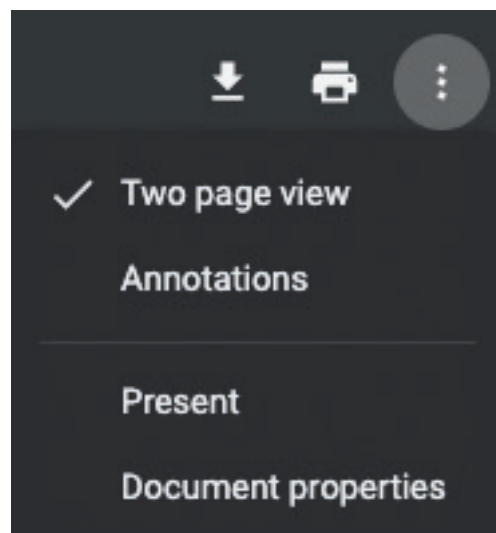


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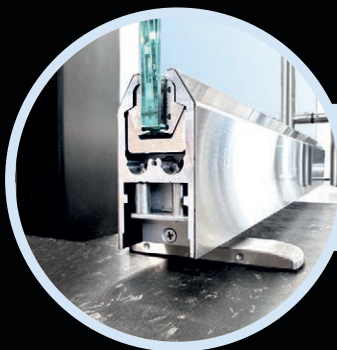
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FHC Premium HERC-DOOR[®] Rail With Factory-Installed Concealed Closer

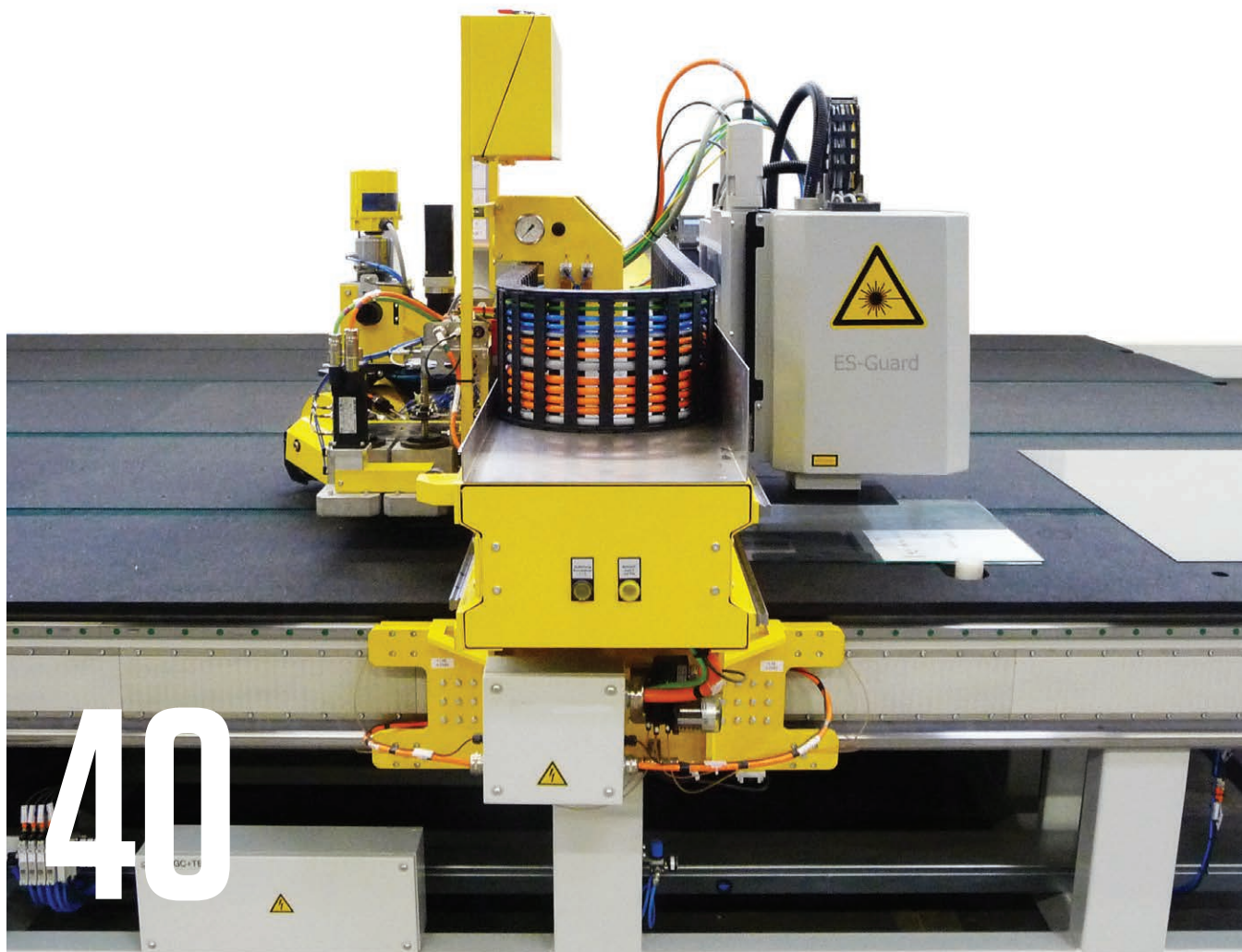
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FACTORY-INSTALLED INTO
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ON THE COVER: 110 East is a new transit-oriented office building located in downtown Charlotte, North Carolina. With a façade featuring a woven texture paying tribute to the area's history as a textile manufacturing sector, the design goals also included performance. YKK AP's YWW 60 TU SSG Window Wall system and YCW 750 SSG Curtain Wall System were selected to enhance occupant comfort and energy efficiency. Photo by Mike Anthony.

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Tariffs and advocacy priorities topped the agenda at NGA Glass Conference: Ann Arbor.

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Rethinking the Next Generation of Glaziers
By Amy Hadfield, NGA



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By Brian Tobias, Tubelite



ENERGY EFFICIENCY

High-performance Facades
By Alexandra Blakeslee, Technoform



PROJECT SHOWCASE

Cascadian is Seattle's first LEED Platinum Certified life science building. Perkins&Will designed the Cascadian façade with an aesthetic of alternating vertical spandrel and vision glass fabricated by Vitrum Glass Group and installed by Walters & Wolf. Guardian SunGuard SNX 62/27 triple-silver coating on

UltraClear glass, fabricated by Vitrum Glass Group, allows the building to manage solar heat gain by offering 64% visible light transmittance with a solar heat gain coefficient of 0.27, all with the clarity that comes with a low-iron substrate.

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- Writing and drawing on the top side of the sheet.

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- Writing and drawing on the side surface of the sheet.
- Straight or curved bevelling on the top side of the sheet.
- Straight and/or curved engraving and/or engraving on the top side of the sheet.
- Drilling on the underside of the sheet.



Rethinking the Façade for a Better Future



NORAH DICK
EDITOR

Aerial robots. Megatall skyscrapers. Custom, abstract façades. These were just some of the ideas presented at the Façade Tectonics Institute “Façades Forum,” held in mid-October at Thomas Jefferson University in Philadelphia.

Architects and materials experts offered solutions that consider cutting-edge manufacturing technology, inspirational design and strategies to maintain building resiliency amid a changing climate. “Every building needs to have a high-performance façade. That’s our vision,” says Helen Sanders, president of the Façade Tectonics Institute and general manager of Technoform North America, in her opening remarks. Here are a few takeaways on how façades could perform to meet changing populations and environments.

3D-printed buildings allow for “speculative façades.” Robert Stuart-Smith, director of the MSD-RAS Program at the University of Pennsylvania, spoke on the potential for aerial robots to 3D-print façades in the future. The innovation has several advantages, including the ability to construct buildings without scaffolding. Abstract façade screen shapes could also reduce bird strikes, instead offering resting places for migrating birds, he says.

Complex geometries require custom work. Wolfgang Pech, senior project manager at seele, walked attendees through several of the company’s projects featuring complex geometric glass structures. Installing these highly customized systems requires special considerations, he says, including a large production area for prefabrication, precise labeling for non-standard-sized systems, and potentially specialized equipment to move curved or bent glass panels. He emphasized that success requires both human intelligence and manufacturing intelligence. “You need high-end robotics or machines, as well as people who can work with their hands, and know their materials.”

Planning for climate change. David Altenhofen, technical director at engineering consulting firm RWDI, spoke about building resiliency in the face of ongoing climate change. The world will become warmer, wetter and windier as climate change progresses, he says, and building profes-

sionals must adapt to keep people safe and ensure continued building performance. That means planning for the lifespan of the building. “We’re well past designing high-performance buildings as a means to mitigate climate change. Now we’re designing our buildings to adapt to the climate that has already changed,” he says. Predictive modeling will be required to estimate how weather patterns are likely to shift during a building’s lifespan, he says.

Brands invest in resilient buildings. Shawn Hess, vice president of sustainability at global real estate services firm Jones Lang LaSalle, says that real estate valuation has begun to recognize the importance of building resiliency as part of a project’s valuation. Based on predictive climate modeling, he says that 34% of the U.S. building stock is sitting in a region with high to medium-high climate risk, and that in 21% of those jurisdictions, there are no codes or regulations requiring buildings to respond to those risks. But individual global brands are concerned with climate risk to their real estate assets and are increasingly doing their own risk analysis and investing in building resiliency, which can include features like impact-resistant glazing, reinforced façades and flood plains.

For double glazing, service life matters more. Helen Sanders provided participants with a succinct overview of high-performance glazing to meet energy-efficiency standards, including double glazing, triple glazing and vacuum insulating glass configurations. She also encouraged architects to think holistically about the embodied carbon of the entire building structure, rather than individual systems, and to also focus on the operational efficiency of glazing systems.

“Please don’t ask your insulating glass manufacturer for an [environmental product declaration] for insulating glass. The most important thing is how well they make those IG units, and the choice of the materials used, because that’s what’s going to determine the service life.” She encouraged architects to consider the factors that impact that service life, including the quality of the edge seal, as well as the certification of the fabricator and the installer of the unit. ■



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■ NEED-TO-KNOW INFORMATION FROM THE NGA

NGA DEVELOPING NEW GLASS ENGINEERING CURRICULUM

The National Glass Association announced the development of its first university-level program of study, NGA Glass Engineering Curriculum, which will teach glass engineering design and analysis to engineering and architecture students. Course content is also relevant for established engineers and architects, and curriculum lessons include history of glass, glass as a material, practical applications, special applications, safety and security glazing, fracture mechanics, loads, and sustainability and recycling. Bill Lingnell of Lingnell Consulting Services contributed to the curriculum content based on his experience in architectural glass manufacturing, fabrication, design and forensic work, along with NGA's advocacy and technical staff.

