dodge Momentum Index] that’s for multi-year purposes, the growth is almost all coming from data centers.” In 2025, data center construction is projected to eclipse traditional office construction in terms of value of starts, and the sector will “run away with it in 2026.”

The numbers are striking: approximately 18% growth in 2025 and around 25% growth in 2026, representing consecutive years of double-digit expansion. After increasing by more than 50% last year, spending is expected to grow by another 33% this year and by an additional 20% next year. ConstructConnect’s Michael Guckes reported that data centers have “doubled almost every year since 2021,” growing from \$7 billion in 2022 to \$32.9 billion through September 2025, with potential for “yet another year of doubling growth.”

Gaus expects this momentum to plateau in subsequent years (years three through five), transitioning to slower growth rather than declining growth. The eventual plateau stems primarily from resource constraints. As Gaus explains, “We need a lot more power and water and creative solutions to building these sites near users without damaging the local communities that are there.” Some communities have pushed back against these facilities, says Gaus, though the overwhelming demand and financial incentives make complete obstruction unlikely. Even in this sector, there are growing concerns that electrical equipment shortages, power

COMMERCIAL BUILDING VALUE FORECAST

2025

Total Nonresidential: +4% to \$467 billion
 Commercial: +8% to \$183 billion
 Institutional: +1% to \$229 billion
 Manufacturing: +4% to \$55 billion

2026

Total Nonresidential: +3% to \$481 billion
 Commercial: +7% to \$195 billion
 Institutional: +6% to \$244 billion
 Manufacturing: -24% to \$42 billion

Source: Dodge Construction Network

DATA CENTER SLOWDOWN

The consensus is that data center growth will slow down in 2026.

	2025	2026
Dodge Construction Network	68.4%	39.9%
FMI Corp.	32.1%	18.9%
Office	6.90%	5.50%
ConstructConnect	19.9%	13.5%
Associated Builders and Contractors	22.1%	14.2%

FORECAST CHANGE FROM 2025 TO 2026

	2025	2026
Nonresidential Total	1.70%	2.00%
Commercial Total	1.50%	3.90%
Office	6.90%	5.50%
Data Centers	33.70%	19.50%
Retail & Other Commercial	-3.10%	1.80%
Hotel	3.00%	6.00%
Institutional Total	6.10%	3.80%
Health	4.30%	4.30%
Education	5.00%	3.20%
Amusement & Recreation	9.90%	1.30%

Source: AIA Consensus Construction Forecast

requirements and community opposition may slow the pace of growth.

Virginia and Texas host the vast majority of large-scale data centers, primarily due to favorable regulations and faster permitting processes. Gaus offers an interesting observation about optimal versus practical locations; states like Colorado would be naturally ideal due to cooler climates reducing cooling costs, but regulatory hurdles make the speed-to-market challenging. He notes that “by the time they are actually built, they’re more or less obsolete for the purpose with which they were planned for,” making rapid construction timelines critical.

Perhaps most notably, Gaus identifies a significant trend toward medium- and large-scale data centers—distinct from massive hyperscale data centers—that are “targeted towards the end user” for final computation needs. These smaller facilities are being strategically located closer to consumer populations rather than concentrated in traditional data center hubs, representing a geographic diversification of the sector.

AIA’s Kermit Baker says the consensus forecast predicts, “very modest growth, probably not even offsetting inflation, for the remainder of 2025 and into 2026, with particularly weak performance expected in commercial sectors outside of data

centers, which are the only reason the office market shows any growth at all.”

ConstructConnect’s Kristy O’Brien observes: “I think data centers are the buzzword of the day. It’s a standout performer, driven by the relentless demand for AI and it’s showing no signs of slowing for now.”

Deloitte’s 2026 Engineering and Construction Industry Outlook also notes areas of optimism. A surge in AI-driven data center construction and an associated focus on energy infrastructure led to segment growth in 2025. Business investment in construction structures is projected to pivot from a 2025 decline in funding to modest growth (nearly +1.8%) in 2026, with AI-related data center outlays continuing to support engineering and construction work.

