

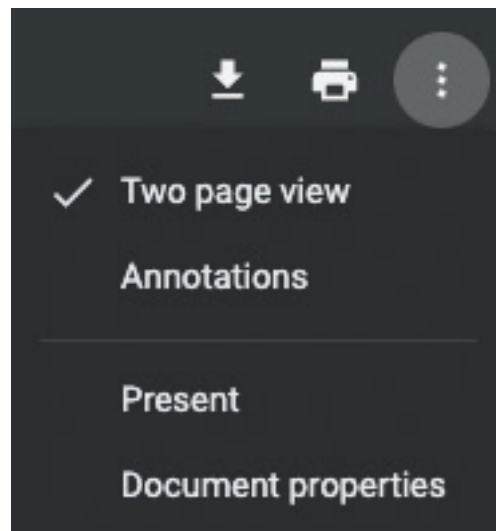
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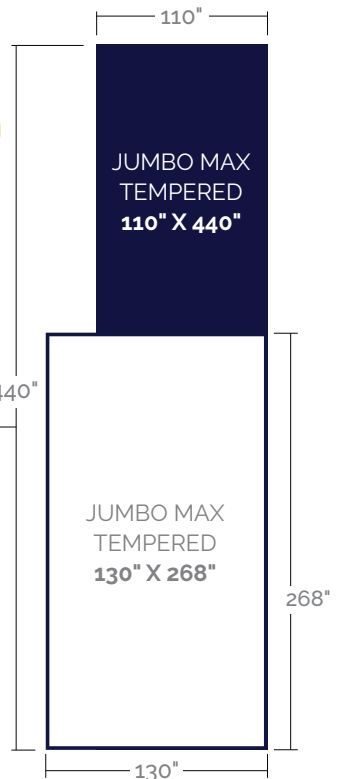
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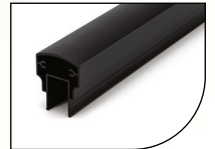
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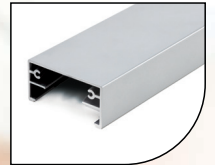
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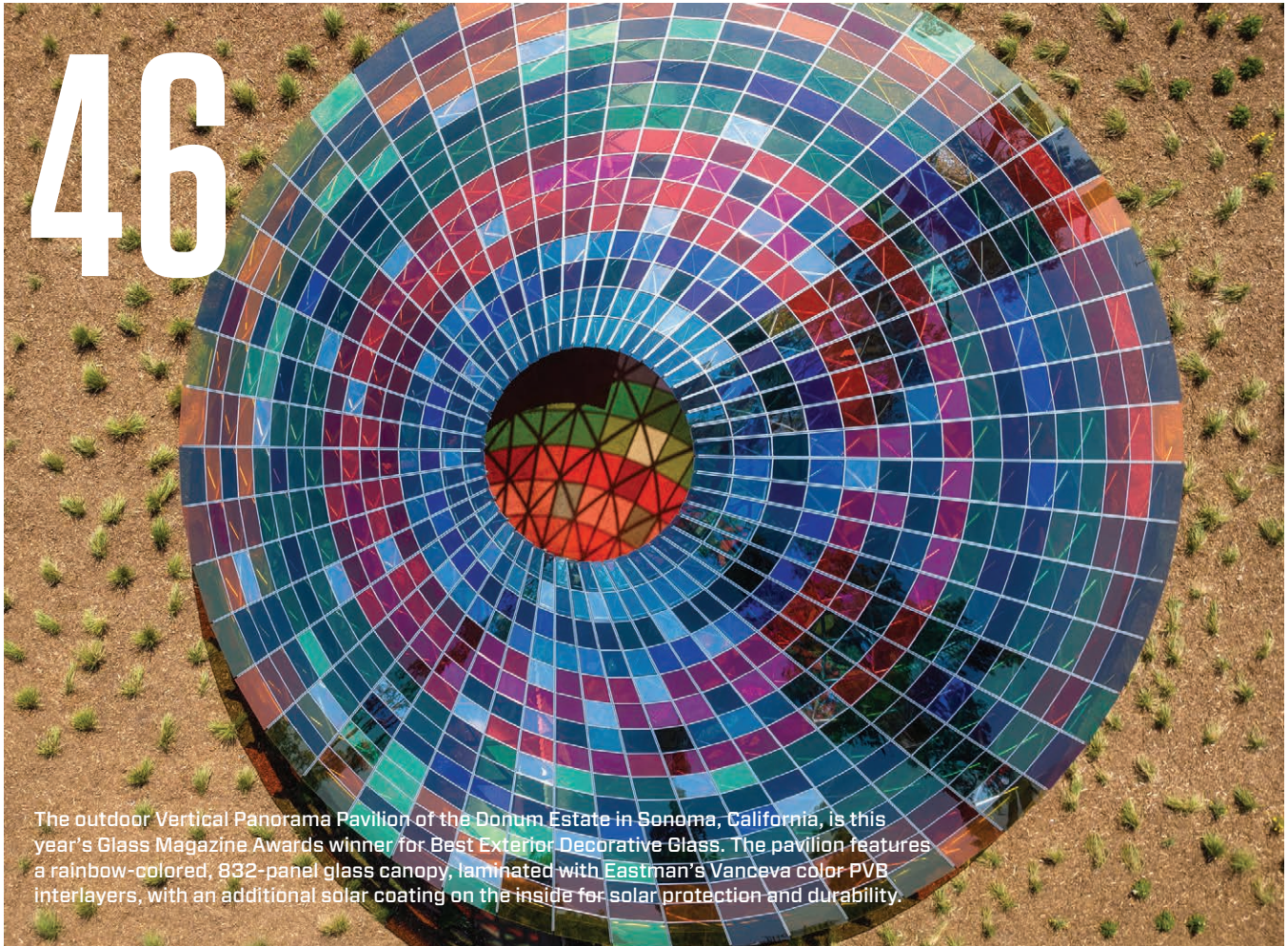


X3 SIERRA SERIES



X4 FIJI SERIES

46



The outdoor Vertical Panorama Pavilion of the Donum Estate in Sonoma, California, is this year's Glass Magazine Awards winner for Best Exterior Decorative Glass. The pavilion features a rainbow-colored, 832-panel glass canopy, laminated with Eastman's Vanceva color PVB interlayers, with an additional solar coating on the inside for solar protection and durability.

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ON THE COVER: Le Visionnaire in Paris, France, is this year's Glass Magazine Awards Project of the Year for its striking all-glass façade. Measuring 82 feet high, the structure appears as a single, uninterrupted pane of glass. The project represents the first use of curved and spherical tempered glass technology in France.



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ON-SITE COVERAGE

Check out news and updates from the NGA Glass Conference: Milwaukee, Aug. 6-8

EDUCATION

Fire-rated glazing requirements, on demand through the Thirsty Thursday series

WORKFORCE DEVELOPMENT

NGA participates in apprenticeship event supporting the glazing industry

GLASSBLOG



TECHNOLOGY

Micro-Aluminum Profiles

By Alexandra Blakeslee, Technoform



SAFETY

Balancing Daylight and Safety

By Lisa May, EFCO, Tubelite, Alumicor

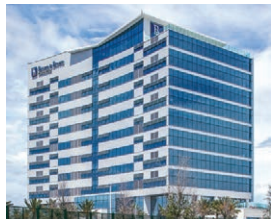


PEOPLE

Mental Health and Well-Being

By Max Perilstein, Sole Source Consultants

PROJECT SHOWCASE



Featured in Glass Magazine Weekly and on GlassMagazine.com. Pictured: Vitro Architectural Glass provided large units of its Solarban R100 Solarblue glass to a sleek curtainwall and metal paneled mid-rise in Daytona Beach. Converted from a brownfield site, Brown & Brown’s new 11-story, 200,000-square-foot headquarters revitalize the riverfront district in the aftermath of

Hurricane Irma. The architects chose Solarban R100 Solarblue glass due to its light sky-blue hue with thermal properties, ideal for the vision glass and shadowbox applications.

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

EDITORIAL

Content Director

Katy Devlin • kdevlin@glass.org

Managing Editor

Tara Lukasik

Senior Editor

Norah Dick

Assistant Editor & Researcher

Rachel Vitello

Creative Lead

Cory Thacker

Associate Director, Comm. & Digital Media
Bethany Stough

Digital Media Specialist
Wendy Vardaman

Production Director
Beth Moorman

Circulation Manager
Jo Ann Binz
jbinz@glass.org

ADVERTISING

Publisher

Emily Thompson

ethompson@glass.org
703/442-4890 ext. 150

Senior Sales Consultant

Chris Hodges

chodges@glass.org
703/442-4890 ext. 131
Cell: 410/459-8619

Senior Sales Consultant

Holly Robinson

hrobinson@glass.org
703/988-3164

Sales Consultant

Tristan Scofield

tscofield@glass.org
703/442-4890 ext. 194

Suppliers Guide Sales

Tim O’Connell

toconnell@glass.org
703/442-4890 ext. 129

Media Sales & Sponsorships Manager

Cameron Francis

cfrancis@glass.org
703/442-4890 ext. 132

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Gold for Sustainability at the Paris Games



KATY DEVLIN
Content Director
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kdevlin@glass.org

By the time this edition of Glass Magazine hits readers, the Paris 2024 Olympics will be underway, and I will be among the millions of viewers worldwide who will suddenly become an armchair expert in everything from pommel horse to archery. Paris' successful bid to host the games was centered on its ability to produce a more sustainable event, with commitments to run the games on 100% renewable energy; minimize plastics; and reduce, rent or reuse materials and resources, including venues for sporting events.

Ninety-five percent of the Paris 2024 competition venues will occur at existing or temporary structures. However, the games will feature one permanent centerpiece—The Paris Olympics Aquatics Centre, a striking example of new sustainable construction, complete with a sweeping timber structure and glass façade.

The Aquatics Centre, the result of a collaboration between Dutch firm VenhoevenCS and France's Ateliers 2/3/4, will host diving, synchronized swimming and water polo events during the Olympics.

The building features a solar array on the roof, which will generate 20% of all required electricity for the building. The 4,680-square-meter array is one of France's largest urban solar farms.

Additionally, the center consists of a wood structure and roof, a design responding to a proposed French sustainability law that requires new public construction to feature at least 50% wood or other biomaterials. According to officials from façade engineer Schlaich Bergermann Partner, the building is supported by the largest concave timber frame in the world, which spans 90 meters and features more than 2,700 square meters of wood. Slatted wood beams surround the building's glass façade.

Additionally, the Olympic Village will be an "eco-quarter," per organizers. All structures will rely on renewable energy, and many will be temporary. All buildings under eight floors will be made from wood and glass. One third will feature solar panels and another third will have green roofs to reduce temperatures inside of the building. Of the housing accommodations being constructed for the games, more than a third will be set aside for public housing following the Olympics.

Of course, sustainable building successes are not limited to Paris. In this issue of Glass Magazine, we feature the 2024 Glass Magazine Award winners, including Georgia's first building to receive the Living Building Challenge certification. The awards also include a striking oval tower that appears as a single piece of glass, a museum with an energy-efficient glass façade that echoes a vision of a draping veil, and many more impressive glass and glazing achievements. See pages 34-62. ■

Paris Olympics Aquatics Centre.





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From left, Dan Martinez and Jodi Martinez of AllStar Glass Co., Kathy Millard of Modern Glass Co., and Ken Hill with Construction Industry Training Council of Washington.

APPRENTICESHIP OPEN HOUSE

National Glass Association members AllStar Glass Company, C&S Glass and Modern Glass participated in an open house for the Eastern Washington-North Idaho Registered Glaziers Apprenticeship Program, hosted by the Construction Industry Training Council, on June 13, 2024.

Jodi Martinez, vice president of AllStar Glass and NGA board member, helped organize the open house. Jenni Chase, NGA vice president of workforce development, attended the event as part of NGA's goal to support and encourage workforce development efforts in the glass and glazing industry. ■

NGA, FGIA JOINTLY PUBLISH GUIDELINES ON CAPILLARY TUBES

A newly updated, eight-page guide jointly published by NGA and the Fenestration and Glazing Industry Alliance addresses the use of capillary tubes in insulating glass units, including proper manufacture and design, glazing methodologies, as well as advantages and disadvantages of their use.

"This is an excellent resource covering the use of capillary tubes; everything from design guidance to glazing considerations," says Aaron Thompson, principal research engineer, Viracon. "The volunteers comprising the task group have worked over the past two years to bring the material up to date and in line with expanded knowledge and use since its original publication in 2014." ■

FIRE-RATED BUILDING CODE QUESTIONS ANSWERED

The latest updates on fire-rated glazing codes were addressed by NGA code consultant Thomas Zaremba, Roetzel & Andress, during the June Thirsty Thursday webinar. Attendees received answers to frequently asked questions about fire-rated glass and glazing requirements as they appear in the building code. ■



Webinar available online

NEW RESOURCE ON FLAT GLASS MIRRORS FABRICATION

Silvered flat glass mirror products can be fabricated to provide additional aesthetic appeal such as beveled edges and surface accents. As additional fabrication features are applied, it is critical to ensure proper conditions and techniques are utilized during every step of fabrication. An updated Glass Technical Paper—Proper Procedures for Fabrication of Flat Glass Mirrors (FB22-24)—was updated in April and provides guidance. ■



Available for free download



Download the guide



GLASS INFORMATIONAL BULLETIN

FABRICATING FLAT GLASS MIRRORS

Mirrors provide both functional and aesthetic performance in interior design for homes, office buildings, schools, medical and institutional facilities. In addition to the function of providing reflected images, mirrors are used to move natural light further into buildings and enhance the openness of rooms.