"Current graduates take courses in architectural design and construction with steel, concrete and wood, but not with glass," says Urmilla Sowell, vice president of advocacy and technical services for the NGA. "The purpose of this new curriculum is to bridge the gap between academia and industry professionals. By bringing glass engineering knowledge directly to higher education, we are meeting NGA's goal to elevate glass among engineers and architects by educating and promoting glass use in the built environment."

The glass engineering curriculum is currently under development and its lessons are being reviewed by subject matter experts. NGA will then use the feedback to refine the courses and continue the university review process. ■

JOHN KENT RECEIVES 2025 C.G. CARNEY AWARD

During the NGA Glass Conference: Ann Arbor, held Sept. 30 through Oct. 2, the National Glass Association presented its highest honor, the C.G. Carney Award, to longtime industry leader, John Kent, president of Administrative Management Systems Inc. The award is named after C. Gregory Carney, who served as the Glass Association of North America's technical director for more than two decades.

"The C. Gregory Carney award is the highest honor the association has to offer. This award is for an individual dedicated to advancing glass, promoting and advocating for our industry while demonstrating the association's mission and values within the industry," says Urmilla Sowell, NGA's vice president of advocacy and technical services, who presented the award. "This year's recipient is one of the most dependable people in the glass and glazing industry. He started his career much like I did, in a laboratory, and has served our industry for more than three decades. He is very good at seeking improvements for accountability within the industry. He is not afraid to shake things up to make things better, more efficient or more effective."

In accepting the award, John Kent turned the recognition back to the attendees in the room. "I'm a huge fan of trade associations and of the work that this group has been doing in the 30-plus years that I've been coming to these events. The association world is the embodiment, the ultimate manifestation, of a rising tide lifts all ships. You make the industry better. You make the built environment better. You make the building industry better by collaborating." ■

FHC CONTINUES TO SUPPORT GLAZIER EDUCATION AND TRAINING WITH NGA FOUNDATION DONATION

NGA announced that the Frameless Hardware Co. again demonstrated its support of glass and glazing education by making a significant donation to The NGA Foundation, marking its sixth year of financial support. The NGA Foundation's mission is training the industry and educating consumers about the many ways glass and glazing contribute to a safe, healthy, sustainable and inspiring built environment. Since 2019, The NGA Foundation has funded the purchase of NGA Glazier Apprentice Curriculum for nearly 500 apprentices and helped establish 31 Department of Labor-approved glazier apprentice programs across the country. It has also funded the creation of new MyGlassClass.com courses, in both English and Spanish, and supported fabricator education via MyGlassFAB training courses.

"It's easy to approach the glass and glazing trade with a short-term, opportunistic mindset—but that's not sustainable," says Chris Hanstad, FHC president and CEO. "We should all pause and ask ourselves not just what we can take from this industry, but what we're giving back to it. At FHC, we're deeply committed to supporting glazier education and training, and we're proud to share that vision with the National Glass Association. This is only the beginning." ■

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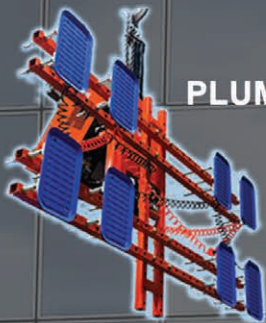
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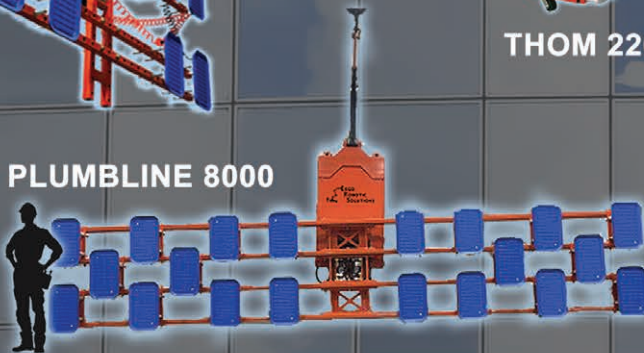
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ASSOCIATION EFFORTS TOWARD ADVANCING CLEAN ENERGY, SAFETY AND WORKFORCE PRIORITIES FOR THE GLASS INDUSTRY

BY TARA LUKASIK

Laurie Purpuro, a government affairs counselor at the law firm K&L Gates, updated attendees at the National Glass Association Glass Conference: Ann Arbor on federal policy issues affecting NGA, its members and stakeholders. Purpuro outlined the current political landscape, noting that with a Republican-led House, Senate and White House, the legislative agenda has focused heavily on conservative priorities. She emphasized that the “One Big Beautiful Bill” dominated Capitol Hill efforts, leaving little room for other policy initiatives. As a result, ongoing disagreements over government funding have placed federal spending and potential government shutdowns at the forefront.

“Republicans are taking this opportunity to focus on a number of their priorities, which I will say is always the case with a trifecta like this, but it makes it difficult for other stakeholders to advance their priorities,” says Purpuro.

As of the update, ongoing budget negotiations risked a federal government shutdown, shifting focus almost exclusively toward a government funding agreement. “By the time you see this video, barring a miracle, the federal government will be shut down,” says Purpuro. “Government funding, which has recently been a priority, will contin-

ue to be the sole focus in Washington, D.C., until Democrats and Republicans can agree on a path forward regarding federal funding.” Purpuro outlined several NGA legislative priorities and the association’s efforts.

Workforce Development. Workforce development remains a key focus for NGA, which supports the Stronger Workforce for America Act, which would update the Workforce Innovation and Opportunity Act by allocating funding toward individual training accounts and on-the-job learning aligned with industry needs. Though ASWA passed the House in the previous Congress, it has not been reintroduced this session. Purpuro notes that bipartisan support exists, bolstered by recent congressional committee hearings on workforce policy, signaling an interest in reauthorization.

School Security Legislation. NGA has advocated for the reintroduction of the Securing Aid for Every School (Safe School) Act, which proposes grants for measures, including bullet-resistant glass installation in schools. While NGA engaged with U.S. Senator Marsha Blackburn (R-TN) and U.S. Congressman Chuck Fleischmann (TN-03), the bill has yet to be reintroduced and faces challenges

with Blackburn’s announced retirement in 2027. NGA continues efforts to identify new sponsors.

Protective Glazing and Workplace Safety. Related legislation like the Safe Workplace Act, aimed at reducing workplace violence through protective glazing and opaque glass installation, has been introduced and is being monitored by NGA, but lacks support from Republican lawmakers. Similar bills for health care worker safety also remain stalled without Republican backing.

Dynamic Glass Act. NGA has sought to extend and broaden clean energy incentives beyond electrochromic glass in One Big Beautiful Bill negotiations. However, Congress is reluctant to adopt expanded clean energy programs and the legislation ultimately narrowed and reduced these tax credits this cycle.

Energy Efficiency for Affordable Housing Act. While NGA backs energy efficiency efforts, including this bill to enhance energy performance in low-income housing rehabilitation via tax credits, a lack of Republican support means little movement is expected during the current Congress. NGA will continue to monitor progress on this front.

Purpuro closed by emphasizing NGA’s commitment to keeping these priorities on the legislative radar and maximizing future opportunities for advancement as the political landscape evolves. “NGA will continue to monitor these bills,” says Purpuro, “and while none of the bills have Republican support, we will keep them on our radar for future Congresses.” ■

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CIRCULARITY AND ARCHITECTURAL GLASS RECYCLING

Key drivers supporting the development of increased recycling in North America include:

- Economic and environmental value
- Creation of a circular economy and domestic raw material and supply
- Job growth
- Reduced waste to landfill
- Improvements in glass furnace operations
- Reduction in glass furnace emissions

Leveraging post-consumer materials is one of the simplest ways to decrease the embodied carbon of glass, keeping it a material of choice at the intersection of durability,

cost-effectiveness and sustainability. Expanding circular practices in the field of architectural glass creates opportunities to not only strengthen local labor markets, but to enhance the glass industry's reputation as an effective and sustainable solution.

Despite these drivers, rates of recycling of all types of glass in the United States remain much lower than in Europe and other places in the world. Single glazed windows are being replaced by more energy efficient ones, generating, in the process, volumes of architectural glass typically not recycled in the U.S.



Excerpted from NGA Glass Technical Paper AD01-25 Overcoming Challenges of Circularity and Architectural Glass Recycling. For full details and references, download the complete document free at glass.org/store.

Glass recyclability challenges

Factors contributing to low rates of glass cullet recycling include inexpensive landfill rates, remote proximity to glass processing facilities and high associated freight costs, quality challenges of glass cullet from primarily single-stream curbside collection, and lack of legislation requiring recycling. Contaminants in recycled glass—such as aluminum, nickel, ceramics and other metals—could compromise the float bath equipment and negatively impact the quality of new glass, leading to issues like downtime and increased equipment maintenance if extreme care is not taken. The expected carbon dioxide savings achieved from the use of recycled cullet can be wiped out with a single quality upset that would require additional production time to make similar volumes of material. No industry-wide standard exists for cullet grading and composition. As a result, particular care should be taken to work closely with the recycled cullet processor selected for supply.

Steps to improve recycling rates

Work with a local glass processor.

Finding and communicating with a local, knowledgeable glass recycler helps ensure a successful recycling program. Glass fabricators should establish a working relationship with their nearest glass recycling company in order to lower freight costs and drive the highest value.

Recyclers typically accept glass from a broad spectrum of suppliers and industries beyond glass fabricators, such as automotive, solar, appliance and electronics. Therefore, knowledge from the glass fabricator and its recycling

company on how to leverage value across many different end markets is needed.

Segregate scrap. Most architectural glass scrap can be recycled if attention is given to avoiding cross-contamination. Laminated glass is potentially a valuable part of the value stream of recycled glass when the interlayer is separated from the laminate. Prior to shipment, fabricators should work with their recycler to define the best way to segregate their scrap to ensure positive value and acceptability.

Ask how to improve recycled glass value. The economics and value creation from the reuse of cullet are dynamic. Consider this a local, domestic raw material of growing importance for multiple industries. Some basic process changes can dramatically increase the value of scrap cullet. Aluminum and nickel are particularly risky materials, so keeping waste streams clean and avoiding contamination can be worth the costs incurred to cleanly separate materials. Key methods could include the following:

- Separate glass from other waste streams, including glass broken as a result of heat-soak testing.
- Separate cullet storage from metal storage and processing.
- Avoid nickel-containing storage bins and racks.
- Implement robust training programs for all site employees and stakeholders (simple things like minor floor sweepings can contaminate entire batches of waste cullet).
- Look for efficient supply routes and freight methodology that reduce the transport of cullet from source to processor.
- Separate different types of cullet.