Mega projects driving spending

Much of the overall growth in nonresidential building spending in recent years has come from a few key sectors, namely manufacturing aided by funding under the Infrastructure Investment and Jobs Act, the CHIPS and Science Act, and the Inflation Reduction Act; warehouses given the dramatic rise in e-commerce during the pandemic; and data centers to fuel the investment in artificial intelligence. Despite overall weakness, mega projects and data centers are creating a construction boom in specific segments. ConstructConnect’s Michael Guckes reports that mega projects—those with \$1 billion or greater total construction cost—reached “about 134 billion dollars of total work” through September 2025, which is “43 billion dollars or 47% greater than the 91 billion dollars we saw this time last year.” He stresses that “the impact of mega projects on construction simply cannot be underestimated or underappreciated,” as they explain how spending remains strong despite declining project counts.

Commercial Sector: Signs of Movement after Extended Pause

Commercial starts will grow 8% in 2025,

bolstered by growth in data center construction and parking garages, according to the AIA Consensus Construction Forecast. The commercial sector outlook is about on par with the broader industry, with a projected 1.5% increase this year rising modestly to 3.9% in 2026. Growth in commercial construction will be more diversified in 2026, as retail, warehouse and hotel activity begins to pick up. Further rate cuts from the Federal Reserve and stronger business and consumer spending in 2027 will drive the 7% acceleration over the year.

Planning activity has increased, says Dodge's Eric Gaus, who compares the sudden activity to wallflowers at a dance suddenly entering the dance floor. Even so, he remains cautious about how long activity will stay elevated. "We'll see how far this goes and how long that trend persists." Despite increased planning activity, Gaus identifies "a fairly large caveat"—project delays are increasing significantly and getting longer. He distinguishes between formally reported delays, or officially classified delays (which aren't showing major red flags), and the actual time projects spend in the preparatory "pipeline" phase before actual construction begins.

The delays are "particularly acute in health care and warehousing and manufacturing, but we're seeing this across the board," says Gaus. For manufacturing, warehousing and health care, timelines have increased "from 20% to 25% longer," potentially adding two years or more to the development process. This means the recent DMI surge might not translate to actual construction starts until "the end of 2027 and maybe not even the middle of 2027."

Traditional office is adapting

Office construction is struggling in the post-pandemic environment. Dodge's Gaus notes that in 2025, "data centers eclipse office in terms of the value of starts of total office traditional office," and data centers will significantly outpace office construction in 2026.

Spending in the office category

has been hampered by remote work that has produced national vacancy rates approaching 20%. Spending by building owners to make the space more desirable has spurred reconstruction spending, but not enough to offset the decline in new construction. Data centers have kept the overall category afloat because the U.S. Census Bureau classifies these facilities within the broader office category. However, netting out spending on data centers, spending on offices is expected to decline 3.6% this year, and another 2.0% next year, according to AIA Consensus Construction Forecast economists.

However, Gaus identifies interesting trends in what is being built. "We're seeing more and more of the high-end being built and a lot of renovations to the high-end...taking a B or C [classified commercial building] and making it an A." He describes an emerging "hub and spoke" model where companies create smaller satellite offices in suburbs to accommodate workers who relocated during the pandemic. These involve renovating existing B or C grade buildings with nice lobbies and subdivided spaces for specific companies, rather than new construction. While some new construction continues in major cities, Gaus indicates it's not "the vast majority of what we're seeing."

AGC's Ken Simonson notes that the non-residential sector shows the most dramatic contrasts, particularly in office construction where he reveals that "apparent flatness in office [construction] is really made up of a 30% spike in data centers, a 17% decline in private office."

Retail: eCommerce impacts moderating

Spending on retail facilities has been weak due to growth in e-commerce. More recently, however, the decline in warehouse spending—much of which is included in the broader retail category—has pulled down these totals. The retail category is expected to see less than a 1% decline in spending this year before reversing to 2.0% growth

next year, per the AIA Consensus Construction Forecast.

Retail stores, warehouses, and hotels are the most vulnerable to a pullback in consumer spending, more selective lending standards, and higher materials costs, according to Dodge. These sectors, therefore, face the most near-term risk.

Hotels in a state of recovery and resilience

The hotel sector presents a unique picture. Dodge's Gaus notes it "looks a little bit different, but only because they got hit so hard during the pandemic, everything really slowed down in 2022 and 2023 that the levels look odd." When compared to pre-pandemic periods rather than the depressed 2022-2023 baseline, hotel timelines have also "slowed down considerably."

However, Gaus sees resilience in the hotel sector due to renovation cycles that "feed on themselves for several years regardless of the economic landscape." He explains that the hotel industry is highly competitive, and renovations are "a lot easier and faster to get through the pipeline" than new construction, requiring fewer permits and allowing flexible cost decisions. Since this renovation cycle has begun, it will likely continue.