Silvered flat glass mirror products can be fabricated to provide additional aesthetic appeal, such as beveled edges and surface accents. As additional fabrication features are applied, it is critical to ensure proper fabrication conditions and techniques are utilized during every step of fabrication to protect and maintain the integrity of the mirror backing and edges.

General mirror fabrication guidelines

Consult with the mirror manufacturer for any special requirements that may need to be followed during fabrication.

Whenever possible, mirror fabrication should take place in the environment of a fabrication shop or glass distribution facility. Mirror fabrication operations should be located in an area away from exposure to solvents, heavy-duty cleansers and other materials or chemicals that can damage the mirror backing.

Fabrication areas and equipment should be frequently cleaned to prevent exposure to dirt, grit, solvent or other contaminants that could damage both



Glass handling gloves should be worn by all individuals handling mirror products before, during and after fabrication.



This excerpt is from a technical document developed by member volunteers and subject matter experts from the National Glass Association, available for free download.

the glass and mirror backing surfaces. Mirror glass may be cleaned with automated glass washing equipment or by hand. Avoid any cleaning products described as highly acidic, highly alkaline, abrasive, harsh, and/or aggressive. The mirror manufacturer may recommend specific cleaning solutions for the edges and backing, for example a mild phosphate-free detergent with neutral pH or water with 20% isopropyl alcohol.

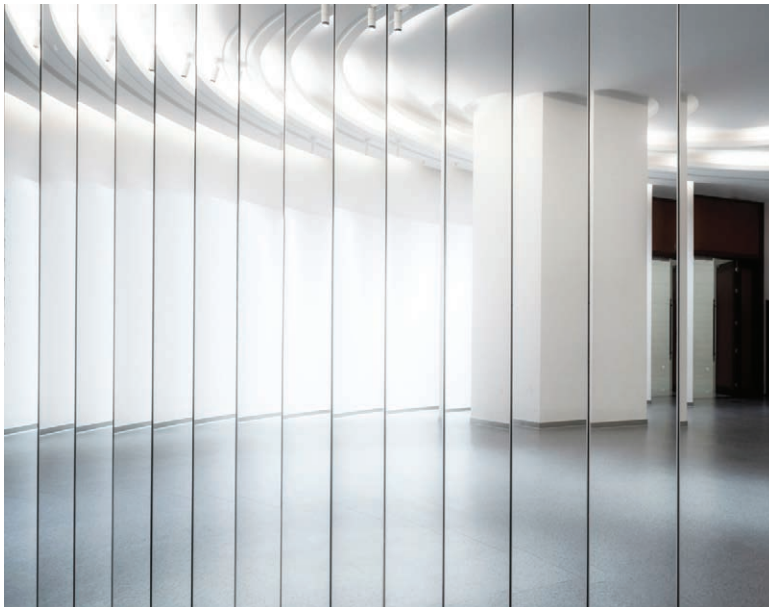
All cutting table and fabrication equipment surfaces that contact the glass and/or mirror backing surfaces should be

frequently vacuumed or swept to prevent scratching or other surface damage. The mirror manufacturer may provide a list of compatible cutting fluids. Glass handling gloves should be worn by all individuals handling mirror products before, during and after fabrication. Gloves prevent skin oils, body salts and chemicals from contaminating the edges.

Clean, fresh water with a coolant is the best lubricant for grinding and polishing operations. The solution should be pure with the pH maintained between 6 and 9. If coolant tanks are used, the water should



GLASS INFORMATIONAL BULLETIN — FABRICATING FLAT GLASS MIRRORS



In addition to the function of providing reflected images, mirrors are used to move natural light further into buildings and enhance the openness of rooms.

be changed often enough to prevent biological growth. The solution temperature should be maintained below 100 degrees Fahrenheit (38 degrees Celsius). The mirror manufacturer may provide a list of compatible grinding coolants.

Fabrication wheels should be centered over the edge to minimize excessive grinding on the mirror backing. Diamond wheels should always be dressed and maintained in good cutting condition. When using a belt sander for manual grinding and polishing operations, it is preferable to use a wet operation.

When manually dry-belt sanding, caution should be given to the fact that some belt lubricants contain chloride contaminants. Both dry- and wet-belt seaming should be in a direction from back (paint surface) to front. Grinding or polishing wheels should be used in one direction only, either parallel with the

edge (such as with a peripheral wheel) or from back (paint side) to front.

Heat generated by sanding and swiping should be minimized to prevent damage to the mirror backing.

Heat-treated mirror products

If product applications call for the use of heat-treated mirror products, glass surface and edge fabrication must take place prior to the heat-treating in order to maintain proper surface and edge compression required for the safety glazing material. Silvering operations take place after heat-treating.

Handling mirror products

As mirrors are handled following fabrication, do not slide mirror or glass surfaces over each other as permanent scratching or other damage may occur.

Following fabrication, all mirror

backing, edges and glass surfaces should be thoroughly and promptly washed and dried. It is very important that all traces of coolant and polishing compound are removed from the edges. If left in place, they are a contaminant that can cause black edge. Black edge refers to damage to the mirror edges caused by liquid contacting the edge.

For vertical wall applications whenever possible, retain at least one factory cut edge of the fabricated mirror for installation at the sill (bottom) where the mirror may be subject to condensation puddling.

For mirror glass that has been cut, sanded, polished or beveled, the mirror manufacturer may recommend sealing the edges with a compatible neutral pH edge sealant. ■

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Allegion Acquires Unicel Architectural

Allegion plc, a global security products and solutions provider, acquired Unicel Architectural Corp. Based in Quebec, Canada, Unicel Architectural is a North American manufacturer of advanced glass, timber and aluminum building solutions that support privacy, safety, energy efficiency and sustainability. The Unicel Architectural portfolio is primarily sold across Canada and the United States and installed in health care, education, government and other non-residential facilities.

Unicel Architectural will operate as part of the Allegion Americas segment, led by Dave Ilardi, senior vice president, Allegion. Unicel Architectural co-presidents Samuel Doyon-Bissonnette and Vincent Couturier are joining Allegion and will serve as leaders for Unicel Architectural within the Allegion Americas non-residential business. Terms of the transaction were not disclosed.

“Unicel Architectural is a natural extension of Allegion’s core business, especially in institutional markets. This strategic combination will strengthen our portfolio of solutions and expand our specification capabilities,” says Ilardi. “Together, we will provide meaningful differentiation for customers with more comprehensive offerings.”

“Like Allegion and its brands, Unicel Architectural is a category inventor and market leader, recently celebrating 60 years of serving customers,” says Doyon-Bissonnette. “Combined, we’ll create more value for architects and other channel partners as trusted advisors on projects who help meet end-user needs.”

Fenzi Group Acquires Thermoseal

Fenzi Group SpA, a Milan-based chemical company specializing in glass processing solutions, acquired Thermoseal. Thermoseal’s product portfolio aims to enable Fenzi Group to expand Thermoflex and Thermobar sales internationally.

“We welcome Thermoseal to the Fenzi family. Their expertise in insulating glass solutions, particularly the innovative Thermoflex flexible spacer product, complements our global growth strategy,” says Fenzi Group CEO Alessandro Fenzi.

Gwain Paterson, managing director, Thermoseal, will remain as managing director and board member of Thermoseal following the transaction.

New Glass Guru Franchise in Texas

The Glass Guru opened a new franchise location in Arlington, Texas. This expansion marks a milestone in the company’s mission to provide window repair and replacement services across the U.S. The new Arlington franchise will be owned and operated by Kara Harbison.

“We are incredibly excited to extend our reach to Arlington and continue providing our high-quality services to more customers in Texas,” says Dan Frey, founder, The Glass Guru. “Our growth is a testament to our commitment to excellence and customer satisfaction.”

FrontLine Building Products Expands Facility

FrontLine Building Products Inc. expanded its manufacturing facilities. The company’s new manufacturing

facility in Medford, Wisconsin, has new technology and streamlined production processes.

The facility will help FrontLine increase its production capacity, leading to faster lead times and improved availability for customers, as well as create new job opportunities in the local community.

Press Glass Installs New Furnace at Virginia Facility

Press Glass installed an additional tempering furnace at its Ridgeway, Virginia, facility. The furnace will increase the company’s tempered glass production capacity by 50%, according to company officials.

The tempering furnace addition follows Press Glass’ 2023 expansion announcement to invest \$155.2 million to expand its manufacturing facility in Ridgeway, which opened in 2020. The expansion includes a 360,000-square-foot addition to its existing facility, which also added 335 new jobs, more than doubling the company’s head count.

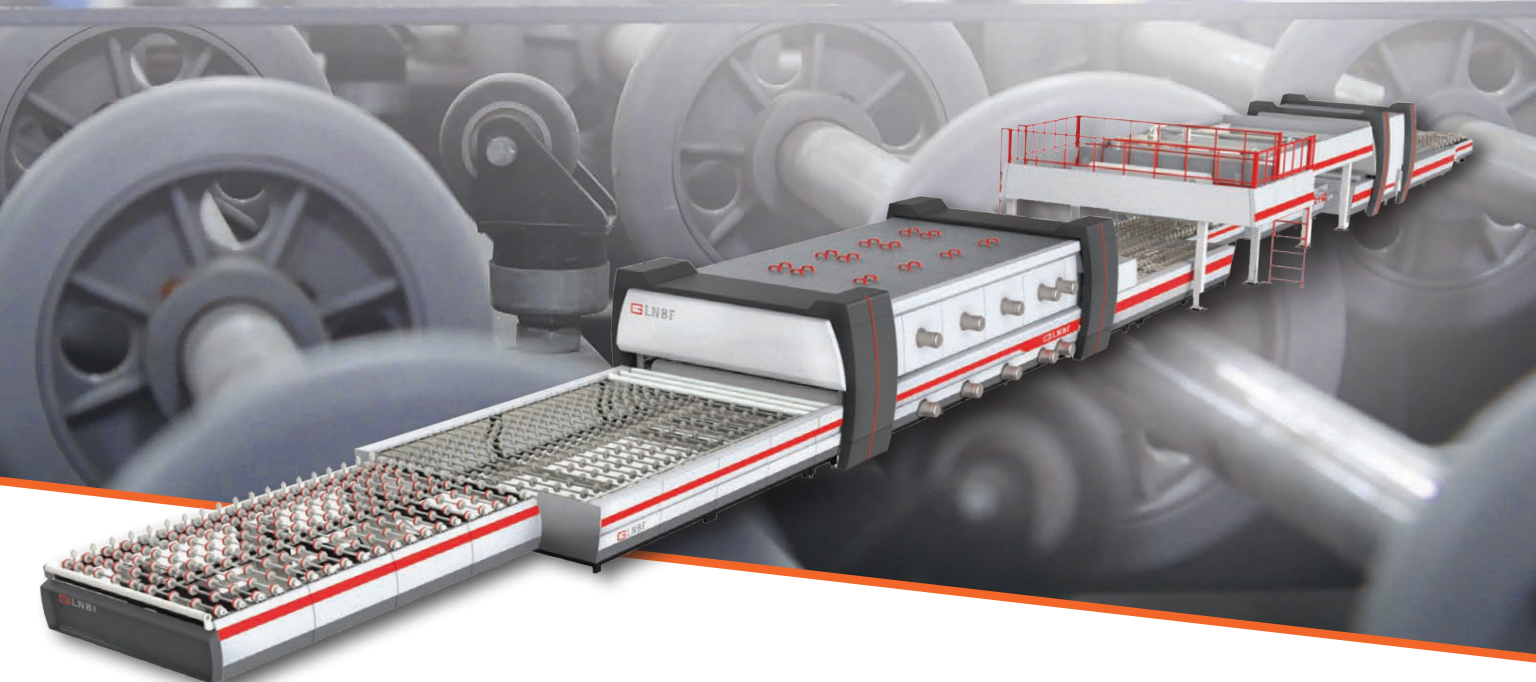
Alpen Closes \$18 Million Capital Raise

Alpen High Performance Products reported a combined \$18 million in funds to help scale its window, door and glass businesses. The funding is anchored by a \$5.9 million grant from the Department of Energy, awarded as part of the Bipartisan Infrastructure Law and Inflation Recovery Act. The DOE grant catalyzed an additional \$12.1 million of private capital.

In addition, Alpen’s ability to scale its thin-glass window technologies will also help the company create hundreds

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NEWS TO KNOW

of new jobs in American communities impacted by coal plant and coal mine closures. According to the White House, the Bipartisan Infrastructure Law and Inflation Recovery Act was established to address the “existential threat of the climate crisis and set forth a new era of American innovation and ingenuity to lower consumer costs and drive the global clean energy economy forward.”