NGA thanks our task group volunteers for developing this resource: Kyle Sword, Pilkington North America, task group chair; Gin Benner and Adam Mitchell, Agnora; Jeff Skaza, Eastman Chemical; Lisa Rammig and Adam Nizich, Eckersley O'Callaghan; Jon Griggs, Guardian Glass; Patrick Elmore and Stanley Yee, Infinite Recycled Technologies; Igor Vorobev, Leader Glass LLC; Matt Manning, Oldcastle BuildingEnvelope; Sophie Penner; Rob Carlson, Tristar Glass; DJ Weil, Trulite; Aaron Thompson and Nick Yule, Viracon; and Mike Hammond, Vitro Architectural Glass.

Insulating glass units, laminates and painted glass may all have different routes to market; work with a local cullet processor.

- Understand contamination potential from storage locations and exposure.

Understanding the freight implication of and impact on your own fleet can also play a significant role in the feasibility of increased recycling. Empty return hauling and shared freight can often impact the economics significantly. Collapsible or returnable cullet bins, mobile cullet processing centers, and partner relationships can all impact the viability and value of the cullet supply. ■

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

Aldora Acquires New Angle Beveling

Aldora Aluminum & Glass Co. announced its acquisition of New Angle Beveling, a residential and specialty glass fabricator in Hyde, Pennsylvania. The company will continue to invest in NAB's Hyde and Clearfield, Pennsylvania, operations, which currently includes two furnaces, a Lisec insulating glass line, and numerous CNC machines and edgers. This acquisition aligns with Aldora's broader strategy of expanding through partnerships with privately held, family-run glass fabricators.

Assa Abloy Acquires German Designer and Manufacturer

Assa Abloy has acquired Kentix GmbH, a German designer and manufacturer of monitoring and access control products for data centers. Kentix was established in 2008 and has about 40 employees. The main office and factory are located in Idar-Oberstein, Germany.

"I am very pleased to welcome Kentix to Assa Abloy. This acquisition delivers on our strategy to add complementary products and solutions to our core business," says Nico Delvaux, president and CEO of Assa Abloy.

Thermoseal Acquires Supply Chain Management Company

Thermoseal acquired Solutions UK, a supply chain management company. The acquisition will expand parent company Fenzi Group's commercial reach in the

glass industry, according to company representatives.

Solutions UK will continue operating under its established name and team. As part of Thermoseal and the wider Fenzi Group, it will play a key role in expanding commercial operations and delivering integrated support to customers across the region.

Saint-Gobain and Viracon Partner with LuxWall

Saint-Gobain and LuxWall have announced a partnership to bring INSIO next-generation vacuum glazing to the European market. Through this collaboration, Saint-Gobain Glass will integrate LuxWall's transparent insulation technology into its INSIO solution, marking a milestone in the transition to energy-efficient building envelopes.

LuxWall's transparent insulation technology helps glass go from a source of energy loss into a high-performing solution for energy conservation. The integration with Saint-Gobain Glass's INSIO solution represents a step toward enhanced building performance with measurable reductions in energy costs and capital expenditure.

Viracon and LuxWall have also announced a partnership to advance high-efficiency solutions for commercial building façades. This alliance combines Viracon's fabrication expertise with LuxWall's transparent

insulation technology, which allows glass to achieve energy efficiency and insulating values similar to that of wall insulation. Paired with Viracon's portfolio of high-performance solar control coatings, the collaboration plans to offer a next-generation façade solution that meets ambitious sustainability targets without compromising design.

Women in Manufacturing Summit Focuses on Generational Change

The 2025 Women in Manufacturing Summit was held Oct. 12-14 both virtually and in-person in Chicago. The keynote session, led by Cultural Anthropologist and Global Expert on Generational Dynamics and Societal Change Marcie Merriman, was on leading through generational change and strategies for a multigenerational workforce. "We're seeing different indicators of success. [Gen Z] aren't rejecting work and responsibility, they're asking what actually leads to a good life today," says Merriman.

Independent Glass and Diamon-Fusion International Partner

Diamon-Fusion International entered into a supply partnership with Independent Glass, a UK-based glass manufacturer, through DFI's UK distributor, Advanced Processing Machinery Ltd. The agreement expands DFI's footprint across England and Scotland, bringing Diamon-Fusion nano-coating technol-



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ogy to Independent Glass' broad customer base. Headquartered in Glasgow, Scotland, Independent Glass operates four UK facilities totaling 200,000 square feet and five horizontal tempering furnaces. The company manufactures toughened and laminated safety glass for architectural, road transport, rail and marine applications.

CRL Opens New Service Center in Denmark

CRL announced the opening of its new service center in Kolding, Denmark, servicing customers in Scandinavian and Baltic countries. The third European location—alongside Manchester, UK, and Ilsfeld, Germany—marks the beginning of an expansion strategy in North America and Europe. New locations in the United Kingdom and mainland Europe are planned for 2026. In addition to the new Danish location, CRL will open four new service centers in North America in the

coming months. CRL in Denmark stocks the entire European product range, with a local team of experts providing customers with advice, technical support and prompt delivery.

MyGlassTruck Opens New Plant in New Jersey

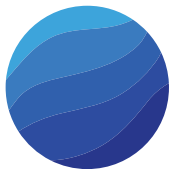
The MyGlassTruck production line moved into a new assembly plant in Glassboro, New Jersey. Now sharing space with its parent company, Victory Truck Body, this 70,000-square-foot expansion sits alongside the company's existing 47,000-square-foot facility, more than doubling its total manufacturing footprint to 117,000 square feet. The company's goal with the new facility is to increase efficiency by consolidating its assembly processes into manufacturing cells focused solely on each product line.

The facility includes a multi-truck-sized downdraft paint booth and overhead cranes, complementing the robotic

and human welding capabilities, CNC laser cutter, and advanced aluminum fabrication and assembly techniques utilized in its current building. The upgrade, combined with added space, streamlines production and allows the company to meet rising demand for its bolt-on glass racks for vans and pick-up trucks, glass truck bodies, and glass rack trailers. The new building also has a dedicated space for its glass rack installation service.

ClearSecure Welcomes All-West Glass as a RockGlass Retailer

ClearSecure Distribution & Manufacturing, a Munro Group Company, announced a new retail partnership with British Columbia based All-West Glass to have RockGlass sold in its retail locations across western Canada and the Territories. RockGlass is an optically clear, impact- and abrasion-resistant product that can replace traditional glass. It is an ideal solution for many different applications,



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such as windows for heavy machinery owned by businesses located within AWG's territory. AWG's commercial and residential customers will also benefit from RockGlass and its hybrid sealed units that are designed to deter intruders and mitigate damage due to vandalism.

PEOPLE



Neumayer

Cardinal Glass Industries

announced that *Roger O'Shaughnessy*, president and CEO, has appointed *Bowie Neumayer* as his successor. Effective immediately, Neumayer will serve as president.

O'Shaughnessy will remain as chairman and CEO. Bringing 37 years of glass industry experience to his new role as president, 22 of

which have been spent with Cardinal, Neumayer has held the role of vice president of sales and marketing and served on the board of directors for the last 19 years.

Filling the role of vice president of sales and marketing is *Tim Kaiser*, who began his Cardinal career in 2002 as sales manager for the coated glass plant in Spring Green, Wisconsin. In 2005, he relocated to Ocala, Florida, to serve as sales manager for a new laminating glass plant, becoming plant manager of the facility in 2022.



Harrison

Walker Glass

announced that after 50 years with the company, *Lee Harrison* has retired from his position as

president. He will remain with Walker through the end of 2025 to facilitate the transition, after which he will remain an active member of Walker's board of

directors. Beginning his career at Walker in 1974 on the factory floor, working his way up through the company, and taking the helm in the mid-1980s and guiding the company through four decades of transformation, his leadership and vision laid the foundation for the company's growth and reputation in the architectural glass industry.



Phillips

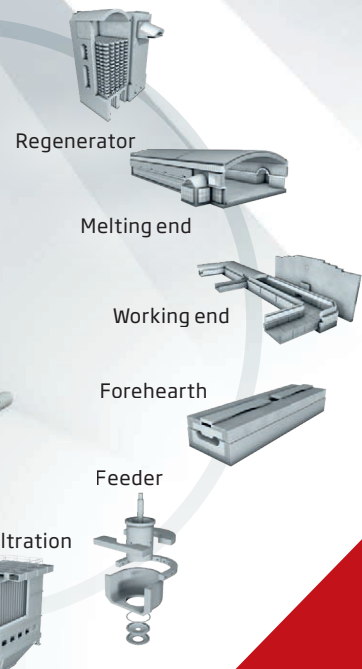
Isoclina Specialty Glass/Global Security Glazing

appointed *Brittney Phillips* as market director, detention and

containment products. With a strong background in ballistic and protective glazing, Phillips will oversee strategy, business development and market growth initiatives for the containment products segment, ensuring customers continue to receive high-quality solutions and technical expertise.

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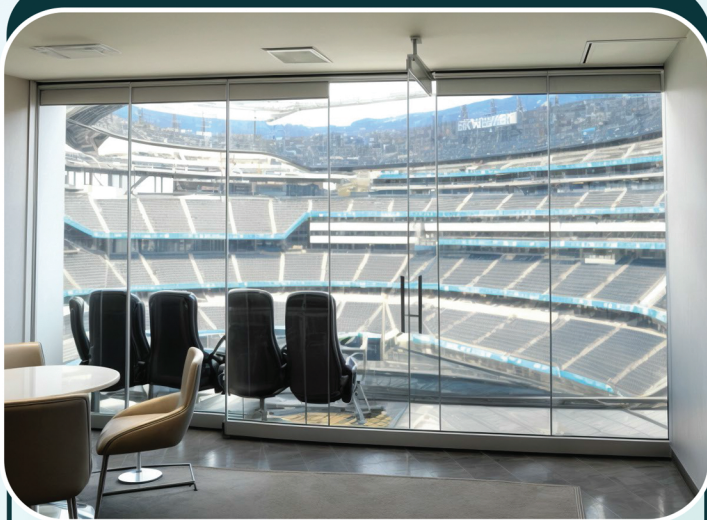
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Ellison

Apogee Architectural Metals named *Brandon Ellison* as a regional sales manager responsible for four independent sales agencies in the Southeast that represent EFCO, Tubelite and Wausau Window brand products. Ellison reports to Jeffrey Appel, director of sales for Apogee Architectural Metals. With 11 years of industry experience, Ellison previously worked as part of the EFCO direct projects team before joining Advanced Window Inc. in Frederick, Maryland.