The hotel sector saw steep declines in spending in the early days of the pandemic, but an increase in travel has benefited the outlook for these facilities. The forecast is for a 3% growth in spending this year and an additional increase of 6% in 2026.

Additionally, Gaus observes increasing business travel as "more people are recognizing that getting together, whether in conferences or in-person meetings, the personal connections are really helpful to get through times of uncertainty." This business travel growth might offset decreases in leisure tourism, he says.

In its Engineering & Construction Outlook, FMI Corp., a consulting and investment banking firm focused exclusively on the built environment, expects lodging to grow around 8% annually due to strong occupancy rates.

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Institutional sector: Strength tempered by growing concerns

Institutional starts were on a tear in 2024 with large projects in the health care, recreation, and transportation sectors pushing starts up 18% to \$227 billion. This year, even more large projects will start, including the second phase of the Rikers Island prison replacement and the Midtown Port Authority Bus Terminal Replacement in New York. In aggregate, institutional starts will expand by 1% in 2025, even as health care and recreational starts post solid growth. Unfortunately, more muted education, dormitory and transportation construction will offset growth in the other sectors.

Like commercial construction (excluding data centers), institutional construction also remained “mostly flat” through most of 2024 and early 2025, according to Dodge, reflecting the broader pattern of businesses “sitting on their hands” and not actively planning new projects, though not completely abandoning planning either.

Institutional facilities are expected to be the strongest sector with projected gains of 6.1% this year and another 3.8% in 2026. AIA Consensus Construction Forecast economists expect institutional facilities (e.g., health care and education) to be the strongest sector, with gains of 3.8% in 2026.

Entering this year, spending on institutional facilities was expected to outperform both the commercial and industrial sectors over the 2025-2026 period. While reasonably healthy growth is still expected, concerns are rapidly mounting.

Health care: Growing but facing headwinds

Health care is specifically called out in Dodge’s report as one of the sectors experiencing the most acute project delays, among the worst affected alongside warehousing and manufacturing. For the health care sector, federal spending cuts to key funding programs like Medicaid and the Children’s Health Insurance Program will reduce spending on health care facilities.

Spending is still projected to increase 4.3% both this year and next, but there is a higher degree of uncertainty that will remain until final programmatic decisions are made.

Hospital construction should be more insulated in 2026 than urgent care clinics and nursing homes, say Dodge analysts.

Education: Multiple challenges converging

As risks to federal funding and endowments increase for colleges and universities, and as demographics weaken for K-12 schools—due to a sustained drop in national birth rates, domestic migration and immigration trends—education construction will decelerate from 6% growth in 2024 to only 1% in 2025, according to Dodge’s report.

The outlook for the education market is a bit more complicated. Education is the largest institutional sector, accounting for over a third of all spending in this category. However, there are three major areas of concern regarding the outlook.

- The first has to do with reductions in federal spending on health care research. Much of this research is conducted through colleges and universities, so a reduction in research funding will reduce the need for research facilities at these institutions.
- Secondly, international students comprise about 6% of the total U.S. higher education population. At some institutions, the share is much higher. For example, at Harvard University, international students account for about a quarter of the institution’s enrollment. So, greater restrictions on visas for international students will reduce enrollments and therefore the need for education facilities.
- Finally, longer-term demographic trends are not favorable for education construction. The Census Bureau estimates that the size of the under-18 population in the U.S. will decline by over three

million persons, or by 4.3%, over the next 10 years. This will reduce the need for secondary school facilities.

AGC’s Ken Simonson notes that higher education construction faces the most severe threats, as “the administration again has canceled lots of contracts and grants for universities and other research institutions” and “canceled visas or denied them for the researchers and faculty and students.”

RESIDENTIAL BUILDING OUTLOOK

Dodge’s Eric Gaus highlights a significant divergence between single-family and multifamily sectors. Residential construction, particularly multifamily, will be a major driver supporting growth over the coming year. However, Gaus notes that single-family housing “has been coming down quite a bit throughout the year,” while multifamily “has remained relatively strong” with good pipeline indications continuing into 2026.