Gauzy Closes Initial Public Offering

Smart window film company Gauzy Ltd. closed an initial public offering of 4,411,765 of its ordinary shares at a public offering price of \$17 per share, for aggregate gross proceeds of \$75 million. The company granted underwriters a 30-day option to purchase up to an additional 661,765 of ordinary shares from Gauzy at the public offering price. Gauzy's ordinary shares began trading on the Nasdaq Global Market under the symbol “GAUZ” on June 6.

The company intends to use the net proceeds it receives from the offering for the purchase of equipment and materials for the expansion of our production lines, research and development, advertising and marketing, technology development, working capital, and other general corporate purposes.

Pat Mooney Saws Celebrates 75 Years in Business

Pat Mooney Saws is celebrating its 75th anniversary in business. Since 1949, Pat Mooney Saws has been an innovator in the world of sawing solutions, evolving to meet the changing needs of its customer base.

In 1949, Patrick Mooney invested his 31 years of saw and tool experience and established Pat Mooney Inc. His philosophy was “to be a successful enterprise, provide reliable products and support these products with good people who are well trained. It's as simple as that.” Today, Pat Mooney Saws is family-owned and operated by the third- and fourth-generation lineage of Pat Mooney. Its 60,000-square-foot facility is headquartered in Addison, Illinois.

PEOPLE



Adamson

Oldcastle BuildingEnvelope Inc. appointed *Mark Adamson* as chief executive officer, effective July 1, 2024. *Michael Marcely* previously worked as interim chief executive officer and will now resume his role as chief financial officer of OBE.



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NEWS TO KNOW

Adamson has over 35 years of experience leading and growing global companies in the building products sector, including as chief executive officer of Fletcher Building and Formica Corp. Adamson also has experience as a private equity operating partner where he worked closely with management teams to execute organic and inorganic growth initiatives, say company officials.



Jefferson

Permasteelisa Group appointed *Thomas Jefferson* as vice president of human resources for North America. Jefferson is

an HR executive with over 30 years of experience in various industries, including telecommunications, machinery and manufacturing, utilities, and window and door manufacturing.

He will directly partner with the leadership team to identify and deploy organizational plans of action.

In his last role as vice president of HR with Anderson Corp., he was directly involved in supporting the growth of the business through acquisition and market expansion, while focusing on employee development and engagement.



Slager

The board of directors of **Eastman Chemical Co.** elected *Donald Slager*

as a director. Slager is the former CEO for Republic Services Inc., a

\$15-billion leader in the environmental services industry, where he served from 2011 to 2021. He joined Republic Services in 2008 as president and chief operating officer, following the merger with Allied

Waste Industries Inc., where he held the same position.



Tang

IGE Glass Technologies

promoted *Yonghe Tang* to senior vice president of engineering and tooling. Tang has 20 years of experience

working directly with the industry's glass fabrication machine operators and production managers. Tang and the IGE team will work with the IGE customer base to develop a tooling mix to maximize productivity and quality output.



Sala

Glassfab Tempering Services Inc. added

Eddie Sala as vice president of architectural metal systems. Sala brings over 35 years of

industry experience. In his new role, Sala will spearhead the company's architectural metal systems division.



Russo

Marc Russo was appointed general manager of Glass Service entities by **Sefpro**, which completed the acquisition of Glass

Service. Russo brings 20 years of experience with Sefpro as global supply chain director and plant director. He also has prior experience as general director of another company. Russo will be supported by the former Glass Service management team in their new roles.



Kowalczyk

Jakub Kowalczyk joined **Viprotron North America** as the new customer experience director. Kowalczyk spent the last seven

years in the glass industry, most recently as a director of sales and marketing at LiteSentry, where he created and launched new products and services. ■

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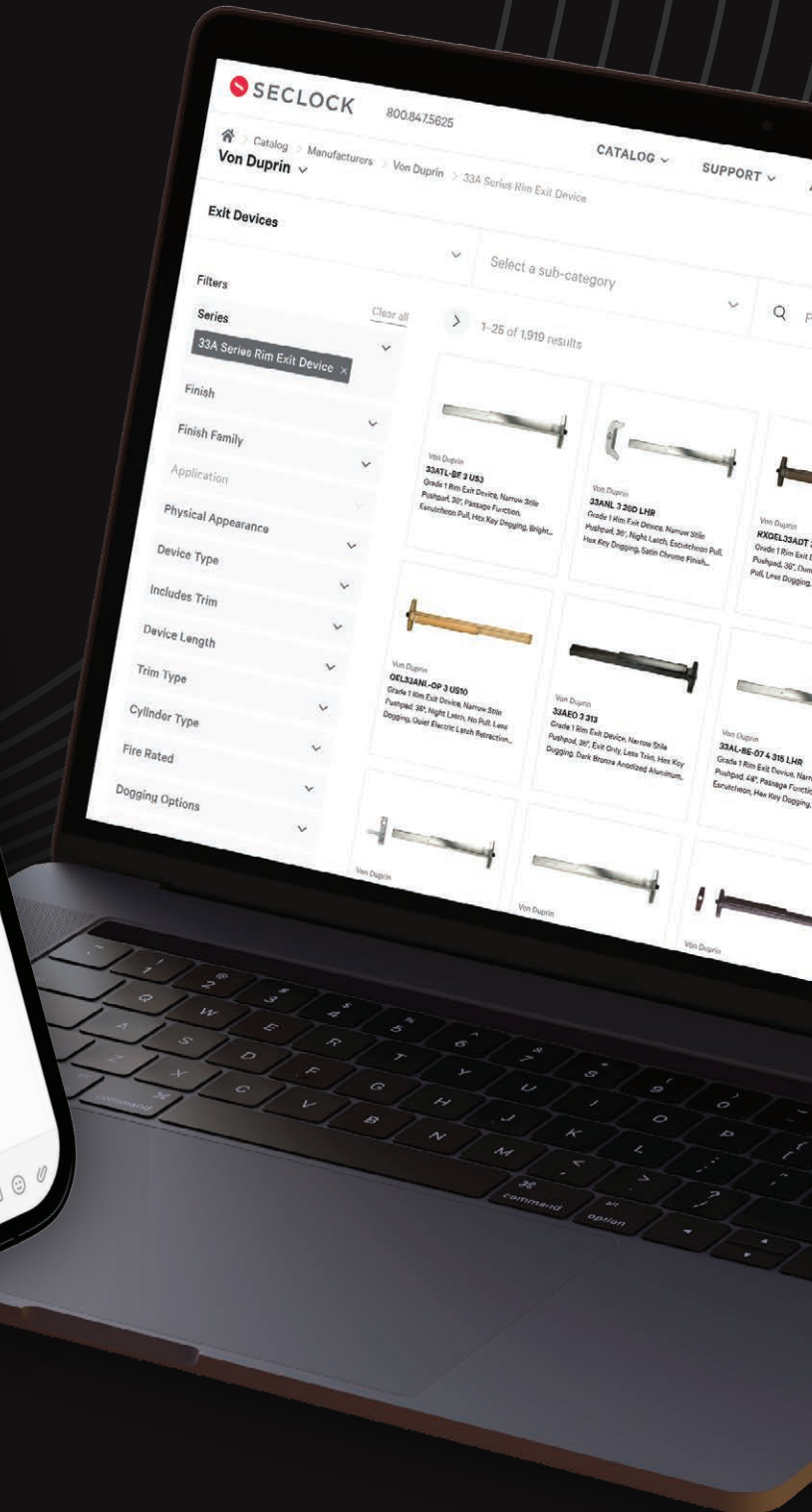
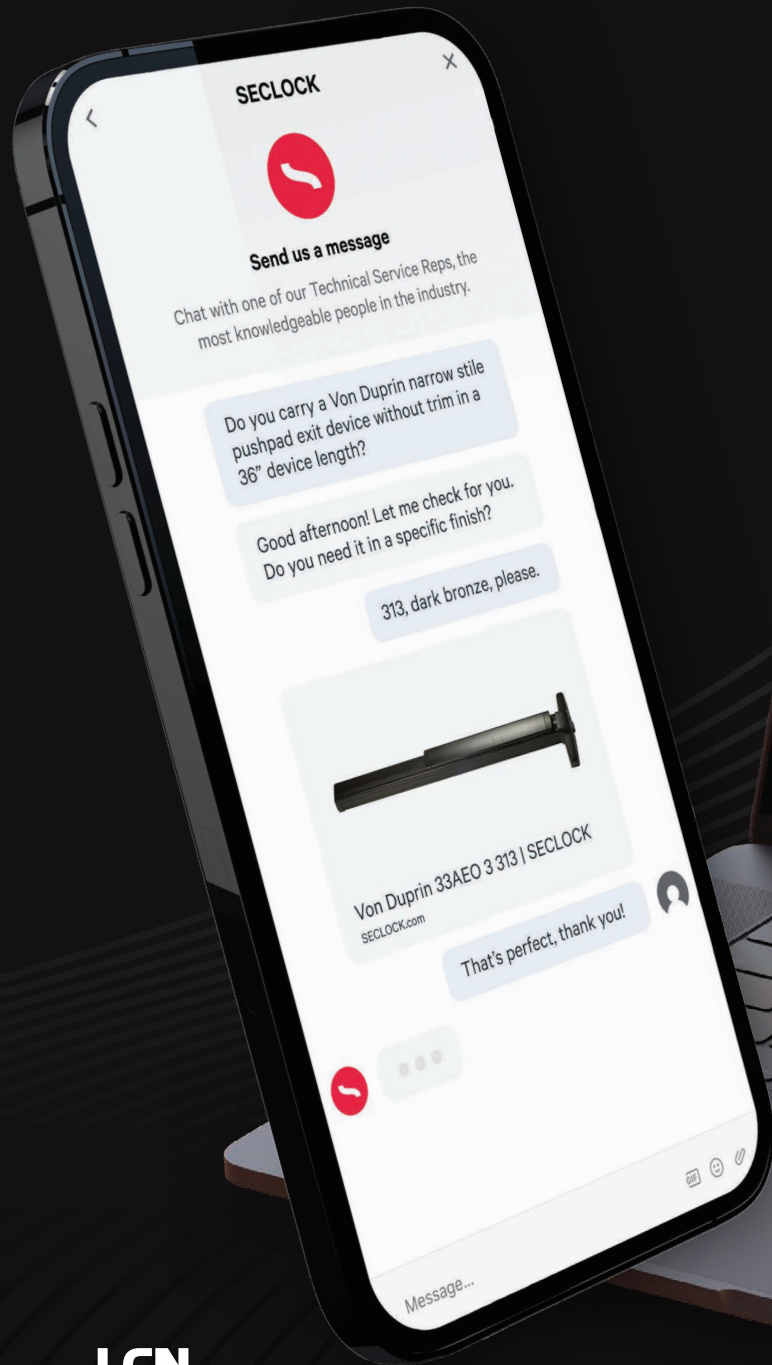
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Automated equipment is one of the more effective solutions to the industry's continued struggle with labor. Photo courtesy of Quanex.

FACTORY FLOOR

LEVERAGING AVAILABLE TECHNOLOGIES FOR TODAY'S CHALLENGES

PROFESSIONALS CAN UTILIZE VARIOUS NEW TECHNOLOGIES TO FACE INCREASING DEMANDS AND CHALLENGES IN THE COMMERCIAL GLASS INDUSTRY

BY JOE ERB



THE BOTTOM LINE: Continuous improvement and the strategic use of technology, particularly factory automation solutions, are crucial for commercial glass professionals to meet increasing demands and overcome industry challenges like inflation, labor, logistics and transportation.

Continuous improvement is imperative in the commercial glass industry. Today's demands continue to grow more stringent, requiring reliable technology to deliver long-term performance in all forms of modern architecture. Simultaneously, commercial glass professionals increasingly require strategic, efficient and effective ways of doing business to continue to succeed.

All this was evident as I read Glass Magazine's 2024 Top Glass Fabricators Report earlier this year, which outlined some of the biggest challenges and opportunities faced by today's

professionals. Inflation, labor, logistics and transportation continue to be sore points throughout the industry.

The tools to succeed exist; it's just a matter of leveraging them. As we set our sights on the second half of 2024, here are some proven strategies that will continue to help forward-thinking commercial glass professionals succeed, no matter the challenges ahead.

Application of automation

The commercial glass and glazing community is no stranger to automation in 2024, and I believe in automated technology's ability to be transformative for operations everywhere.

So I was a bit surprised to read this statistic from the Glass Fabricators Report: "Further automation, and plans to automate, are down year-over-year. While 65% of respondents last year said they automated manufacturing processes, only 53% of this year's respondents report having automated processes in 2023. While 66% of last year's respondents planned to automate,

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56% of this year’s respondents say they plan to do so in the coming year.”

For fabricators grappling with the impacts of higher interest rates and inflation, major capital investment taking a bit of a dip makes some sense. But I think it’s important we don’t lose sight of the value that automation can bring to a commercial glass shop.

An automated insulating glass line, for example, can be invaluable, helping to maximize quality consistency with precise spacer application while minimizing the labor required. This is especially true if you’re working with high-quality, warm-edge spacer systems that can dramatically enhance the thermal performance of your IG units. Given our industry’s continued struggle with labor, automated equipment is one of the more effective solutions to that problem that is currently available. While an automated line may have once only been justified by high-volume production, the benefits in terms of

quality, consistency and labor savings should all be a part of the calculation in today’s marketplace.