Callaway

YKK AP America Inc. appointed *Scott Callaway* as branch manager for the Houston sales branch. Callaway will be responsible for planning and directing all aspects of the branch's sales operations. Callaway

brings over 30 years of experience in the architectural aluminum industry, specifically in operations, sales and team leadership. Most recently, he served as the head of an architectural sales service center, driving revenue growth and a zero-injury safety record.



Wedge

The **American Institute of Architects** Board of Directors voted unanimously to select *Carole Wedge* as the next AIA executive vice president and chief executive officer, where she will lead the national office in Washington, D.C., overseeing a team of approximately 150 employees. She will collaborate with the board of directors and work closely with over 200 chapters across the nation and abroad to support AIA members and advance the organization's vision. Previously, Wedge served 17 years

as CEO of Shepley Bulfinch, a large architecture and interior design firm.

National Glass Association Senior Sales Consultant *Chris Hodges* stepped down from her role as of Sept. 24. Committed to ensuring a smooth transition for her accounts, Hodges worked closely with NGA's sales team to provide recommendations and facilitate transitional calls to fully prepare everyone for a seamless transition.



Moore

In Memoriam
Tim Moore, a pioneering force and respected leader in the glass industry, passed away on Sept. 2 at the age of 70. With a career spanning more than four decades, Moore was widely regarded as a technical juggernaut whose innovations and contributions transformed the landscape of glass fabrication. He played a critical role in advancing technologies that are now foundational across the industry. Moore was the 2023 recipient of the National Glass Association's C.G. Carney Award, which is given in honor of longstanding commitment to the association and to the glass and glazing industry.



Haley

Glass industry veteran *Donald Edward Haley* passed away on Sept. 5. Haley began his career in the curtain wall, glass and glazing business in 1950 with Binswanger Glass for five years and then moved to Oakcliff Mirror & Glass. After a long tenure with Oakcliff, Haley founded Haley-Greer Inc. in 1979 with Jim Greer. Haley has been a leader and mentor in the glass industry for years and grew Haley-Greer into a premier curtain wall specialty contractor in the U.S. ■

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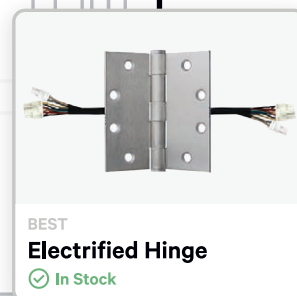
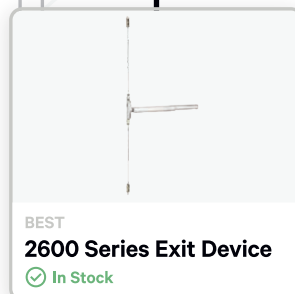
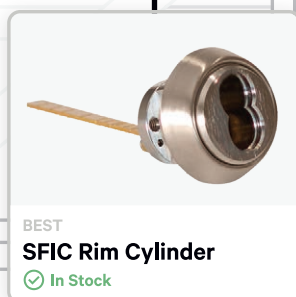
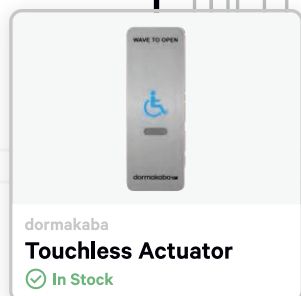
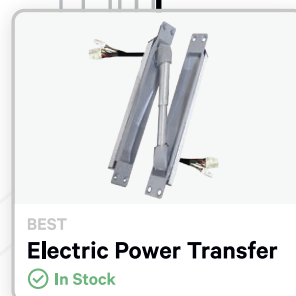
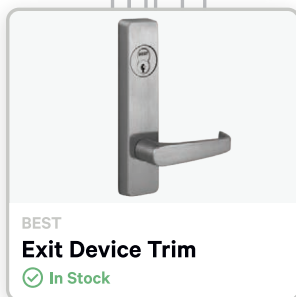
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INSIGHTS

24. SUSTAINABILITY 28. CODE WATCH 30. PERFORMANCE



Façade restoration of Herostrasse 5, Zürich-Altstetten by Lüchinger Meyer Partner AG.

SUSTAINABILITY

ADVANCING CIRCULARITY THROUGH GLASS REUSE

HARNESSING INNOVATIVE REMANUFACTURING APPROACHES LIKE URBAN 'MINING' CAN REBUILD SUSTAINABLE BUILDING FAÇADES

BY NORAH DICK

Many in the glass industry are looking for sustainable solutions in order to maximize the energy-efficiency of facades while reducing the global warming potential of building materials. Over the past few years, a team of Dow professionals and building researchers have explored ways to realize circularity by remanufacturing glass systems from materials reused from the existing built environment.

Researchers from Dow subsidiaries, as well as the Switzerland-based façade engineering organization Lüchinger Meyer Partner (LMP), demonstrated how

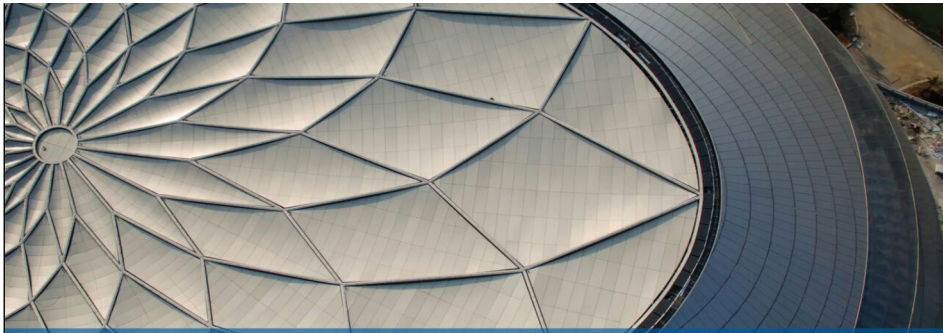
carbon-neutral silicones can be used to extend the life of post-installation building materials by reusing them on the façade. Their work has been published in two papers, “Silicones—An Important Enabler of Sustainable Design,” first published for presentation at the 2023 Glass Performance Days, and “Circularity in Construction: Scaling Up Glass Reuse with Silicone,” presented at the 2025 conference in June.

Circularity through reuse of materials

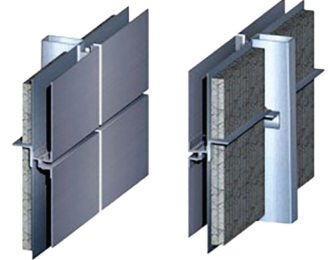
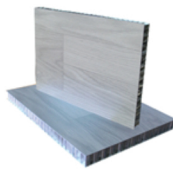
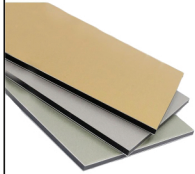
Working in Switzerland, researchers underscore the importance of reducing the global warming potential of building systems and minimizing the use of raw materials to meet sustainability targets.

While Switzerland already recycles over 6,700 tons of recovered flat glass per year, the researchers argue that global warming potential can be even further reduced on an industrial scale through the reuse of glass systems that are uninstalled and then remanufactured into high-performance systems. While post-installation glass can be “downcycled” into products like foam-glass for applications like road fill, they claim another option is possible; taking older, installed glass from the existing built environment, remanufacturing the glazing system with silicone, and reusing the system as a building material.

Given the potential to reuse existing building components, the researchers refer to the existing built environment as an “urban mine” that can be used to “establish simple and efficient reuse



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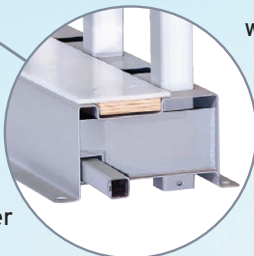
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processes to create sustainable façades and [help businesses] secure a prosperous future.”

The Herostrasse: a case study in remanufacturing

The team demonstrated this type of remanufacturing by reusing glass façade materials from the Herostrasse, a 1970s vocational college located in Zurich, Switzerland. As part of a building refurbishment initiated by the city, the research team put forward a reuse concept transforming existing glass panes on the façade into higher-performing cladding elements for the same building.

Given the age of the building, the existing glass panels lacked modern-day impact performance and post-failure resistance. Because of this, the researchers determined that the panels would have to be remanufactured and modified before they could be rein-

stalled. Post lamination was rejected, in part because adding a new pane of glass would increase the global warming potential of the system. Instead, the team bonded the glass panels to an aluminum mesh back sheet using carbon-neutral silicone from Dow.

After uninstalling the glass panes and cleaning them thoroughly, the team tested their concept on samples, and later the full-scale glass panes, which were tested for both impact-resistance and fire-resistance. Ultimately, the remanufactured panels were reinstalled on the façade as opaque spandrel glass.

Speaking in an interview with Glass Magazine, researcher Enrico Cutri, member of the Building Science Team at Dow, said that beyond ensuring high-performance, embracing this type of building component reuse may require the design community and building owners to accept an aesthetic that looks less perfect than a

brand-new building, with brand-new products. “Going into a ‘Reuse Age’ we should lower our expectations about the perfection of aesthetics,” he says. “We should embrace a new building with fantastic performance that doesn’t look 100% perfect. I hope that’s the new way of thinking in architecture.”

Using AI to map and “mine” the urban environment

While researchers identified ways to expand upon their research, they also emphasized that next steps should include mapping out the built environment to find what materials are ready to be replaced and/or reused. That would mean using visual data of a city and analyzing it with artificial intelligence technology to determine which buildings need renovation, when the renovation could happen and what materials would be made available during reuse, researchers say. ■

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GLASS IS A SUSTAINABLE SOLUTION

NGA COLLABORATES WITH SUSTAINABILITY CONSULTANCY TO PROVIDE A PATHWAY TO EPD CREATION FOR MEMBERS
BY GEORGIA OEHLER

Architectural firms and local regulatory bodies increasingly require data disclosing the environmental impact of building materials. The National Glass Association has consistently collaborated with industry to help companies meet these evolving criteria by facilitating the creation of several product category rules for glazing and fenestration products, as well as industry average environmental product declarations, or EPDs.

The association is now partnering with TrueNorth Collective, a sustainability consultancy, to refine these needed resources further, while also facilitating member companies' participation in the EPD creation process. By encouraging accountability and transparency among manufacturers, suppliers, fabricators and even consumers,

glass can continue to be a forerunner in the market of sustainable materials.