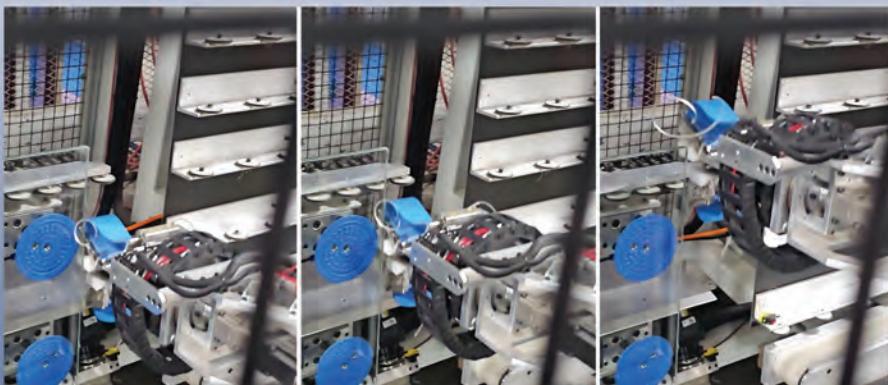
AGC’s Ken Simonson predicts that residential construction faces continued headwinds, with single-family down 2%, multifamily down 9% and improvements down 8%. While Simonson believes “we may be near the bottom on single-family and multifamily,” he notes that “30-year mortgage rates at 6.25% remain not low enough to bring first time home buyers back to the market,” suggesting “any recovery in residential will be pretty slow and modest.”

Single-family housing

The single-family housing market faced significant headwinds in 2025, with construction remaining underwhelming due to persistent affordability challenges. Mortgage rates hover between 6.5% to 7%; home prices are historically elevated, and growing recession risks combined with a weakening labor market have caused many potential buyers to delay purchases.

In Dodge’s annual economic forecast, Eric Gaus revealed that the outlet has

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revised down its single-family housing forecasts considerably. “We are actually pulling back our forecasts of single-family housing because we don’t see as many units needed five years from now,” he says. This revision stems from a counterintuitive factor: declining population growth due to changes in immigration policy. “We’re not getting as many people coming to this country from abroad because of our new stance on immigration policy and therefore that’s where we got a lot of our growth in households and if we don’t have more households we don’t need quite as many houses.” He suggests the housing shortage might partially resolve itself through reduced household formation rather than increased construction.

Addressing the housing affordability crisis that has dominated the narrative for four to five years, Gaus estimates the national housing shortage at approximately 1.2 million units that still need to be built to achieve market balance. However, the shortage has evolved significantly since 2022, when it peaked at around two million units and was “kind of everywhere across the country.”

The construction industry responded effectively to the shortage, particularly in the South, building “tons and tons of houses,” says Gaus. By Q1 2025, some markets—especially in the South and Midwest—have actually become oversupplied, as evidenced by rising inventories. “The housing market in the South and mostly the Midwest are doing pretty well,” but significant shortages persist in expensive urban markets like California, New York, Chicago and Boston, he explains.

Gaus emphasizes that the core issue is housing affordability rather than raw supply. “Where they are built and what type they are really, really matter. So, they need to be affordable and they need to be in those states in order for us to overcome that shortage.” The challenge is that states with the greatest need also have the most difficult zoning restrictions to navigate.

As the housing shortage gradually

CONSTRUCTION OUTLOOK

► In 2025, total construction starts expanded by 3.2% to \$1.21 trillion. Meanwhile, total building construction (excluding nonbuilding sectors) decreased by 2% in square footage this year.

► Despite weakening fundamentals, data center construction will help support total dollar value, higher building costs, and megaproject activity.

► In 2026, total construction will grow 4% to \$1.26 trillion. Nonresidential building starts will rise 3% to \$481 billion, residential starts will increase 6% to \$418 billion, and nonbuilding starts will rise 4% to \$361 billion.

RESIDENTIAL UNITS & VALUE FORECAST

UNITS

2025

Total Residential: -1% to 1,550,000 units
Single Family: -5% to 909,000 units
Multifamily: +6% to 640,000 units

2026

Total Residential: +2% to 1,590,000 units
Single Family: +1% to 917,000 units
Multifamily: +5% to 670,000 units

VALUE

2025

Total Residential: +0% to \$395 billion
Single Family: -6% to \$251 billion
Multifamily: +13% to \$144 billion

2026

Total Residential: +6% to \$418 billion
Single Family: +4% to \$262 billion
Multifamily: +9% to \$156 billion

Source: Dodge Construction Network

resolves over the next five years, demand for new construction is expected to normalize, resulting in a relatively flat outlook for single-family starts. Dodge forecasts single-family housing construction will finish 2025 down 5% to 909,000 units, followed by only marginal improvement of 0.9% to 917,000 units in 2026. Looking beyond 2025, slower immigration rates will further constrain household formations and overall housing demand, contributing to the subdued growth trajectory.