Harnessing available technology

Technological advancements extend to product offerings as well. Window and glass systems contribute significantly to a building’s efficiency. For commercial professionals, it’s worth exploring the available technology to meet today’s demands. Commercial-grade vinyl window systems represent one of those technologies.

For decades, metallic systems have been the systems of choice in commercial glass and glazing applications for their structural strength. But metal transfers heat, leading to a huge energy loss, which could become a bigger concern as the code crunch inevitably continues. There have been advancements—thermal break (strut or pour-and-debridge) technologies to isolate

the conditioned space from the outside environment—but these basic strategies aren’t overly complex. As thermal performance targets get more stringent and fabricators struggle with labor, these simple thermal break designs can become increasingly complex and costly.

Recent breakthroughs in domestically produced vinyl framing technology can provide the thermal efficiency and structural integrity required in various commercial applications.

The commercial glass and glazing industry continues to push forward, no matter the challenges that present themselves. The good news is that glass professionals have the right tools and technologies at their disposal—sometimes, it’s just a matter of putting them to work. ■

Joe Erb is national account manager for Quanex Building Products.

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need meticulous design considerations, accurate cost estimation, and precise order fulfillment.

Generic software may not take this into account. Even glass-specific options may fall short as they are often built by modifying existing job-management software. As a result, many businesses stick to outdated systems like pen and paper or Excel.

How can software help?

With nearly two centuries of history, the glass industry has understandably relied on traditional methods like pen and paper for data capture. Although these methods may have served well in the past, they bring significant challenges. Records can easily be misplaced, leading to mistakes, missed opportunities and delays in project management. The manual nature of these systems makes them vulnerable to errors and misinterpretation. Glass software can solve these issues in several ways:

01. Efficient design

Software built specifically for glaziers can dramatically improve speed and efficiency. Auto-calculation features streamline cost estimation and pricing and give busy glaziers instant insights into profitability. Cloud-based software also gives glaziers the ability to work remotely or onsite.

02. Streamlined operations

Glass software can include features to enhance efficiency, including quote generation, facilitating online payments and task automation, freeing up time so glaziers can focus on higher-priority tasks. Scheduling tools can enable glaziers to optimize routes and reduce travel time.

03. Increased productivity

The most significant advantage to adopting software is the dramatic increase in productivity. Eliminate manual tasks like data entry, paperwork and scheduling hassles.

BRIDGING THE LABOR GAP

CAN SOFTWARE REVOLUTIONIZE OPERATIONS AND HELP BRIDGE THE WORKFORCE GAP IN AN INDUSTRY SHORTAGE?

BY SAM FRANKLAND



THE BOTTOM LINE: Industry-specific software can help glass businesses overcome skilled labor shortages by streamlining workflows, improving productivity and enhancing operational efficiency. However, there is often resistance to adopting digital solutions.

The skilled labor shortage in the glass industry is a pressing concern. Across the board, glass businesses are struggling to recruit qualified workers. This lack of manpower impacts day-to-day operations and hinders glass businesses' ability to meet high customer demand.

Fortunately, innovative solutions exist to address this challenge.

Industry-specific software offers a unique opportunity to streamline workflows and free up time for installers and office staff.

Resistance to digital solutions

A divide exists between traditional glass shops and the digital revolution sweeping through many modern businesses. Resistance to software is common, often due to entrenched tradition or simply a preference for familiarity.

The unforgiving and complex nature of glass also poses a challenge for software developers. Glass projects



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This significantly reduces mistakes and reworks, freeing up valuable time for your team. Consequently, operational costs are reduced, and team morale improves.

04. Improved cash flow

Effective software plays a crucial role in cash flow management for glass businesses. By automating the invoicing and accounting processes, software minimizes debtor days and improves liquidity.

05. Enhanced field communication

Good software empowers installers to work on projects from the field, reducing their reliance on office-based communication. Features such as photo uploads, note-taking capabilities and real-time updates enable installers to promptly address issues, reducing delays and errors in each project.

Finding the right software

Before purchasing software, it's important to ensure you choose the right option for your business. Consider if the tool is right for you:

- Can the software calculate pricing for your various glazing projects?
- Can the software produce shop or fabrication drawings for the ordering process?
- Can the software track the status of your projects?
- Will the software make it easy for anyone in your team to see what is happening with a job?
- Does the software work both in the field and the office?
- Is the software backed by a team that understands the glass industry?

This last point is important: Industry-specific support goes beyond basic troubleshooting. When a question arises about an IGU or a shower hinge, having

knowledgeable support can quickly solve problems and prevent costly delays.

It can also help to have a list of features categorized into “need to have,” “nice to have” and those you don’t care about. This helps you to rule out feature-heavy options that don’t necessarily have what you need to run your company.

In conclusion, although the labor shortage does present a challenge, software can bridge this gap by streamlining operations and unlocking new possibilities for growth. By investing in the right software, glass businesses can not only weather the current storm but emerge stronger and more efficient. A collective shift toward technology and innovation has the potential to revitalize the industry and ensure its continued success for generations to come. ■

Sam Frankland is sales and marketing manager at Smart Glazier Software. Contact him at sam@smartglazier.com.

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REEVALUATING NON-COMPETE AGREEMENTS

FEDERAL RULES ARE PROMPTING EMPLOYERS TO RETHINK NON-COMPETE AGREEMENTS AMID RISING LEGAL CHALLENGES

BY MATT JOHNSON



Companies often want to protect valuable leads and proprietary information through the use of non-compete agreements. The thinking is that if an employee leaves, the value of the information learned can be protected from access by market competitors. However, as these agreements are restraints on free trade, it seems that few other employment law concepts have generated such recent attention, scrutiny and confusion.

Non-compete agreements usually take the form of a clause or term in an employment contract that says the employee will not enter into competition with the employer, or go to work for a competitor, for a specified period of time after the employment ends. They are sometimes called “restrictive covenants” because they are promises not to engage in certain kinds of behavior.

Proponents vs. opponents

Proponents of non-competes point

THE BOTTOM LINE: Non-compete agreements, which restrict employees from working with competitors post-employment to protect proprietary information, face increasing scrutiny and legal challenges. Employers are increasingly reviewing and adjusting these agreements to ensure their reasonableness and legality. Alternative protections such as confidentiality clauses and adjusted compensation are being considered.

to the value in secrets and processes that need to be openly shared with employees to maximize their opportunities. That freedom, they argue, must be protected against corporate espionage and the whims of a “grass-is-greener” mentality.

Opponents stress that the rigidity these agreements impose on the workforce marketplace is negative for all sides. It ties up employees with knowledge and skills that should be in the market, while also preventing the best applicants from being used by companies.

Federal and state developments

Recent federal developments have tended toward the opponent’s view of non-compete agreements. In April 2024, the Federal Trade Commission issued rules that effectively bar future non-compete agreements and void any such existing agreements. The rules are broad, but their effect is to bar any policy that prohibits a worker from, penalizes a worker for, or functions to prevent a worker from seeking work after employment terminates. Exceptions exist for current agreements with senior executives or those earning a certain amount, as well as business sale transactions.

Despite being called a “final rule,” the FTC announcement is neither final nor the current rule. The bar on non-competes is effective 120 days from publication of the requirements in the



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Federal Register and, even then, may be subject to Congressional review. Beyond that review, legal contests are a certainty, and there will be many challenges.

Regardless of the FTC's position, challenges to non-compete agreements also exist at other levels. Anti-trust contests come from the Department of Justice, and the National Labor Relations Board recently took the position that non-compete agreements unlawfully interfere with worker's rights. Lower than the federal level, a few states bar the agreements outright. A minority bar certain categories of non-competes, including wage thresholds and notice requirements. Other states have limited controls over enactment, but challenges to their fairness remain.

Preparing for legal challenges

Employers who use non-competes should take steps now to be ready for

these mounting challenges. A review of current non-compete agreements should be made with an eye toward the reasonableness of the restrictions they impose. The scope of limitation should be narrowly tailored to protect a legitimate business interest. The scope of limitations should be reasonable in terms of time, geography and prohibited activities. In addition, consider what levels of employees are subject to non-compete agreements, as defaulting to all employees can create unreasonable use limitations.

In addition, where non-compete clauses are part of larger employment contracts, it is important to ensure that the clause can be severed from the agreement. Carve-out or severability terms in contracts can help preserve the other terms and limitations of an employment contract even where certain provisions cannot be enforced or are later found to be illegal.

If you cannot use non-competes or want to try alternative protections, there are options to consider. Exercise caution when looking at clauses that could operate as "functional bars" to other employment (e.g., reimbursement, non-solicitations, etc.). Besides those, however, contractual terms that protect the confidentiality of proprietary information and trade secrets can help achieve large parts of the current goals served by non-compete agreements. Likewise, adjusted compensation agreements or fixed-term employment can help motivate employees to maintain confidences, even when day-to-day work ends. ■

Matt Johnson is a member of the Gary Law Group, a Portland, Oregon-based firm specializing in legal and risk issues facing manufacturers of glazing products.

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GREAT GLAZING: LOS ANGELES COUNTY DEPARTMENT OF MENTAL HEALTH



The Los Angeles County Department of Mental Health in Southern California. The 20-story, Class A tower includes 156,000 square feet of Solarban 70 glass fabricated by Glassfab Tempering Services. Photo by Tom Kessler, courtesy of Vitro Architectural Glass.

THE DESIGN

Architect Gensler designed the 295-foot-tall building, which features a glass exterior on its upper floors and metal screening wrapping its above-grade parking levels. One of the many striking design characteristics is the diagonal grid of parallelogram-shaped, metal window frames arranged across the building facade, which add a unique visual element to the building. This creates a dynamic and engaging exterior, enhancing the overall aesthetic appeal.

THE MATERIALS

With a focus on energy efficiency and sustainability, 156,000 square feet of Solarban 70 glass was specified for its solar control and thermal insulation properties—fabricated with a ¼-inch lite of Solarban 70 glass with a ½-inch space of argon gas and a black stainless spacer, followed by ¼-inch of clear glass and gunmetal color spandrel. One standard 1-inch insulating glass unit delivers a visible light transmission of 64% and a solar heat gain coefficient of 0.27.

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THE BASICS

The new headquarters for the Los Angeles County Department of Mental Health are located in Southern California's Koreatown at 510 Vermont, near the northeast corner of 6th Street and Vermont Avenue. The \$300-million, 20-story, Class

A tower contains 468,000 square feet of offices above a 1,900-stall parking podium, 10,000 square feet of street-level retail, an amenity deck, a peer resource center and walk-in mental health services clinic.

Culturally and linguistically sensitive mental health services were needed in

the area, where Koreans and Korean Americans make up roughly 50% of the population. The new clinic allows the multicultural team to better address the specific needs of the diverse community and reducing barriers to accessing mental health services.



The 13-story Våghuset Business Centre in Gothenburg, Sweden, features an undulating curved glass façade. Flexible warm-edge spacers by Quanex were used in the project. Photo courtesy Quanex.

WARM EDGE REVOLUTIONIZES GLASS FABRICATION

WARM-EDGE SPACER TECHNOLOGY BOOSTS EFFICIENCY IN MODERN AUTOMATED GLASS FABRICATION **BY TARA LUKASIK**

Warm-edge spacers have been around for generations—as far back as 1865, in fact—but the technology gained traction in the 1980s as a response to concerns over energy efficiency and condensation in insulating glass units. In recent years, warm edge technology has started to thrive once more as manufacturers look to reduce heat transfer and improve insulation properties in windows and glass units to keep pace with the growing demand of sustainable building coupled with increasingly stringent energy-efficiency codes and standards.

Mike Moran, global market director, and Joe Erb, national account manager, Quanex, sat down with Glass Magazine to discuss the efficiency and performance gains of warm-edge spacer technology in commercial insulating glass, and how it lends itself to modern, consistent and efficient manufacturing strategies.

Glass Magazine: Let's start by defining what warm-edge spacer technology is.

Joe Erb: Spacer technologies have progressed over the years, but I think

it's important to note that not all spacers or warm-edge spacers are the same. It's very broad and the industry continues to wrestle with defining warm edge. I would generally describe warm edge as an insulating glass spacer system in which the spacer provides improved thermal performance over traditional conductive aluminum or metal spacers.

Mike Moran: Yes, warm edge covers a vast number of products and technology. There is a large difference between one warm edge technology and another. In terms of thermal properties, there's a massive spread. For example, stainless

steel compared to foam silicone, there's five or six times more improvement in the calculated thermal property and thermal efficiency. And then if you compare it to aluminum, it's more like a factor of 1,000 times lower thermal conductivity.

GM: How does warm edge technology improve the thermal performance of IGUs?

JE: Flexible warm edge offers significant improvements in IGU thermal performance by reducing heat flow through the edge of the glass. But there's so much more available to the end user and manufacturer when selecting the right warm edge than just the thermal benefit. Thermal is obviously extremely important, but a good flexible warm edge solution covers a variety of other performance benefits such as improved quality, durability, condensation resistance, sightline aesthetics, as well as reduced touch points, acoustics and more.

GM: How can it integrate with existing automated equipment and processes?

MM: A big advantage is that you can automate and end up with a more efficient fabrication line at the end of it, both in consistency of quality and in capacity and output. Technical service support is essential to [installing] an automated line. When you're changing from non-warm edge to a flexible warm edge, you do have to change your production methods a bit, and you do need some assistance with that.