A partnership to provide actionable data

In partnering with TrueNorth Collective, NGA is working to advise members on how best to compile resources that many in the industry can use, as well as provide members with the tools to measure and report their own environmental impacts. Individual companies' internal operational data will be kept completely confidential, while giving companies the ability to provide environmental impact information on the products that their customers and architects need.

One of the first steps of the collaboration among TrueNorth Collective

and NGA members will be to update the Product Category Rules for flat glass and processed/fabricated glass. A Product Category Rule, known as a PCR, specifies the methodology for conducting a life cycle assessment, or LCA, which quantifies the environmental impacts resulting from the creation of a product as well as its impact on the environment throughout its life cycle as a building material. Based on the information gathered through the LCA, the PCR provides guidelines for creating an EPD, which discloses the environmental impacts of a product or product type. This includes information on the embodied carbon of the product requested by architects, green building programs and certain states.

Developing an EPD can be a time-intensive and expensive process, and increasingly architects and other building stakeholders require EPDs or embodied carbon data for products more specific than the industry-wide averages the

NGA has published. Through this new collaboration with TrueNorth Collective, NGA is working to empower the industry by making this process easier.

TrueNorth Collective will assist NGA with the development of the new PCRs and the creation of an EPD generator tool, which will empower NGA member companies to quickly and cost-effectively create their own EPDs. This will benefit NGA member companies of all sizes, and especially smaller companies that otherwise could not afford to complete the LCA and develop individual EPDs on their own.

While data collected for the creation of an EPD identifies the environmental impacts of manufacturing glass and glazing, it can also offer companies insights into more sustainable and efficient manufacturing processes that may provide other benefits to business processes. The same tools for developing EPDs can also be used by companies to compile and report Scope 1, 2

and 3 emissions as is required by some corporations and states.

In all stages of the project, a steering committee comprised of NGA member companies will be engaged with staff from both NGA and TrueNorth Collective to ensure the needs and perspectives of the members are always heard, especially with data-intensive processes such as LCAs. NGA thanks our members in advance for their efforts and expertise.

We at NGA see glass as part of the sustainability solution. To learn more about the work being done by our task groups and the many resources from the NGA advocating for a sustainable future for the glass industry, visit glass.org/advocacy/initiatives/sustainability. ■



Georgia Oehler is NGA's senior manager of technical services and sustainability.

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GLASS EVOLUTION

GLAZING IMPROVEMENTS
SUPPORT SAFER SCHOOL DESIGN
BY DEVIN BOWMAN

Above: Fire-resistive, butt-glazed wall panels support open sightlines and compartmentation efforts. Photo by David Lamb Photography. **Above, right:** Multifunctional, fire-rated glazing improves surveillance initiatives, enhances building aesthetics and provides a crucial time barrier to occupants. Photo courtesy of TGP.

The main instructional building for the average school is 49 years old. Building professionals will often cite this statistic to push for renovations for energy efficiency, technology integration and other infrastructural upgrades. However, the age of a school building may also impact occupant safety and security. The International Building Code did not exist 49 years ago, but its development increased the stringency of school design for fire and life safety—and will continue to increase design requirements since it is updated every three years.

Helping school design teams meet current codes while also maintaining a welcoming environment, fire-rated glazing can defend against fire, smoke and radiant heat. Currently, they also allow for large spans of code-compli-

ant, floor-to-ceiling glazing and options that meet ballistic and forced-entry standards for enhanced security. These glazing systems allow older school buildings to be updated to improve overall safety, occupant wellness, enhanced security and more. The following three projects demonstrate how fire-rated glass has evolved with the needs and goals of safer school design.

Elementary school updated for code-compliance and welcoming design

Early fire-rated glazing options were limited to traditional polished wired glass. While functional, it was a relatively weak material that only met 100 foot-pounds impact safety, which left the door open to student injury upon glass breakage. When fire-protective glass ceramic entered the scene, it made



it possible to block fire and smoke and meet impact safety ratings. It was free of wired glass' institutional appearance and could be a part of a fire-rated design without impeding sightlines or the penetration of daylight.

Understanding these benefits, the design team behind Central Elementary School in Dodge City, Kansas, used fire-rated glass to safeguard select areas along the perimeter of the school. A fire-protective glass ceramic was installed in several locations overlooking the school's interior courtyard. This code-compliant material supports daylight access in areas that would otherwise be closed off. Fire-protective glass can widen the possibilities of code-compliant design, but it is not the only option for fire-rated glazing.

Fire-resistive glass expands possibilities at New York high school

Blocking fire, smoke and radiant heat, fire-resistive glass allows more flexibility for fire-rated designs. This glass can be paired with fire-rated framing to meet requirements for fire barriers, temperature-rise doors and more. It can even be specified as curtain walls or as

floor-to-ceiling butt-glazed assemblies, which replace vertical mullions with nearly colorless transitions. In fact, the firm behind the renovation of Middletown High School in Middletown, New York, harnessed the potential of fire-rated, butt-glazed systems to surround the school's computer lab. With these transparent, fire-resistive glazing systems, students can look into, out of and through the lab, which helps build connections between students, their studies and the school itself.

This innovation in fire-rated design also supports best practices for mitigating instances of bullying, as indicated in a 2018 American Institute of Architects summit. Transparent design allows for passive supervision to contribute to a safer school design.

Multifunctional, fire-rated glazing supports safer, more secure learning environments

While passive supervision is important, physical security is also crucial to safer school design. For instance, the 7th edition of the Partner Alliance for Safer Schools guidelines state that security-rated glazing satisfies all

four tiers for enhanced security when incorporated into openings across the built environment. In some cases, these applications will be code-required to provide fire ratings.

The secure entry vestibule in Gaffney Lane Elementary School in Oregon City, Oregon, offers a prime example. Its renovation partially focused on increasing safety and security, which included achieving appropriate levels of surveillance, supervision and building hardening. To meet both the code requirements for fire and life safety and enhanced security goals for the vestibule and main office, the project team specified a multifunctional, fire-rated glazing system that resisted forced-entry and ballistic attack. With this system, the school can better delay, deter and deny access to violent intruders. It maintains sightlines for surveillance and well-being. And, because it looks similar to non-rated glazing, it provides 24/7 protection without intrusion.

Staying ahead of future code updates

While many states have mandated the hardening of schools, enhanced security is not yet a code-driven requirement, as of this writing. That said, proposals for additions to the 2027 edition of the IBC include one that identifies a standard for forced-entry resistance, ASTM F3561, and has drafted language around its use to safeguard ingress as well as egress. Enhanced security remains voluntary for now. However, given the long service life of school buildings, project teams may consider the benefits of going beyond requirements to include multifunctional, fire-rated glazing systems when appropriate. ■



Devin Bowman is general manager of Technical Glass Products and AD Systems.

With over 20 years of industry experience, Bowman is actively involved in advancing fire- and life-safety codes and sits on the Glazing Industry Code Committee. Contact him at devin.bowman@allegion.com or 800/426-0279.



The Helix drill by Biesse allows drilling, milling and countersinking from one side of the glass without blow outs. Photo courtesy of Biesse.

ONE COMPANY, ONE VISION

ELEVATING GLASS
FABRICATION THROUGH
QUALITY, TECHNOLOGY AND
SEAMLESS SUPPORT

BY TARA LUKASIK

Biesse is embarking on a transformative journey to reshape its presence in the North American glass market through a bold consolidation and rebranding effort that unites several respected industry names—Bavelloni, Intermac, Forvet, Movetro and Buseti—under the singular Biesse umbrella. This strategic move is designed not only to simplify the customer experience and unify the company’s extensive expertise and innovative integrated solutions, but also to position Biesse as the go-to man-

ufacturer for high-quality, multi-material machinery solutions. Central to this vision is a commitment to innovation, exemplified by advancements like the SOPHIA IoT platform and the development of new machine technologies that enhance precision, efficiency and sustainability. Through streamlined operations, enhanced after-sales support and robust training, Biesse aims to maintain the trust of legacy customers while driving the glass industry forward with smarter, integrated solutions tailored to the evolving demands of modern fabricators.

Glass Magazine sat down with Michele Ragno, sales director, Glass and Stone, and Ronald Lorick, sales manager, Lines Glass, to discuss how Biesse is simplifying the manufacturing process and how industry professionals can benefit from the company’s digital technologies and smart automation that are reshaping modern manufacturing.

Glass Magazine: Biesse recently consolidated several brands, including Bavelloni, under one umbrella. What is Biesse’s strategic reasoning behind this rebranding and new vision for the North American glass market?

Michele Ragno: The rebranding is the beginning of getting the industry used to the Biesse name as a supplier of high-quality machines for many different materials. The Biesse name is very well established in the wood materials industry, and while the Intermac, Forvet, Bavelloni, Movetro and Buseti brands are well known and highly respected in the glass industry, continuing to sell under many different brand names distracts from the whole picture—Biesse as the brand for all machine solutions for multiple materials. With the launch of the new Biesse machinery portfolio, the machines were refreshed with upgraded features, a unified naming structure, and Biesse’s new corporate identity and colors—reflecting a renewed commitment to innovation and design consistency.

GM: What do you want North American customers to know after this restructuring?

MR: Although the names may change, the machines have not. The talent that produces the equipment is the same and the quality will only improve. Through acquisition, Biesse now owns the factory, ensuring full accountability and control over production and service. By consolidating resources at the factory level, technology crossover is enabled, as well as spare part standardization and technician and support staff cross-training, increasing the overall expertise of sales, customer service and technical support.

GM: What have been the most significant challenges and opportunities during this rebranding and integration process?

MR: Integration can be a slow, arduous and very complicated process. Different control systems, operator interfaces, factory locations, historical databases and the like are very complex to combine. These efforts must be made expertly. Our focus is to minimize delays and disruptions throughout the transition. Unfortunately, some disruptions may happen and impact customers, but we are committed to resolving these instances as swiftly as possible.

GM: For customers used to the old brands and company structure, how is Biesse working to address market confusion of retiring legacy brand names, while maintaining loyalty and trust during this transition?

MR: By being as transparent as possible, while transitioning existing talent to new roles within the company. Although the phone numbers and email addresses have changed, a redirect has been put in place to maintain seamless communication and minimize any disruption for customers during this transition.

GM: The rebrand is a signal of Biesse's commitment to innovation and the new Biesse Material Hubs are a key part of the rebrand. What kind of hands-on experience can a glass manufacturer expect at one of these hubs?