AIA’s Kermit Baker emphasizes that “housing recovery is really central to the health of the broader construction industry, but little can be done at the federal level to solve the housing problem.” He notes that different regions are taking creative approaches: California has “greatly eased the ability of a homeowner to put an additional unit, what’s called an accessory dwelling unit, on a single family lot,” with ADUs now representing 15% of new single-family units, “up from just 5% seven years ago.”

Multifamily sector

In contrast, the multifamily sector shows more promise for 2025, driven by buyers priced out of single-family homes who are turning to rentals or more affordable townhouses and condominiums. After multifamily completions peaked in Q1 2024, planning activity has steadily increased, correlating with year-to-date growth in multifamily starts. The rental vacancy rate stood at 7.0% in Q2 2025 as the market absorbed new projects. Dodge predicts multifamily starts will expand 6% to 640,000 units in 2025 and another 5% to 670,000 units in 2026, before pulling back through the remainder of the forecast period due to weaker demographic trends and reduced housing demand.

While not as large as the 2022-2023 surge, Dodge’s Eric Gaus sees “another mini wave” of multifamily projects starting, driven by persistent shortages in high-cost markets. Planning data shows multifamily will remain strong through the rest of 2025 and into 2026. ■



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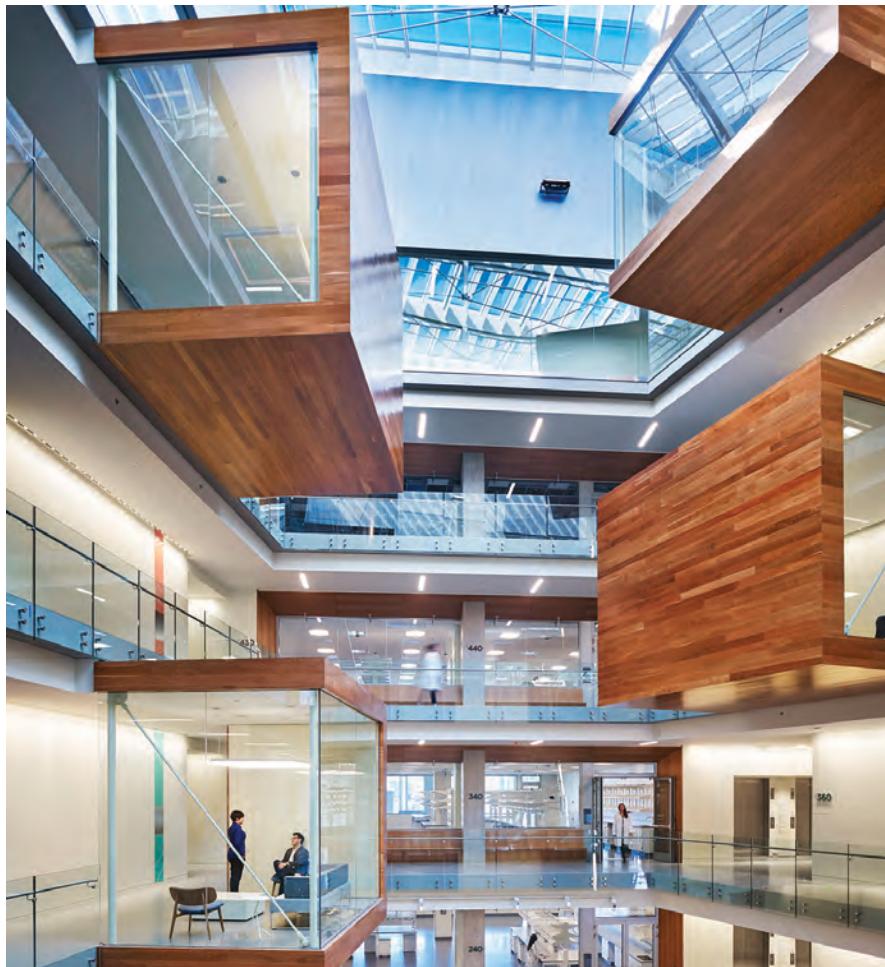
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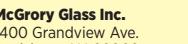