GM: What challenges could fabricators face when transitioning?

JE: I think one involves the unique approach to assembling IG. With rigid spacer bar, the fabricator must assemble many components offline into a spacer bar frame (spacer bar, joiner keys, primary sealant, desiccant, etc.), which is then applied to the glass. It's an assembly pro-

cess the person on the line must remember to do properly and in the right order. With flexible warm edge technology, that mentality must shift because there is no spacer frame assembly process required by the fabricator. Flexible spacers are provided by the supplier on continuous reels and applied directly to the glass via robotic applicators on demand.

The other consideration is for production personnel to change the way they look at and approach manufacturing. Automation streamlines that process, reducing up to 60% in labor, and while it's not challenging it requires a change in mindset on the approach. And once fabricators get used to it, it becomes a much more simplified approach to manufacturing IG.

GM: How does Quanex assist fabricators in adopting or implementing the technology?

JE: This is a crucial interactive component of our company. Teaching [customers] best practices for using our products is an essential part of what the Quanex Technical Services team does. When new equipment comes in, we work with our customers and the equipment supplier to get the equipment up and running properly. From there, we make sure they're trained in best practices for using our spacer product to make a truly durable and sustainable IGU. We follow up periodically with quality reviews and audits.

GM: How does adoption affect the overall production cost for commercial fabricators?

JE: Warm-edge spacer tends to cost more because you're adding polymers and high-performance materials compared to traditional metal spacers. The flexible warm-edge spacer production process can reduce labor requirements by 60% compared to the rigid warm edge or metal spacer production process, making it a very cost-competitive warm edge solution that brings a bigger value proposition to the table. It's not just about warm edge,

it's about the entire package the spacer system offers.

GM: How can fabricators ensure consistent quality by implementing warm edge in their production?

JE: In manufacturing, if we can reduce the number of human touch points in the IG production process, we reduce the potential for errors that lead to quality issues, remakes or returns. A flexible warm-edge spacer IG line only requires two or three people where a rigid spacer line may require eight or nine. That means six or seven less touchpoints/human interactions with glass and components for improved consistency and quality.

GM: With warm edge technology evolving, what should fabricators be aware of?

JE: Warm-edge spacer designs have been in the market for more than 35 years and are increasingly being specified to help improve thermal efficiency of façades and improve efficiencies in production. There are many warm edge options for a fabricator to choose from.

As fabricators look to invest in new IG lines to meet these requirements and address ongoing labor challenges, they'll find flexible warm edge solutions offer the best return on investment in today's market. It's important to do your research and work with reputable suppliers with a strong history in the spacer market. At the end of the day, awareness of what true warm edge can do for the market and what the right warm edge can do in manufacturing elevates the industry.

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The background features several thick, 3D yellow geometric shapes, possibly representing architectural beams or structural elements, arranged in a dynamic, overlapping composition. The shapes are rendered with soft shadows, giving them a sense of depth and volume against the dark, almost black background. The overall aesthetic is modern and minimalist.

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GLASS MAGAZINE AWARDS 2024

B E Y O N D

BY NORAH DICK AND RACHEL VITELLO

The 2024 Glass Magazine Award winners went beyond—beyond code requirements, past achievements and what previously seemed possible. This year’s eight project award winners and seven product award winners demonstrate what glass, and glass industry companies, can aspire to achieve.

Multifunctionality of products and projects made for a very strong competition this year. Winning nominations show that when the design community asks for energy efficiency, jumbo size, impact rating, security and aesthetics, glass and glass industry products can deliver.

This multifunctionality also led to a new project category this year that recognizes the complexity and custom nature of glazing and metal systems: Best Specialty Glazing.

The 2024 competition also saw an incredible number of nominations for the Best Decorative Glass project category, leading the editorial staff to split the category in two for the first time in a few years. The new categories, Best Interior Decorative Glass and Best Exterior Decorative Glass, showcase the visual interest and dynamism this glazing adds throughout the built environment.

The awards program

is only possible with the expertise of our project award judges, who lend their time and experience to adjudicate the project competition. We would also like to thank the wider industry for taking the time to vote in the public products competition.

Glass Magazine’s editorial staff thanks all the companies that took the time to complete a nomination form. We realize that many more industry companies have outstanding projects and products they could showcase. To participate in next year’s Glass Magazine Awards, contact Senior Editor Norah Dick at ndick@glass.org.

GLASS MAGAZINE AWARDS



THE PROJECTS



PROJECT OF THE YEAR

FEAT OF ENGINEERING

Le Visionnaire, Espace François Dalle

NOMINATING COMPANY

KURARAY

LOCATION

PARIS, FRANCE

The gorgeous glass structure Le Visionnaire brings the future to meet the past. Ensnared between the stone walls of personal care brand L'Oréal's historic headquarters in Paris, the striking all-glass façade seems straight out of science fiction. "It's one thing to imagine such a form, yet another to realize it so successfully," says Glass Magazine Awards judge John R. Stephenson, senior architect, BRPH.

Befitting its futuristic look, the project represents the first use of curved and spherical tempered glass technology in France, say officials.

The system's steel frame is a lamella, diamond-pattern structure composed of quadrilaterals and triangles. The glass façade is crowned by spherical glass supported on its entire periphery, with natural ventilation provided by 13 motorized windows.

Measuring 82 feet high, the oval structure appears as a single, uninterrupted pane of glass, masking its inherent complexity. Tasked by architects Ange-Jacques Gabriel and Alain D. Moatti with an intricate geometric design, installer Bellapart's team had to identify a construction system capable of

delivering the precision needed to maintain reflection continuity across the diverse glass elements, say company officials.

Each façade element had to be unique in order to achieve the effect, say officials. Bellapart team members used a parametric 3D model and linked the geometry to CNC machining centers in their workshop, resulting in each façade component, including nodes, structural elements, glazing and cladding profiles, being generated individually to achieve the required precision.

"This project breaks all the traditional barriers, almost as if they are working in 4D while the world is still in 2D," says Glass Magazine Awards judge Nathan Seaman, national sales manager, Architectural Grilles & Sunshades Inc.

Le Visionnaire's seamless façade is composed of double-curved fritted and tempered laminated insulating glass panels with Trosifol PVB UltraClear, which are two-sided and supported by the primary 3D curved hollow sections and a bespoke stick curtain wall. sedak was the glass laminator and Kuraray supplied the interlayers.

Winning Team

Interlayer supplier

Kuraray

Glass installer and engineering services

Bellapart Group

Glass fabricator

sedak GmbH & Co. KG

Engineering consultant

RFR

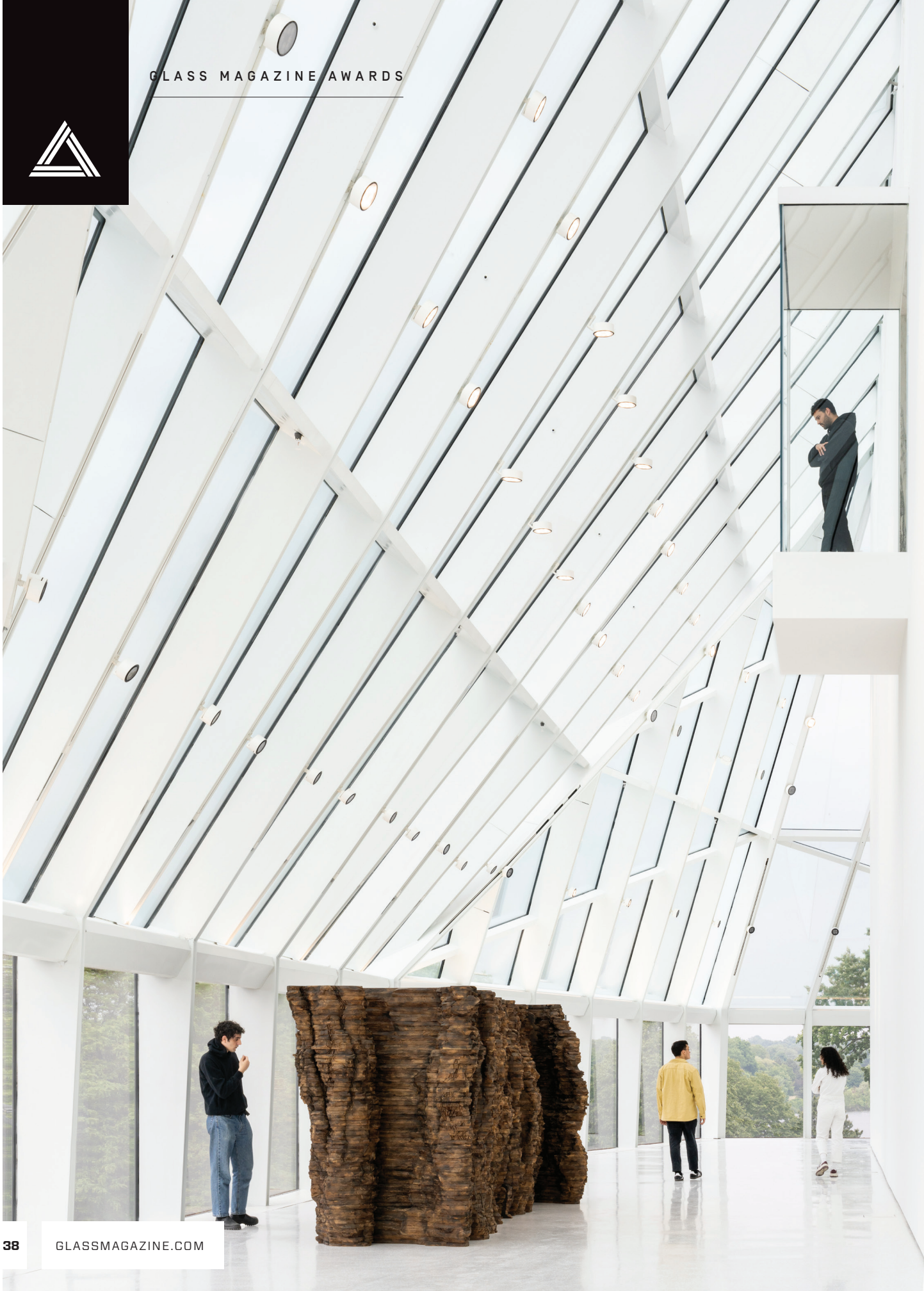
Architects

Ange-Jacques Gabriel and

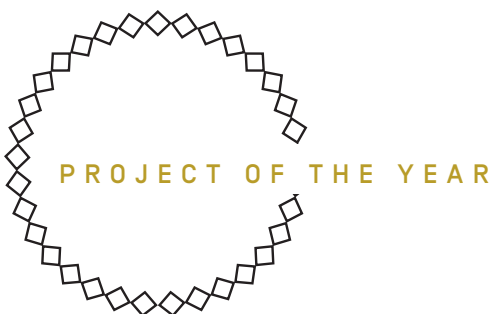
Alain D. Moatti

Photo credit

Florence Joubert



FIRST RUNNER-UP



BEST SPECIALTY GLAZING PROJECT

The Buffalo AKG Art Museum

NOMINATING COMPANY

ROSCHMANN USA

LOCATION

BUFFALO, NEW YORK

Winning Team

Façade contractor

Roschmann Steel & Glass
Constructions Inc.

Glass fabricator

Glassbel

Façade consultant

Thornton Tomasetti

System manufacturer

Raico

Architects

Lawrence Siu + Paxton

Sheldahl; Cooper Robertson;

Shohei Shigematsu of OMA

Photo credit

Marco Cappelletti

The Buffalo AKG Art Museum’s campus renovation project included a new, avant-garde glass façade for the 30,000-square-foot Gundlach Building, as well as a glass bridge connecting the new structure to the original museum. “The Buffalo AKG Art Museum is an art piece in itself; the glass and glazing create a stunning structure that successfully creates the architect’s vision of a draping veil,” says Glass Magazine Awards judge Tara Brummet, chief of staff, Vitrum Glass, Apex Aluminum & Lorval Developments.

Façade contractor Roschmann USA worked closely with architect Lawrence Siu + Paxton Sheldahl in a design-assist process to execute the complex, specialty glass façade. To make this new building into a modern exhibition space, design goals focused on maximizing daylight and connection to the surrounding environment, while also ensuring energy efficiency.

“The client wanted more transparency to open the museum up to its surroundings, including the adjacent

park designed by Frederick Law Olmsted,” says Dirk Schulte, president, Roschmann. “To maximize the building’s transparency, a combination of glazing build-up and ceramic frit patterns using a light grey color allows the building to be wrapped in glass without disrupting the visitors’ [experience] or the thermal performance.”

The walls of the Gundlach building were constructed with cutting-edge, pressure-equalized, dual-sealed technology that precisely integrates all perimeter conditions and connections to adjacent constructions, say company officials. The new structure has an octagonal plan and rises three stories, its sloping walls converging into a compressed, pyramid-shaped skylight.

Roschmann designed, engineered and fabricated the AES steel and glazing for the first- and upper-floor enclosure systems, as well as the complete envelope of the connector bridge, which connects the exhibition space to the rest of the museum through a historic grove of trees.