MR: The Material Hubs bring the customer into the full Biesse experience. Customers see how Biesse provides solutions across glass, wood, stone, and advanced materials and metal industries. In-person machine demos are done on available machines. If a particular machine is not in the current location, we can link to another location with the machine virtually. Interactive screens and technology "boxes" enable the sales manager to walk through the machine options while showing video or drawings of the machines/options and building the machine to their specifications.

GM: There has been mention of a revised product portfolio and nomenclature launch without introducing completely new machines. Are there any specific new configurations or technologies that customers should be excited about despite the name changes?

Ronald Lorick: Absolutely! Customers should be excited because adding Bavelloni to our portfolio strengthens what Biesse already stands for: precision, reliability and innovation. Bavelloni's machines bring world-class glass-processing expertise, which complements our existing solutions and allows us to offer customers a more complete, high-performance range. Together, we can provide even greater flexibility, efficiency and value to meet diverse customer needs.

GM: What role has your product development team played in this rebranding, and how have they balanced innovation with continuity?

RL: Our product development team has played a central role in the rebranding, ensuring that innovation and continuity go hand in hand. They have focused on enhancing existing products, integrating new technologies, and improving performance, all while maintaining the reliability and precision that our customers expect from Biesse. This approach ensures that the rebrand reflects a modern, innovative Biesse while honoring the legacy of our established solutions.

GM: What significant trends, emerging technologies or market trends do you believe will have the biggest impact on manufacturing, and how is Biesse adapting its R&D and product roadmap to prepare for them?

RL: Several significant trends are shaping the future of manufacturing, particularly in the glass industry, including automation, customization and sustainability. These trends are driving

demand for more efficient, flexible and environmentally responsible solutions, while advanced processing technologies are becoming critical for competitiveness.

To address these developments, Biesse has strategically invested in Bavelloni and Bavelloni tools, expanding our portfolio with versatile, high-performance solutions. Our R&D roadmap focuses on integrating smart technologies, predictive maintenance and flexible machinery, ensuring that our customers can meet evolving production requirements, improve efficiency and stay ahead in a competitive market.

GM: Looking forward, what's next for Biesse? How will the "One Company" foundation you've built help you to adapt to future market changes and continue to meet customer needs?

RL: Biesse is focused on strengthening its global presence, expanding its product portfolio and driving innovation to meet the evolving needs of our customers. The "One Company" foundation which unites Biesse, Intermac, Bavelloni, Forvet and Movetro under a single strategic vision enables us to leverage shared expertise, streamline R&D and deliver integrated solutions across multiple markets.

This approach allows us to respond quickly to emerging trends such as automation, customization and sustainability, while maintaining high standards of quality, efficiency and customer support. At the heart of our strategy is a strong commitment to customer care: we ensure customers receive reliable guidance, proactive support and tailored solutions to maximize their success. By combining the strengths of our brands and prioritizing our customers, Biesse remains agile, innovative and fully equipped to support our customers' needs, today and in the future. ■

SPONSORED CONTENT



110 East is a new transit-oriented office building located in downtown Charlotte, North Carolina. The façade was designed to pay tribute to the area's industrial past, featuring a combination of glass vertical fins and horizontal bands that evoke a "woven" texture that references the former textile manufacturing sector of Charlotte's South End. The building's design also focused on performance, using YKK AP's YWW 60 TU SSG Window Wall system and YCW 750 SSG Curtain Wall System, aiming to enhance occupant comfort and energy-efficiency. Photo by Mike Anthony.





S M E L T I N G

A N D

S U P P L Y

BY

NORAH DICK

A

rchitectural metals are critical components for glazing systems and fenestration. Like many in the construction industry, architectural metal manufacturers, fabricators and suppliers have been facing a new economic landscape in the last year, which has re-shaped material supply in the present, and potentially, the future as well.

A new tariff environment and new expectations for sourcing

In late February 2025, U.S. President Donald Trump reinstated Section 232 tariffs on aluminum and steel at 25% after ending some of the exceptions made under the Biden administration, later doubling the rate to 50% in June. The 232 statute empowers the president to adjust imports to protect national security, following an investigation and recommendations from the U.S. Secretary of Commerce. Other goods, outside of steel and aluminum, have also been subject to the International Emergency Economic Powers Act, or IIEPA, tariffs and reciprocal tariffs. Most aluminum goods do not have “stacked” tariffs, meaning they are not subject to more than one type, according to the Aluminum Extruders Council.

A major exception is Chinese aluminum and steel, which also receive Section 301 tariffs, imposed in 2018 and continued through the Biden administration. The taxes are imposed under Section 301 of the Trade Act of 1974, which allows the United States Trade Representative to investigate unjust foreign trade practices.

The new tariff environment has impacted metal products suppliers in a variety of ways, industry leaders say. “Cost volatility and lead-time assurance across aluminum, glass and hardware inputs are definitely top of mind,” says Tammy Schroeder, director of marketing, Apogee.

Sarah Andreasen, director of North American sales at Kawneer, says the impact of tariffs have been varied. The company has reconsidered imported products used in manufacturing their systems, as well as reducing the impact from cross-border importing with the company's assets in Canada. Despite the company having long-term contracts for billet supply, the changing premiums on billet pose a challenge. "We have some mechanisms that we can use to plan for those changes, to try to bear it out as long as we can, but at some point, must take additional actions to help offset the impact of the increases."

"Tariffs have introduced a lot of uncertainty into the market, which has changed how customers plan and buy," says Armando Rodriguez, vice president of manufacturing, Frameless Hardware Co. "We're seeing more customers procure materials earlier than usual to lock in pricing before potential increases, and many request updated quotes right before placing orders to stay ahead of fluctuations."

Tommy Williams, a representative for PAC-CLAD Petersen, says that while the new economic environment has created "uncertainty," it has also created opportunities to connect with customers. "I've observed that the tariffs have created better communication and planning between customers and vendors, and as a manufacturer, I always welcome more communication with our customers."

Describing the overall market as "tight," Tom O'Malley, managing partner of Clover Architectural Products, recommends that companies continue to diversify to expand revenue. "For Clover, we added some new products like interior fin tube covers and grilles," he says.

Mike Turner, president of YKK AP's commercial business group, describes the market as "stable," but cautions that the tariffs may encourage countries exporting aluminum to the U.S. to sell to other markets. Additionally, he says tariffs could work as a "double-edged sword" if domestic demand

Designed to perform in year-round weather conditions, CRL's Entice HP+ Entrance System features a full perimeter seal around the door, thermally broken components, and 1-inch insulating glass.

rebounds while supply remains low. "If the market gets hot again, then the tariff also increases, because the tariff is [calculated based on a percentage of] the value of the aluminum. So, the higher the value on the product, the higher the tariff."

Implications for Build America, Buy America and the aluminum supply chain

In addition to tariffs, manufacturers and suppliers working with architectural metals say they're also seeing a rising interest in domestically sourced products. "We have seen an increase in compliance requests and more of an emphasis on American-made products," says Josh Wignall, chief marketing officer, Quaker Windows & Doors.

"We've seen a noticeable increase in requests for Buy American and [Build America, Buy America]-compliant products across our projects," says FHC's Rodriguez. "This makes it more important than ever to review specifications carefully and understand each project's unique requirements." Some leaders reported seeing this increase on institutional building and government-funded projects.

As Glass Magazine contributor Mary Avery, senior director of product management for Tubelite, Alumicor, EFCO and Linetec brands, explained in her 2024 article, "Demystifying the Build America, Buy America Act," the original Buy American Act of 1933 was one of the first pieces of legislation to require materials be manufactured in the U.S. Decades later, the similarly named Buy



America Act was passed in 1982 as part of the Surface Transportation Assistance Act, which set preference guidelines for purchasing American-made products for projects receiving federal grants, like highways. "With BA, the definition of 'American-made' was expanded to mean that all steel and iron components of end products must be mined, melted and manufactured in the U.S.," Avery says.

Build America, Buy America—signed into law by former U.S. President Joe Biden in 2021—then expanded the requirements of the Buy American Act, applying its standards "to all federal



TARIFF AND LEGISLATIVE TERMS

SECTION 232 TARIFFS:

Section 232 of the Trade Expansion Act of 1962 empowers the president to restrict or impose limits on imported goods or adjust trade partnerships if, following an investigation, the Secretary of Commerce feels the situation could affect U.S. national security.

SECTION 301 TARIFFS:

Section 301 of the Trade Act of 1974 allows the United States Trade Representative to investigate and impose restrictions, including tariffs, related to foreign trade practices.

BUY AMERICA ACT, 1982:

Part of the Surface Transportation Assistance Act, the Act set guidelines for purchasing American-made products for projects receiving federal funding.

BUILD AMERICA, BUY AMERICA (BABA), 2021: Expanded the domestic-sourcing requirements of the Buy America Act in 1982 from projects receiving grants, to all federal financial assistance programs for infrastructure.

financial assistance programs for infrastructure,” Avery explains. One of the consequences for those supplying aluminum fenestration, she says, is that primary and secondary aluminum billet must be smelted/melted in the U.S.

John McClatchey, vice president of marketing for Southern Aluminum Finishing, says that the company is working to educate themselves and their customers about the difference between the Buy American Act and the more recent BABA. The difficulty, from his perspective, is that customers working on projects requiring BABA

compliance are asking SAF to ensure materials are domestically sourced, which is not possible for all aluminum alloys supplied by the company.

As Canadian aluminum imports are strained, expanded domestic supply is on the horizon

The aluminum production landscape in the U.S. has changed dramatically over the last quarter of a century. Since 2000, the number of aluminum smelters—where primary aluminum is produced from smelted alumina—dropped from 24 to four. Today, only 16% of the primary

aluminum used in the U.S. is produced domestically, says Mike Turner of YKK AP. Canada, which has nine smelters owned by three producers, exports 93% of its primary aluminum to the U.S. according to the Aluminium Association of Canada. The Aluminum Association reports that Canadian imports represent two-thirds of America’s supply of primary aluminum, as of February.

Canada’s lower energy costs are part of the reason so much primary aluminum is imported from the country. Onshoring primary aluminum production to the U.S. is a possibility,



The VISTA—Venue for Innovation, Science, Technology and Academics—building at Pomfret School was designed to enhance science and technology education for its students. VISTA features a variety of Kawneer’s sustainable, high-performing architectural aluminum systems, including its 1600 Wall System 1 curtain wall and 500T Insulpour thermal entrances. The company provided its 500T Wide Stile Insulpour Thermal Entrances to offer thermal performance while accommodating high traffic. Photo by Jim Gipe, Pivot Media.

though it would require more affordable energy, according to the Aluminum Association. Building new smelters would require a lead time of five to six years, they say, and bringing the existing four smelters up to full capacity would also be a longer-term project.