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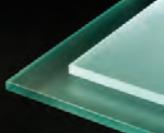
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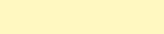
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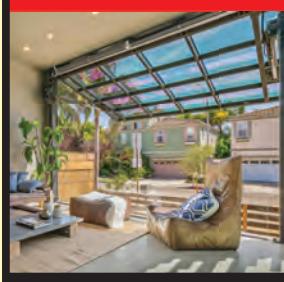
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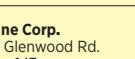
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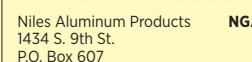
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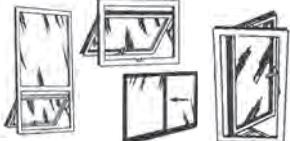
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Guardian Glass LLC	31, 51		
HoLampCo International	81	800/875-6268	holampcoresources.com
IUPAT	63		iupatglaziers@iupat.org
Liberty Glass & Metal Industries	83	800/843-2031	lgminc.net
McKeegan Equipment & Supply	78	734/459-5870	mckeeganequip.com
Mueller Technologies AG	80	905/427-3400	muller.ch
MyGlassClass.com	28		myglassclass.com
MyGlassTruck.com by Demountable Concepts, Inc.	29	856/347-4001	myglasstruck.com
NGA Glass Fabricator Conference	87		glass.org/nga-glass-fabricator-conference
PDS IG Equipment	41, 65	303/948-4793	pdsig.com
Pilkington North America	67	800221-0444	pilkington.us
Precision Glass Bending Corp.	30, 73	800/543-8796	e-bentglass.com
PRL Glass Systems	54-55	800/433-7044	prlglass.com
REBCO Industries LLC	77	800/777-0787	rebcoind.com
repurposedMATERIALS	81		
Roto North America	36-37		rotonorthamerica.com
Salem Fabrication Technologies Group Inc	20-21	800-234-1982	salemftg.com
Schweiss Doors	76	866/376-5663	schweissdoors.com
SGC International Inc.	71	866/802-8682	sgsllc.us/
SkylineGlazing Solutions	81		sgc-usa.com
Vitro Architectural Glass	24-25		starphireglass.com
Wood's Powr-Grip Co., Inc.	19		wpg.com



Chip Gentry, chief legal officer for Quaker Windows & Doors, and Stefanie Couch, founder of Grit Blueprint.

the energy of an industry starting to understand the power of showing up online. Reputation used to spread slowly, from person to person. Now it spreads at the speed of content. The brands that are winning treat visibility as part of their business strategy, not as an afterthought.

One of my favorite conversations this year was with Chip Gentry of Quaker Windows and Doors. We recorded a special episode of The Grit Blueprint Podcast after his panel on “Innovative Strategies to Mitigate Impacts from Supply Chain Disruptions.” Chip shared how Quaker is thriving by focusing on people, process and long-term strategy. Their commitment to culture and category leadership is clear. Quaker is growing fast and still carrying the mindset that they’re just getting started. That’s what makes them unstoppable. Resilience, trust and consistency aren’t accidents. They’re built one decision at a time by hungry and innovative leaders who think long term.

Another highlight was the Women in Glass + Fenestration event, where I interviewed Lakisha A. Woods, president and CEO of the National Glass Association, and Sheronda Carr, CEO of the National Association of Women in Construction. We talked about how partnerships, mentorship and development programs are helping more women grow and lead. I also shared insights on visibility and how building a strong personal and company brand can open new doors for women in our industry. The energy at that event was unforgettable.

GlassBuild 2025 proved that innovation isn’t just happening in the products we make, it’s happening in how we lead, train and build our brands. Technology will keep shaping how we build. People will always define why we build. Until next time, stay unmistakable. ■

INNOVATION IN MOTION

FUTURE-FOCUSED GLASSBUILD ATTENDEES ZERO IN ON STRATEGY AND INDUSTRY MOMENTUM **BY STEFANIE COUCH**

GlassBuild America 2025 made one thing clear—our industry isn’t waiting for the future, it’s building it. This year reminded me why the glass and fenestration world is one of the most exciting places to be. It’s not just about what we build; it’s about the people, ideas, and stories behind the products, technology and manufacturing innovations that keep us moving forward.