BEST PROTECTIVE
GLAZING

Baptist Health Care

NOMINATING COMPANY
YKK AP INC.

LOCATION
PENSACOLA, FLORIDA

Winning Team

Metal systems supplier and
fabricator
YKK AP America Inc.
Glass fabricator
Viracon
Glazing contractor for the
hospital
MG McGrath
Glazing contractor for the
Bear Family Foundation
Health Center
Pensacola Glass
Architect
Gresham Smith
Photo credit
Chad Baumer Photography

The 10-story Baptist Health Care at Brent Lane, a new health care campus located in Pensacola, Florida, showcases the range of glass' protective powers, not only as impact-tested glazing systems but also as systems designed to provide comfort and healing to patients.

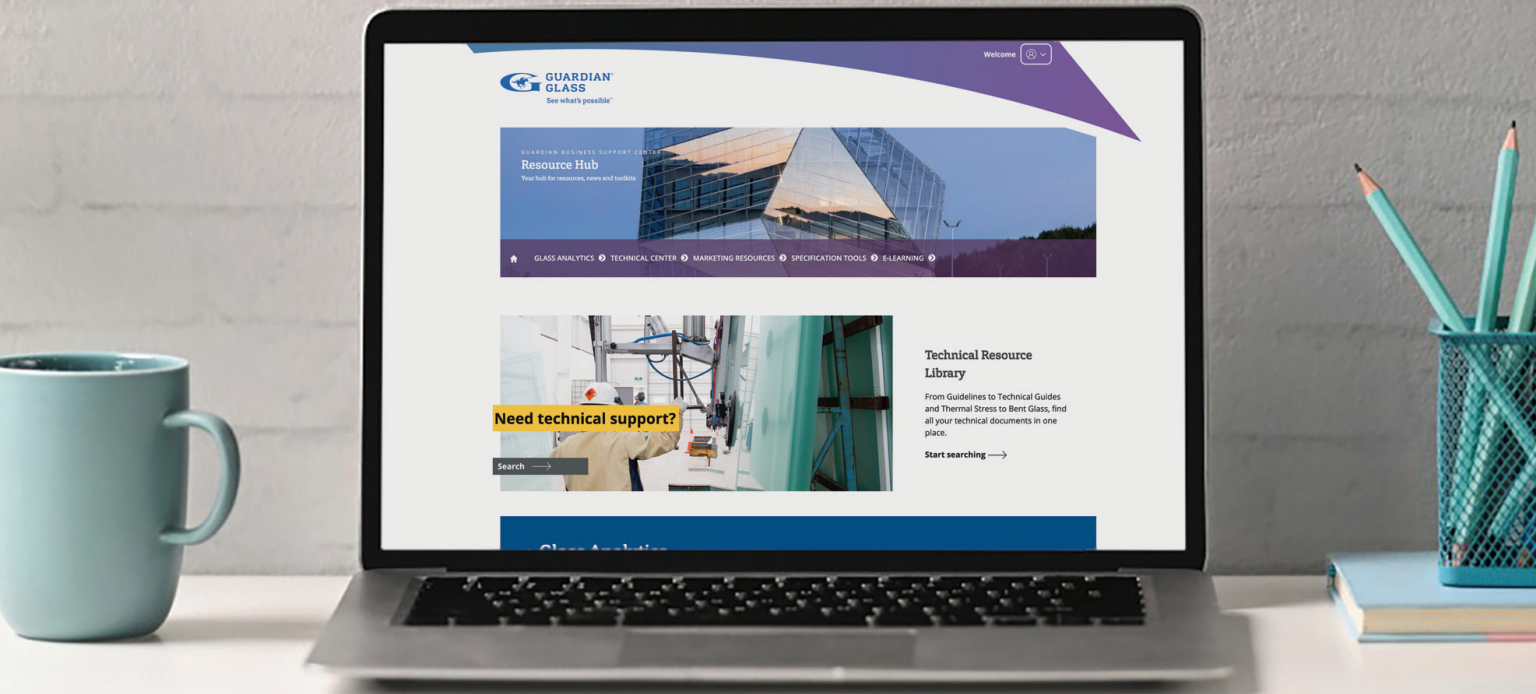
Located in a region with hurricanes and tropical storms, the team went beyond code requirements, says Steve Schohan, marketing and communications director, YKK AP. Multiple YKK AP impact-resistant and blast-

mitigating systems were used throughout the space to achieve the protection and resilience standards required. The facilities are rated to withstand a Category 5 hurricane and severe flooding, while remaining functional even through power and water disruptions.

Beyond protection, the building design also connects with, and reflects, the surrounding Florida landscape. Expansive windows at the hospital entrance offer clear views of the park square, and

handcrafted materials like terracotta, wood, bronze and terrazzo are utilized throughout the building to promote comfort and healing.

The building's design also incorporates sustainable features, with consideration for building orientation, selection of glass, and stormwater-recovery for irrigation and a cooling tower water.



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GLASS MAGAZINE AWARDS





Winning Team

Glass fabricator
 Agnora
 Glazing contractor
 Flynn Canada / Vitreco
 Glass manufacturers
 Saint-Gobain North America; Pilkington North America
 Interlayer supplier
 Kuraray
 Window manufacturer
 Vitreco
 Window installer
 Flynn Canada
 Architect
 ProvencherRoy
 Consultant
 Arup / Elema / Bethanie Cloutier
 Structural engineering services
 Elema

BEST JUMBO GLASS

Port of Montréal Tower

NOMINATING COMPANY

AGNORA

LOCATION

PORT OF MONTRÉAL, QUÉBEC, CANADA

The Port of Montréal Tower makes spectacular use of jumbo glass for the best reason: panoramic views. The all-glass tower and cultural center allows visitors to see 360-degree views of surrounding Montréal and the St. Lawrence River in Québec, Canada. In all, fabricator Agnora supplied over 400,000 square feet of glass for the exterior, all jumbo in size.

At the top of the over 200-foot tower is a visitor space, an all-glass room where visitors can sightsee. The glass “box” provided an opportunity for innovation for project players and Agnora. Unlike traditional walkable glass structures that cantilever over the edge of a building, L’Experience is entirely glass and has no metal supports.

The four-ply floor also differs from traditional glass floors in that systems were insulating glass units, not laminated glass. Part of this was due to the climate—depending on the environment in which they are installed, laminated floors that are not IGUs can risk condensation and even freezing surfaces, says Agnora’s Adam Mitchell, marketing manager.

“The design and engineering to create the cantilevered façade is impressive,” says Glass Magazine Awards judge Alan Kinder, director commercial segment, Guardian Glass. “Even more impressive is the entire glass structure is self-supporting, highlighting that glass is an amazingly strong building material with a light and open aesthetic.”

The jumbo structures on the tower are comprised of an outboard lite of Saint-Gobain’s Cool-lite XTREME 70/33 on Diamant, with NSG Pilkington’s heat-strengthened Optiwhite on the interior to match the low-iron qualities of the diamond, says Mitchell. The configuration provided an optimal blend of visible light, a low solar heat gain, and a winter U-value of 0.24, he says.



Winning Team

Contract glazier
Alphacladding LLC
Glass fabricator
Tecnoglass Inc.
Metal system manufacturer
ES
Aluminum panels
Yarlmetals Fabrications Inc.
Architect
Arquitectonica
Testing Laboratory
QAI Laboratories Inc.

“A very successful outcome of achieving the design intent while meeting the demands of south Florida’s impact and wind load criteria,” says Glass Magazine Awards judge John R. Stephenson, senior architect, BRPH.

The complexity of the project required close collaboration with the multi-disciplinary team, say Alphacladding officials, including the construction manager, architect and systems manufacturers. “It was necessary to establish design-assist as a tool to minimize problems during the shop drawings, the assembly stage of the units and the installation on-site,” say company officials. “At the same time, [we had to] guarantee on-time delivery of the products to the jobsite thanks to the committed participation, collaboration and coordination of all parties. ... The result is a unique façade that combines creativity, efficiency and the use of technology where we managed to achieve the desired appearance of this building, keeping intact the dream of the architect and the owners for the enjoyment of the entire [Overtown] community.”

As a special aside, one of the team’s scopes was to reglaze systems around vertical fins on the building. The fins hold LED lights that illuminate at night when wishes are granted.

BEST PROJECT TEAM

Make-A-Wish Foundation

NOMINATING COMPANY
ALPHACLADDING LLC

LOCATION
OVERTOWN, FLORIDA

It seems fitting that the winning project for this year’s Best Project Team award, which celebrates teamwork and collaboration, should be the new headquarters for the Make-A-Wish Foundation, a nonprofit that works toward the benevolent goal of fulfilling the wishes of critically ill children.

Glazing contractor Alphacladding helped deliver a complex and unique façade to the new headquarters, located near downtown Miami in Overtown, Florida. The team worked to design three different curtain wall systems, some of which involved complex trapezoidal geometry and jumbo glass sizes.

BEST INTERIOR
DECORATIVE GLASS

Louis Vuitton Store

NOMINATING COMPANY

PULP STUDIO

LOCATION

ATLANTA, GEORGIA



Winning Team

Glass fabrication

Pulp Studio

Glass installation, metal
fabrication

Blue Water

The stylish new storefront of Louis Vuitton's store in Lenox Square Mall in Atlanta, Georgia, pays tribute to the brand's history while upholding its legacy of elegance and luxury.

Glass fabricator Pulp Studio worked to represent the brand's heritage as a malletier, or maker of trunks and luggage, by sculpting an innovative glass façade with an Epi pattern, which appears like the texture of leather. The storefront was meticulously constructed of two thick blocks of backlit glass with a custom inner layer and laminated, says Kirk Johnson, chief operating officer, Pulp Studio. The glass itself is embedded with stainless steel.

"Artistic craftsmanship and attention to detail make this glass installation a work of art," says Glass Magazine Awards judge Alan Kinder, director commercial segment, Guardian Glass.

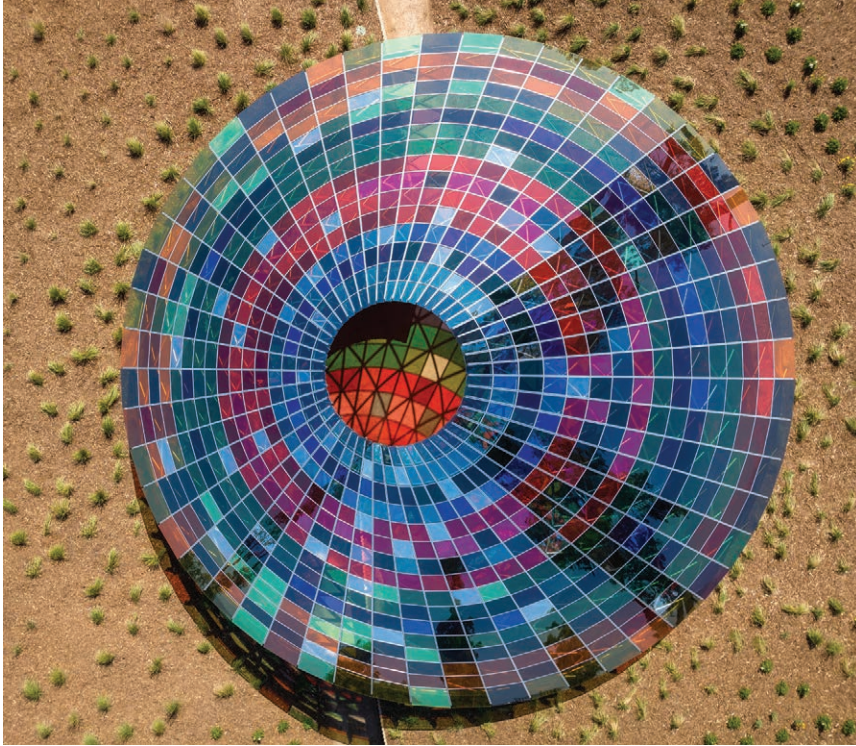
The vertical support panel for the system consisted of $\frac{3}{16}$ -inch low iron over $\frac{1}{16}$ -inch low iron, utilizing Eastman Structural PVB interlayer. The system also includes custom CNC-milled 19-millimeter low-iron glass consisting of 2.3-inch-wide narrow strips with profile-milled edges, scallops and high luster polishing.

Each strip was separated with custom machined and bright polished $\frac{1}{8}$ -inch stainless steel bars on each edge, which

matches the profile of the scalloped glass. The scalloped strips and polished stainless steel were then laminated to the vertical support panel for a horizontal profiled glass and stainless steel appearance.

"The Louis Vuitton storefront by Pulp Studio uses glass in the most detailed and intricate fashion," says Glass Magazine Awards judge Austin Zajichek, marketing manager, Linetec. "The texture, use of material embedded in the glass and purposeful reference to handbag design is what makes this project stand out."





**BEST EXTERIOR
DECORATIVE GLASS**

Vertical Panorama Pavilion

NOMINATING COMPANY
EASTMAN CHEMICAL CO.

LOCATION
SONOMA, CALIFORNIA

Visitors to the Donum Estate in Sonoma, California, can enjoy wine tasting under the rainbow-colored glass canopy of the outdoor Vertical Panorama Pavilion. Each of the canopy's 24 transparent hues represents "a variable influencing wine production, making the pavilion a representation of everything happening on the site," say company officials.