Two aluminum production companies have proposed expanding production capacity in the U.S. In March 2024, Century Aluminum Co., the largest primary aluminum producer in the U.S., announced that it had been selected by the U.S. Department of Energy to receive an award for the construction of a new aluminum smelter, the first to be built in the U.S. in 45 years. At the time of the announcement, Century proposed to build near the Ohio and Mississippi River basins, possibly in Kentucky, according to local reporting at the beginning of 2025. In August, the company announced that it would also be restarting its plant in Mt. Holly, South Carolina, which had been operating at 75% capacity. At full

capacity, company leadership say they expect the smelter to have an economic impact of over \$890 million in the state.

Century Aluminum CEO Jesse Gary said the decision was a direct result of the new Section 232 tariffs. “Our team stands ready to continue leading the resurgence of domestic primary aluminum, starting with bringing our Mt. Holly smelter back to full production,” he said in a statement.

Emirates Global Aluminium, a global aluminum producer, also announced plans to open a new plant in Oklahoma. Construction was planned to be completed by the end of 2026, with the first metal produced by the end of the decade.

SAF’s McClatchey says that the push for a domestic aluminum supply should also involve expanded aluminum recycling infrastructure. “We can be aluminum independent if we just had a more robust recycling environment in the U.S. Aluminum is 100% renewable, recyclable and it takes 5% of the energy to recycle it as it does to smelt it.” ■

THE LOOK THAT WORKS

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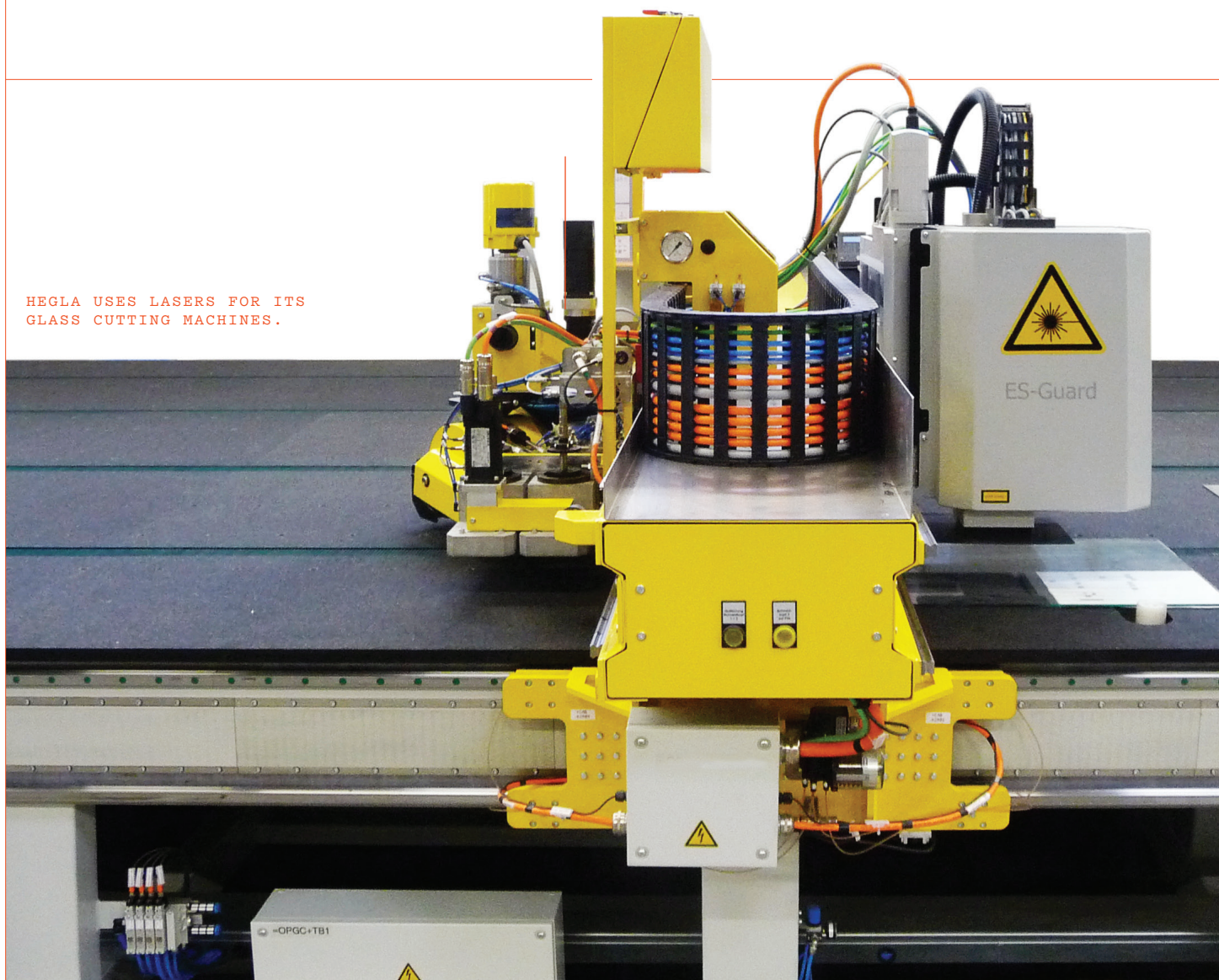
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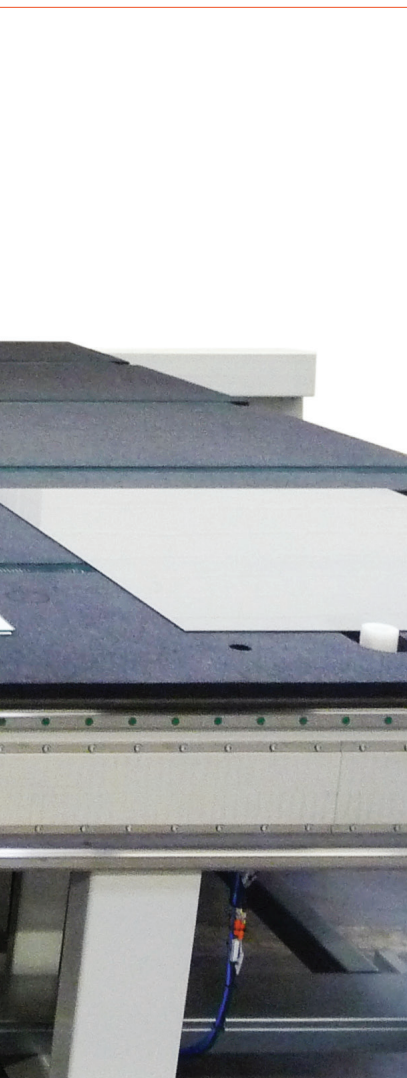
WHAT THE USE OF LASERS HAS TO OFFER THE GLASS INDUSTRY

HEGLA USES LASERS FOR ITS
GLASS CUTTING MACHINES.



IG IN *ON THE GLASS INDUSTRY*

BY RACHEL VITELLO



Lasers have a variety of uses within the glass industry, and their applications can depend on the company and the specific services and products offered. With manufacturing applications ranging from interlayer separation to templating to field measurement, lasers offer numerous benefits to those who choose to make use of them.

Lasers for manufacturing, measurement and beyond

Hegla, a machine manufacturer, has been using lasers for 25 years now, according to Sales Support Manager Thomas Bechill. Hegla uses lasers for automatic interlayer separation on its laminated glass shape cutting machines, which involves separating laminated glass from the interlayer, as well as for hole drilling, decorative glass applications and more. To accomplish this, Hegla uses its laser

diode heating bulb. Prior to its laser diode heating technology, Hegla used a typical radiant heating element bulb to soften the interlayer, then stretch it enough to run a knife between the pieces to separate the interlayer. Bechill says the laser diode bulb is faster and increases the throughput of its laminated glass cutter by 20%.

Hegla also uses lasers to penetrate the coatings on exterior glass façades in commercial buildings to allow for better cell reception. “Modern, triple-insulated glass and metallic functional coatings have multiple effects: as the amount of insulation increases, [radio frequency] transparency decreases. A fine, [12-sided] pattern ensures full reception. To create it, the low-emissivity layer is removed via laser in an ultra-thin line thickness of 50 [micrometers] to enable

radio waves to penetrate into the interior,” explains Bechill about the coating ablation process. “The texture generated by the laser is virtually undetectable and has no significant impact on the [insulating] value.”

Redline Templates is a technology company that brings the latest digital templating technology to jobsites. “Laser templating is used in the glass industry to create exact digital templates of spaces where glass will be installed,” says Redline Templates founder Rodney McCurdy. “The devices are used to capture precise measurements, which are then used to generate CAD files. Every measurement is captured accurately, turned into three-dimensional models, then Redline provides DXF, or Drawing Exchange Format, cut files for fabrication and PDFs for the shop to verify dimensions.”

McCurdy adds that these files are essential for fabricating glass with extreme accuracy, especially for complex or custom-shaped installations. It eliminates the need for physical templates, which he says can be cumbersome, less accurate and expensive. Redline specifically uses digital templating technology on jobsites working with glass, stone or steel, among other materials. The company specializes in two- and three-dimensional laser templating for various glass applications, including shower doors, railings and custom architectural glass.

GED Integrated Solutions manufactures insulating glass, software and vinyl fabrication equipment. GED Executive Vice President



REDLINE TEMPLATES USES LASERS ON THE JOBSITE TO ENSURE PRECISE DIMENSIONS AND MEASURING.

of Engineering and Research and Development Tim McGlinchy says that while GED does not use lasers directly, their machines do have the ability to import files of various shapes into its software for cutting, which utilize lasers.

GED is also the North American distributor for Sparklike, which is a laser technology that measures insulating glass units non-invasively. These devices, Sparklike Laser Integrated and Sparklike Laser Portable, can accurately measure the gas concentration and glass thickness of IG units. The company's devices use tunable diode laser absorption spectroscopy, or TDLAS, which is a nondestructive method that measures insulating gas content in glass units through low-e coatings, as well as through triple-pane IGUs with more than one low-e surface.

Evolution and future of lasers in glass

"Initially, [lasers were] used primarily for brand and certification marking; tempering and laminated glass logos identifying the manufacturer and product compliance information in the architectural and automotive industries. However, it has evolved significantly to also provide things like barcodes, bird-friendly patterns, marks for hole drilling and more," says Bechill.