When I spoke about artificial intelligence this year, the shift was obvious. The questions weren’t surface-level and came from leaders already using AI every day to improve design, manufacturing and service. They

wanted to know how to build AI agents, design more effective systems and use technology to generate real value. That hunger to learn stood out the most. The next generation of leadership in our space isn’t waiting for change; they’re driving it.

You could see it everywhere across the show floor. From advanced machinery solving labor and capacity challenges to new products pushing the limits of performance, this year’s show was innovation in motion. Something else stood out, too. More people and brands are finally using these events to create content. Cameras were rolling, teams were sharing stories and you could feel

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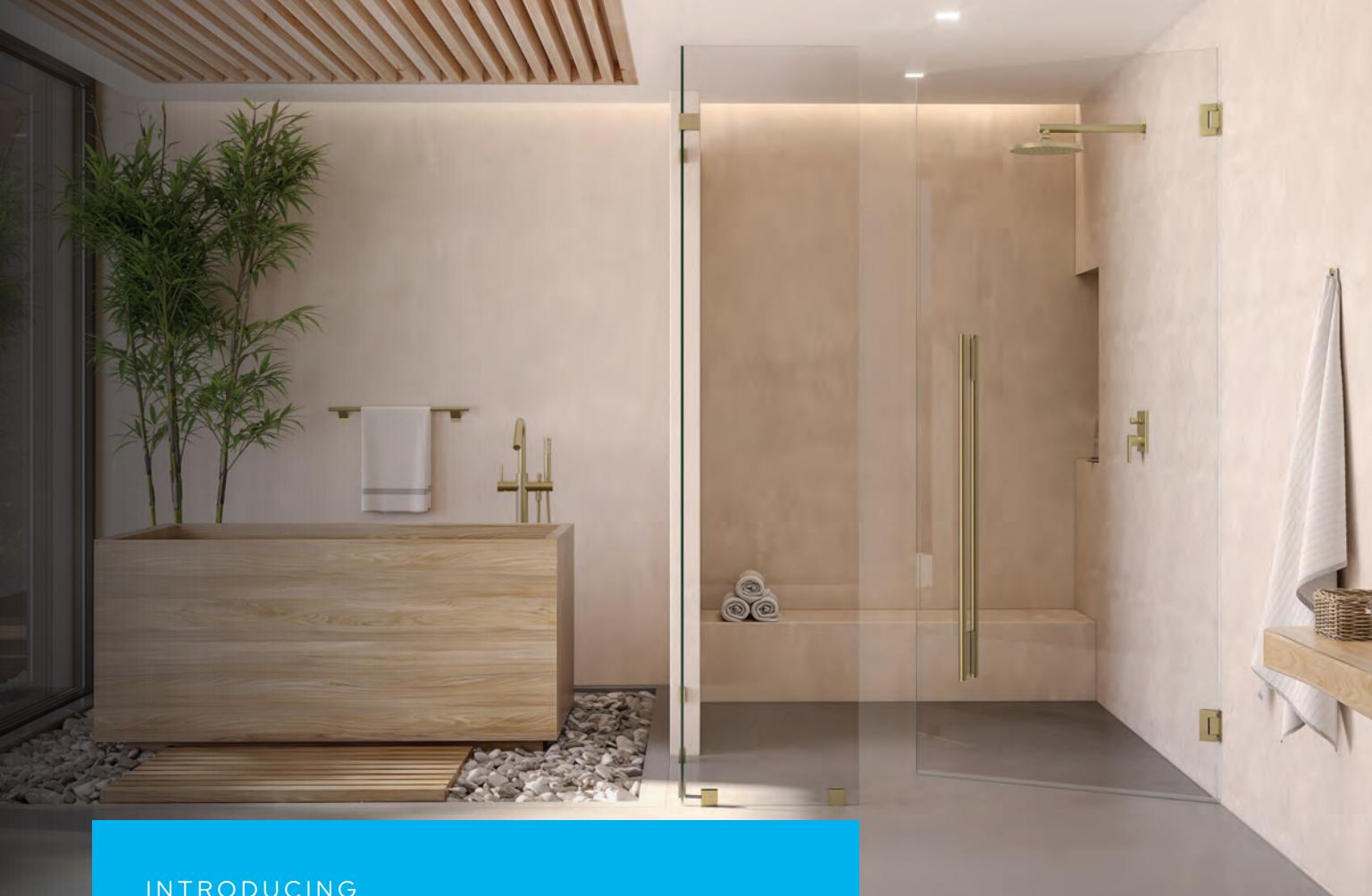
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