"The Vertical Panorama Pavilion showcases the power glass has to transform an environment," says Glass Magazine Awards judge Kayla Natividad, architectural technical services engineer, NSG Pilkington.

Though decorative, the canopy's outdoor location means it also had to withstand the elements. The pavilion's 832 glass panels are laminated with Eastman's Vanceva color PVB interlayers, and have an additional solar coating on the inside for solar protection and durability. The design considered regional climate conditions, and a scale model was built and tested in a wind tunnel to optimize the cooling effect of

Winning Team

Interlayer supplier
Eastman Chemical Co.
Canopy fabrication and
installation
Hahner Technik
Glass fabricator
König Glasbau
Designer
Studio Other Spaces – Olafur
Eliasson and Sebastian
Behmann
Consulting architect
Signum Architecture
Engineering
ART Engineering; Summit
Engineering [consultant]
Photo credit
Adam Potts

the prevailing southwesterly wind.

To ensure a seamless interface between the glass panels and the steel framing, the team turned to Grasshopper software to optimize the design of the steel and glass structure, which was fabricated and installed by Hahner Technik.

"It's a brilliant use of color and design, creating a truly unique space in an exterior setting," says Glass Magazine Awards judge Brian J. Tobias, marketing manager, Tubelite.



BEST GREEN PROJECT

Keneda Building for Innovative Sustainable Design

NOMINATING COMPANY
KAWNEER CO.

LOCATION
KENEDA, GEORGIA



This year's winning project for Best Green Category embodies the spirit of the award by its aspirational achievements. The Keneda Building for Innovative Sustainable Design at the Georgia Institute of Technology was created to set the sustainable standard for buildings in the surrounding area, and became Georgia's first building to receive the Living Building Challenge certification.

The project team took a comprehensive, holistic approach to sustainability, considering embodied energy, operational performance and occupant well-being

in constructing this new building.

Kawneer contributed several of its thermal and ultra-thermal building products to the project, including its AA 250 thermal entrances, thermal windows, as well as its Versoleil sunshades. All products used have environmental product declarations, underscoring material transparency. In addition to receiving Living Building Challenge certification, the new structure is LEED Platinum certified.

Beyond sustainability, Kawneer's products helped maintain an ideal inte-

rior temperature, allowing "students to work productively and de-stress, as well as minimize the distraction of outside noise," according to a company representative.

"The Keneda building is remarkable in the scope of its environmental achievement. The integration of solar, mass timber and materials selected for their environmental footprint sets a high bar, including the Living Building Challenge certification," says Glass Magazine Awards judge John R. Stephenson, senior architect, BRPH.



Winning Team

Glazing contractor
Crown Corr Inc.
Architectural aluminum systems manufacturer
Kawneer Co.
Architects
Lord Aeck Sargent; The Miller Hull Partnership
Photo credit
Jonathan Hillyer

THE JUDGES

The project awards are only possible with the expertise of our judges, who come from every part of the glass industry. The Glass Magazine editorial team again thanks them for taking the time to share their insights with us.



SARA BARCHAK
Marketing Communications
Manager, EFCO Corp.



EMILY LOSEGO
Director of Innovation, Vitro
Architectural Glass



STEPHEN SELKOWITZ
Building Technology and
Urban Systems Division,
Lawrence Berkeley National
Laboratory



TARA BRUMMET
Chief of Staff, Vitrum Glass,
Apex Aluminum & Lorval
Developments



KAYLA NATIVIDAD
Architectural Technical
Services Engineer, NSG
Pilkington



SYNDI SIM
Director of Sales and Business
Development, Q-railing



PETER DE GORTER
Vice President, DeGorter Inc.



TOM O'MALLEY
Founding Partner and Director
of Sales, Clover Architectural
Products



JOHN R. STEPHENSON
Senior Architect, BRPH



ALICE DICKERSON
Founder and Managing
Director, Division 08 Marketing



DIANA SAN DIEGO
Vice President of Marketing,
Safti First



BRIAN TOBIAS
Marketing Manager, Tubelite



JENNIFER HIGHFIELD
Architectural Design
Associate, Viracon



JULIA SCHIMMELPENNINGH
Global Applications Manager,
Eastman Chemical Co.



AUSTIN ZAJICHEK
Marketing Manager, Linetec



ALAN KINDER
Director Commercial
Segment, Guardian Glass



NATHAN SEAMAN
National Sales Manager, AGS
Shades



THE PRODUCTS

R&D AWARD

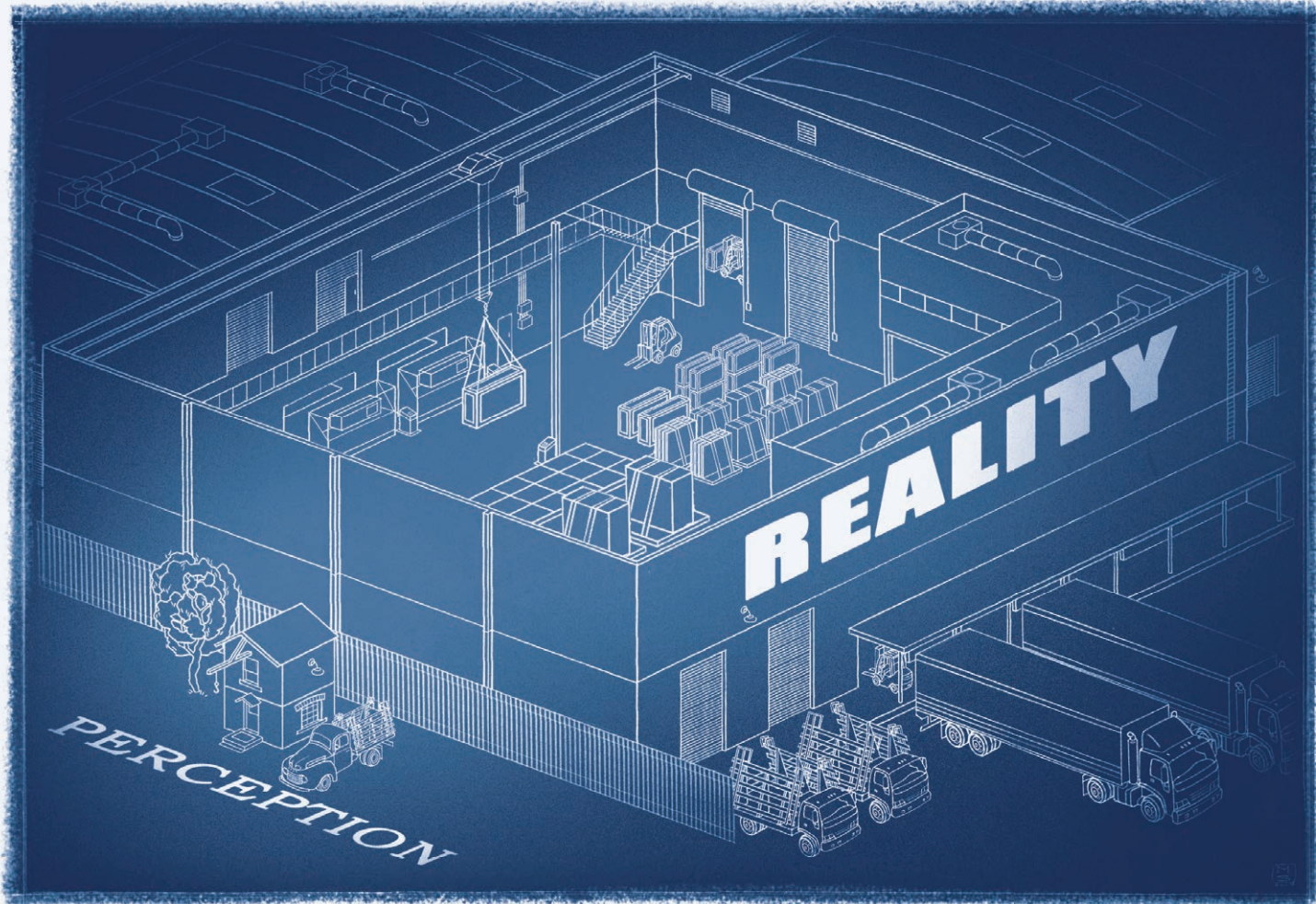
Concealed Interior-Clamped Cable Tension System

BY W&W GLASS LLC

The Concealed Interior-Clamped Cable Tension System by W&W Glass was custom-designed to meet the challenge of an all-glass lobby wall at Two Manhattan West, a glass-clad office tower that is part of the Manhattan West development. Two Manhattan West's design team wanted a unique look for the lobby, without having any exterior patch clamp or fittings holding the glass in place.

W&W's team worked to develop the system with engineer Eckersley O'Callaghan, says Christopher Lalonde, architectural sales. With this design-assist process, the team worked through challenges related to building movements, complex interfaces with perimeter conditions and finite element analysis of profiles. The team collaborated on the engineering, details, coordination with door and perimeter conditions, system profiles/elements, visual and performance mock-ups, quality assurance protocols, and installation procedures.

The system utilized low-iron, multi-ply laminated glass, dead loaded to hidden dead load shelves and wind load clamps connected to a profile shop-bonded to the back of the face glass to secure it to the cables. From the interior, the cable and clamp connections were concealed in a thin stainless-steel shroud to fully conceal all connections for the 50-foot-tall walls.



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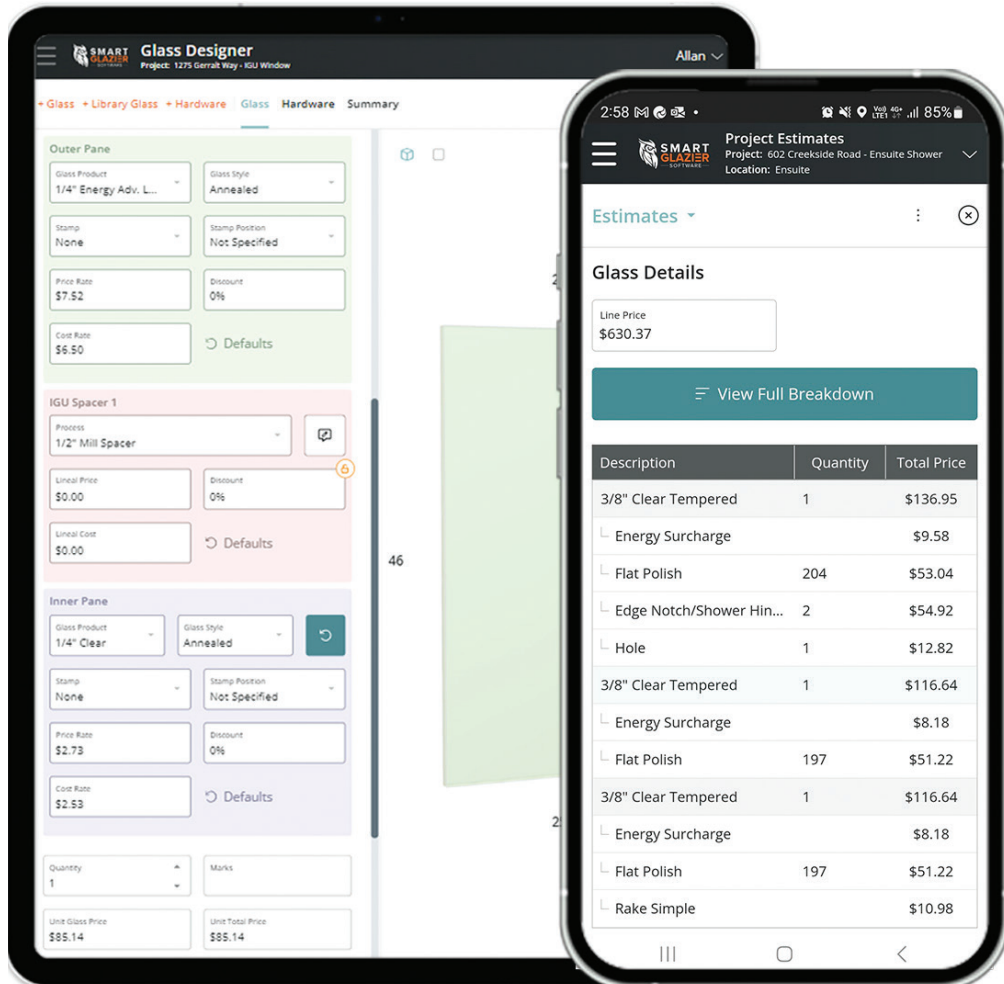
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BEST INNOVATION FOR THE FACTORY

Smart Glazier Connect

BY SMART GLAZIER SOFTWARE

Smart Glazier Software staff identified a critical need—a digital solution to streamline the glazier-to-fabricator ordering process. “This solution had to be a win-win. It needed to be user-friendly and readily available for glaziers, while also empowering fabricators to offer it to their clients,” says Sam Frankland, sales and marketing manager.

Smart Glazier Connect is an online e-commerce platform designed for fabricators to provide glaziers with electronic design, quoting and ordering capabilities. Glaziers can log in and design and order flat glass products—IG units, mirrors, tabletops, showers, etc.—directly from the fabricator through a personalized, user-friendly interface, eliminating the need for hand-drawn orders or complex CAD software, says Frankland. SGC integrates with major industry software and generates fabrication-ready outputs, including DXF files for cutting tables and CNC machines.