Bechill adds that the use of lasers has also evolved from laser-etching—which would etch the glass surface, leaving a visible mark behind similar to sand blasting—to laser-printing, which fires a laser through a ceramic tape and permanently fuses the ceramic onto the glass surface. This printed mark is permanent the moment it is applied and has superior resolution to the laser etch or sandblast marking process, making it more suitable for tracking, sorting and traceability when being sorted in a factory, according to Bechill.

McCurdy and McGlinchy both say the use of lasers in software systems and scanner technology has evolved significantly over the years. "Early systems were bulky and less precise, but today's devices are compact, faster and offer much higher accuracy. Software has also become more user-friendly, allowing for quicker processing of data. We've seen a shift from basic two-dimensional on-site measurements to advanced three-dimensional scanning, which is crucial for complex architectural glass projects," says McCurdy.

"Laser measurement devices and the integration with software systems have evolved to seamlessly integrate the data into production of the glass," says McGlinchy. "In the past, the

laser measurement would measure dimensions, but the information still was transferred manually, resulting in more effort, time and, in some instances, errors in the translation from the field to the production floor."

As low-e coatings grew in popularity, the industry needed advanced technology that permitted measurement through low-e coatings. This led to the development of Sparklike Laser devices, which can accurately measure through various coating types, according to GED Product Marketing Manager Ashraf Hussein. Hussein says that as the demand for energy-efficient buildings rises, advancements in TDLAS technology may further enhance its universal application, reinforcing its essential role in the industry.

Bechill says the capability and application base for lasers in glass has grown substantially over the past 25 years, and he fully expects this trend to continue as many of the new and improved features and functions already in development come into the market. Bechill says he cannot reveal any details regarding new products and improved features, just that Hegla is working on "quite a few that will be released at future shows and events."

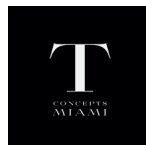
While lasers offer many advantages to the glass world, McGlinchy, McCurdy and Bechill all say that the initial investment in laser equipment and technology can be high. It also requires specialized training to operate the equipment and software effectively and, while highly accurate, technology can be affected by certain environmental conditions like direct sunlight or vibrations. However, McCurdy still stresses the overall benefits of using laser templating.

"Laser templating is not just about accuracy; it's about elevating the standard of quality and efficiency in the glass industry. It provides fabricators and installers the ability to confidently tackle projects that used to seem daunting, knowing their measurements are exact," says McCurdy. "Whether purchasing a machine in-house, or using a service like ours, this technology is a game-changer for reducing costly errors and delivering exceptional results to clients." ■

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GLASS HANDLING AND TRANSPORTATION SHOWCASE



01



02



03

01. Glass lifter

The SLX 2000 by SmartLift can be equipped with different lifting tools depending on the task at hand, can be used for both transport and installation, and can also function as a pick and carry crane. It is 3.3 feet wide and features a vacuum yoke that can rotate endlessly and turn 88 degrees to the side. It can lift up to 2,200 pounds with a vacuum yoke and up to 3,310 pounds with the hydraulic winch. The SLX 2000 is well suited for installing curtain wall and can be controlled via remote control.

402/215-8080 | SMARTLIFT.COM

02. Glazing robot

Quattrolifts new fully hydraulic glazing robot, the Vector 1320 XR, comes with a three-stage boom that reaches 196 inches to the center of the vacuum head and 216 inches to the top of the top cups. It comes standard with powered rotation, making glazing at 16 to 20 feet in the air safer and easier. Hydraulic rams have a greater range of working speeds, from precise slow movements for glazing, to faster operation for in-factory use.

301/748-7127 | QUATTROLIFTS.COM

03. Valve release lever

Wood's Powr-Grip redesigned its valve release lever for metal vacuum cups. This new design feature has been implemented on all metal-handle hand cups, including the 8-inch-diameter N4950 cup. This lever is sleeker, more ergonomic, and improves user comfort and enhances the overall product appearance.

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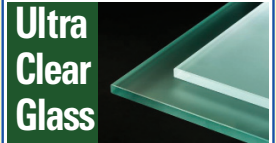


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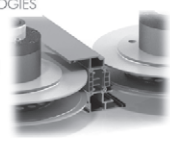
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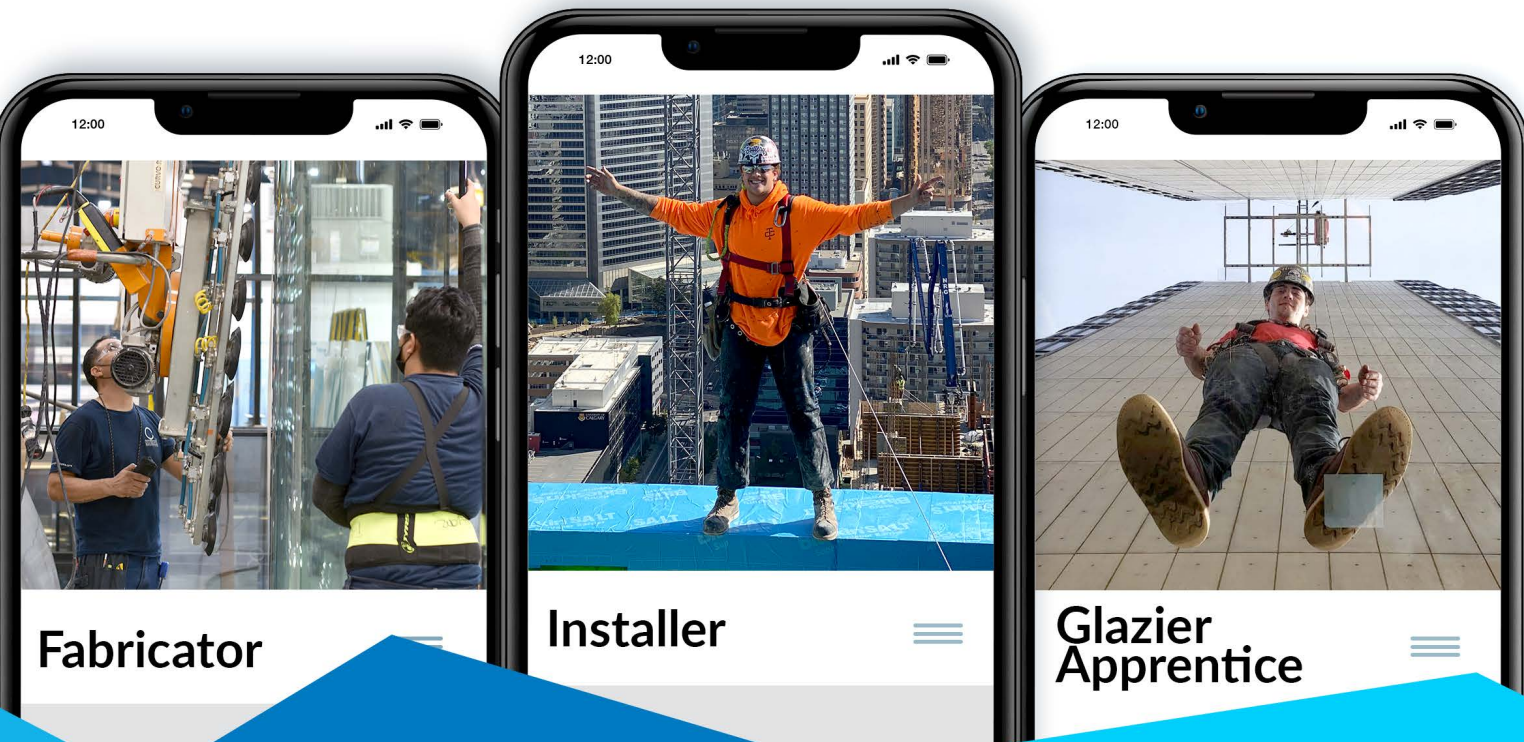
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STATE OF THE INDUSTRY FOR COMMERCIAL WINDOWS AND CURTAIN WALL

ENERGY-EFFICIENCY REMAINS A PRIORITY, AS COSTS AND LABOR WOES CONTINUE **BY LISA MAY**

The construction industry continues to face economic uncertainty. While the Architectural Billings Index has remained soft, certain sectors are showing resilience. Manufacturers and glazing contractors are managing tight budgets, aggressive schedules, evolving code requirements, and ongoing workforce and supply chain pressures.

Key trends

Energy efficiency. Energy efficiency remains at the forefront of façade design. The trend of stricter energy codes across the U.S. continues. Architects are increasingly seeking solutions that meet or exceed the International Energy

Conservation Code. This accelerates demand for high-performance products such as triple insulating glass units. Expect a broader adoption of vacuum insulating glass and thin-triple IGUs.

Sustainability and resilience. The U.S. Green Building Council's LEED v5 rating system places increased emphasis on embodied carbon in materials, including glazing and aluminum framing, driving greater demand for material transparency through Environmental Product Declarations, Health Product Declarations, Declare Labels and recycled content such as aluminum billet.

Technology advancements. Digital and automation technologies continue to transform both design and fabrication. Artificial intelligence is driving predictive analytics for improved throughput and reduced waste in glass and aluminum processing. In early design phases, AI tools support embodied carbon evaluation of façade-related products. On jobsites, drones and laser scanning help verify installation quality and document project progress.

Safety. With the growing frequency and severity of natural hazards, resilient design has become a top priority. LEED v5 now mandates a resilience assessment. Resilient buildings are designed to protect occupants, resist damage and maintain function during and after extreme events. This is driving demand for hurricane-impact and fire-resistant glazing. The National Glass Association continues to advocate for building codes to adopt increased security glazing requirements for attack-resistant products in educational facilities.

Industry challenges

Cost pressures. Tariff and supply chain volatility are impacting material costs. These challenges are reshaping budgets and timelines across the industry.

Workforce shortages. Labor availability remains a critical concern. The construction and manufacturing sectors rely heavily on foreign-born workers to offset labor shortages. Increased immigration restrictions are expected to exacerbate shortages. The industry continues to invest in apprenticeship programs and workforce development resources, including NGA's Glazier Apprentice Curriculum and Workforce Development Toolkits.

Future drivers

As the industry navigates economic headwinds, performance demands, and regulatory shifts, the role of commercial window and curtain wall systems is more vital than ever. Success will depend on innovation, adaptability, and strong partnerships. Those who deliver high-performance, code-compliant building envelopes will be best positioned to lead in a changing market. ■



Lisa May, LEED Green Associate, serves as the director of preconstruction and architectural services for EFCO, Tubelite and Alumaticor.

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