The SGC e-commerce platform saves both the fabricator and the glazier time by eliminating manual data entry and the back-and-forth with the quoting team. It also aims to reduce errors and streamline the workflow between glaziers and glass fabricators, says Frankland. This streamlining, along with centralized order information in one place, empowers leaner teams to manage workloads more effectively, even amidst potential staff shortages.

SMART GLAZIER CONNECT



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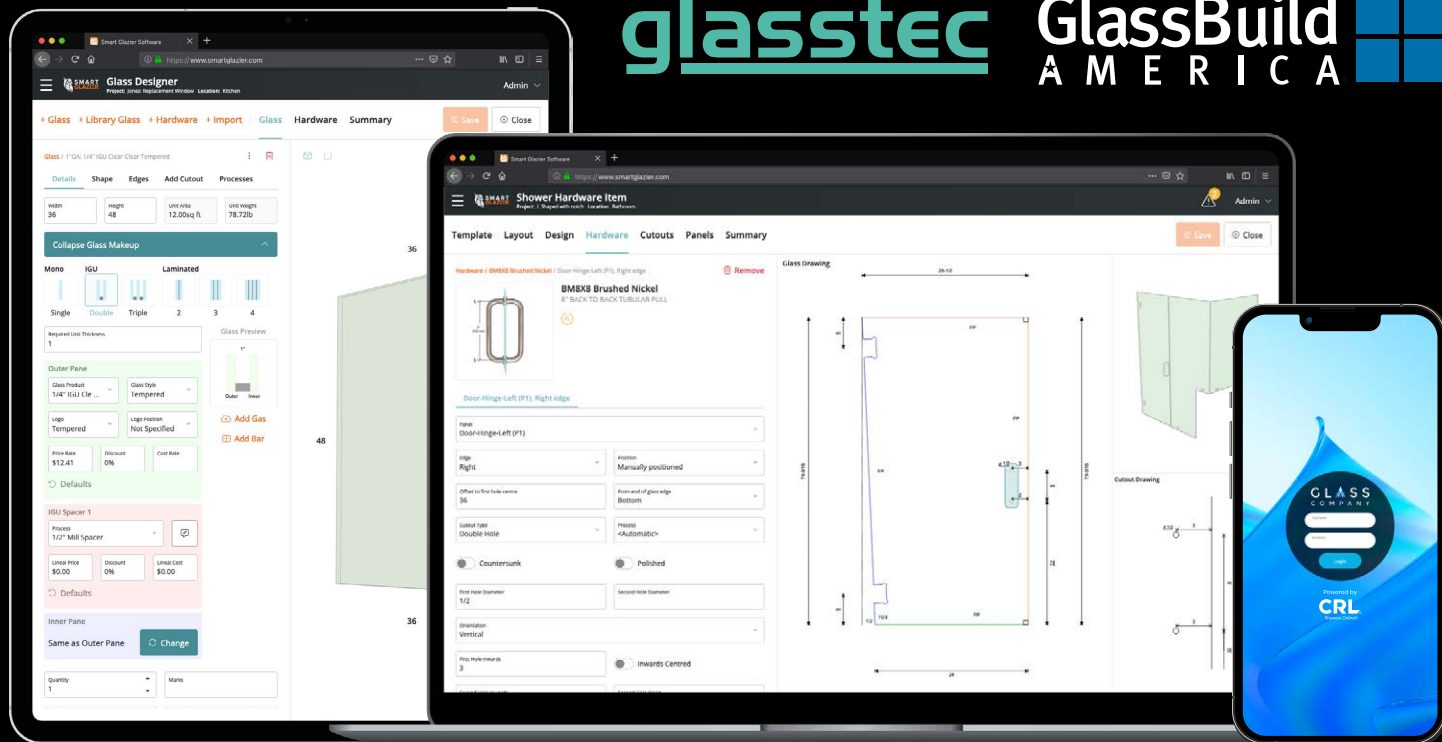
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Photo credit: ABC Aluminum Solutions

BEST INNOVATION FOR
INSTALLERS

FHC G52 Series Glass Door Systems

BY FHC FRAMELESS HARDWARE CO.

When Frameless Hardware Co. staff looked at market research to identify customer needs, they found a potential gap in the market for larger, energy-efficient openings that provide unobstructed views and natural light. This gap pushed the team to develop the G52 Series Heavy-Duty Thermally Broken Bottom-Rolling Bi-Folding Glass Door Systems.

The G52 Series has thermally broken profiles for energy efficiency and various configurations to suit architectural designs. Systems allow for taller—up to 10 feet—unobtrusive openings so views and the great outdoors can be enjoyed. In the closed position, the G52 Series provides a weathertight seal and resis-

tance to the ever-changing conditions, allowing natural light inside. All while offering energy-efficient sash panels because of its new, built-in thermal strut technology.

The system can be customized to different architectural styles, including inward or outward stacking and anywhere between three and six panels, and also comes with a two-point locking system for security.

kuraray

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Le Visionnaire - Espace François Dalle Image
© Florence Joubert

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BEST HARDWARE PRODUCT OR
SYSTEM: COMMERCIAL

Fallbrook XL NY

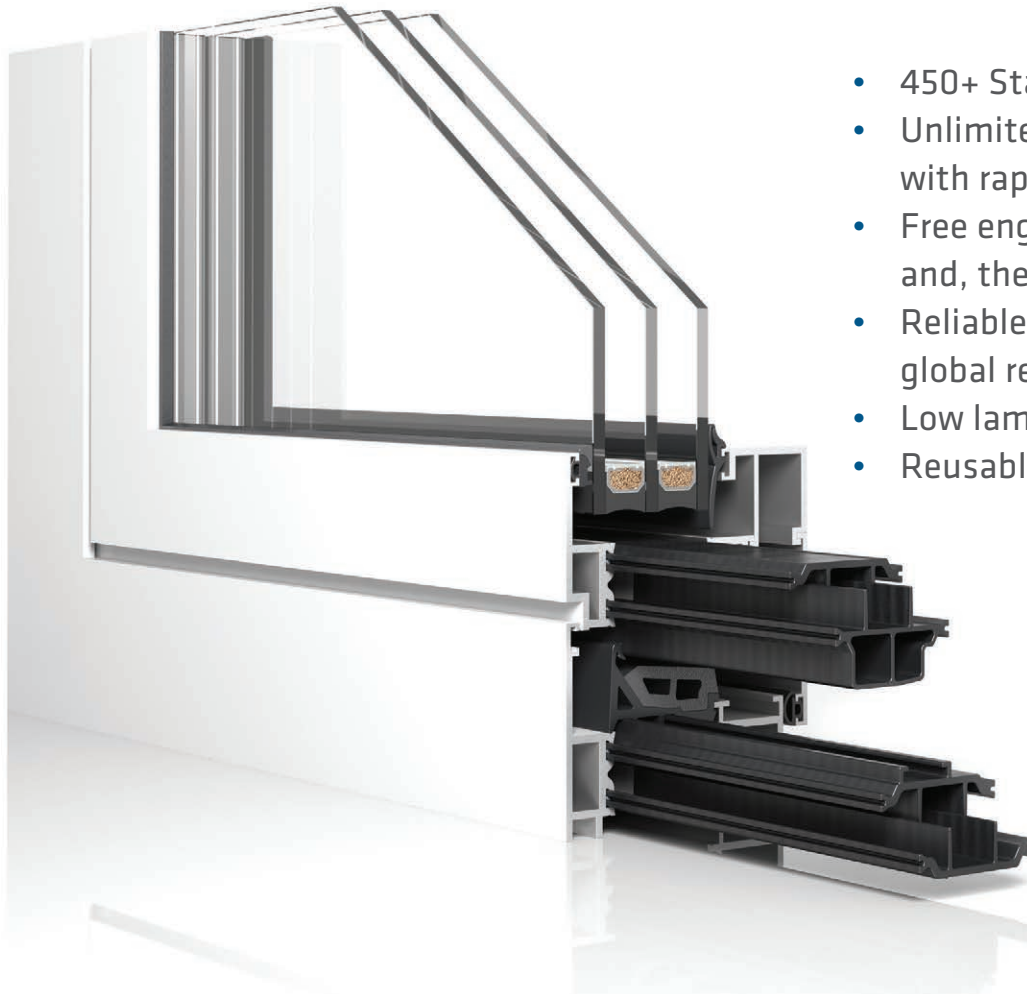
BY C.R. LAURENCE

The combination of design and performance is highly desired in today's office environments by designers, employees, and businesses as well, says Mark Suehiro, Technical Director of Architectural Hardware. The need for aesthetics, as well as sound-suppressing acoustic qualities, is what drove the company to develop Fallbrook XL NY glass partitions, which offer sound mitigation while also sporting a highly versatile muntin grid system. "Expectations for areas of privacy have dramatically risen as employees became accustomed to higher levels of privacy during extended periods of remote work during the pandemic," says Suehiro.

Featuring 1-inch insulating glass panels, the system provides sound attenuation for enhanced privacy in applications such as government buildings, law firms, executive offices, human resource departments, and conference rooms. This on-trend glass partition system is being used to create open and transparent work environments that allow natural light to permeate into office interiors, says Suehiro. The Fallbrook XL NY partition system is flexible enough for use as area dividers as well as movable wall systems to easily open up a floor plan to meet today's workspace needs.

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SYSTEM:
RESIDENTIAL

Pivot Door

BY ES

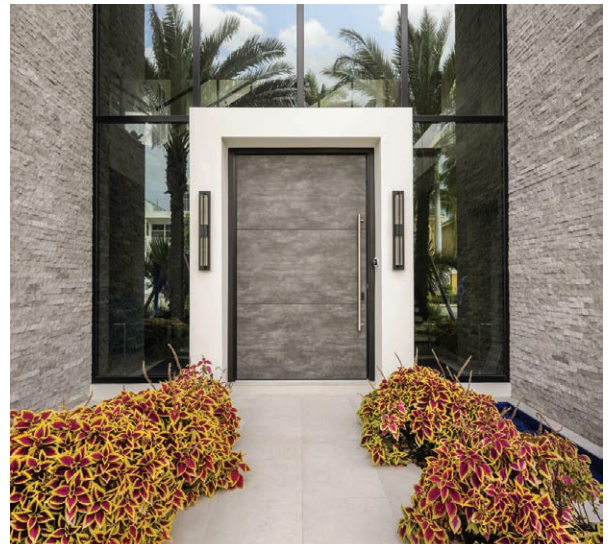
ES pivot doors combine impact resistance with thermal efficiency, offering both style and functionality. Designed to be sleek, with customizable finishes, it aims for a luxurious aesthetic.

ES officials developed the door in response to customer demands for products featuring energy efficiency, noise reduction, insulation, enhanced security, durability and flexibility, all while maintaining a sophisticated design.

The door's hardware includes damper control for soft closing to prevent slamming and to protect walls. To offer flexibility and airflow management, the pivot door can hold positions at 0 degrees, 90 degrees and -90 degrees. An optional modular multi-point

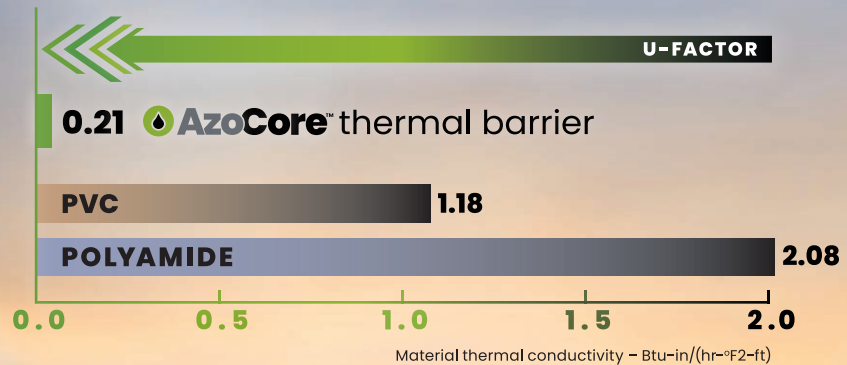
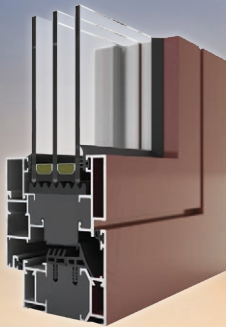
lock with electric capabilities allows for advanced security and smart home system integration, say officials. Multifunction die-cast aluminum corner joints enhance structural integrity, and a self-closing pivot hinge adds to convenience and safety.

The door includes an automatic drop-down seal for thermal efficiency and soundproofing, and to address gaps, ensures the door is weathertight.



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Project: Aquatic V, Berkeley, CA
Product: Quaker C-Series Windows

Photo by Greystar™



BEST GLASS OR GLASS COMPONENT

SunGuard SNX 70+ Coated Glass

BY GUARDIAN GLASS

SunGuard SNX 70+ Coated Glass was developed by Guardian Glass to help meet today's requirements for improved energy performance, while still achieving an aesthetic that is transparent and neutral. This triple-silver, low-emissivity coating is designed to help deliver a consistent neutral reflected color whether the glass is viewed directly or at an angle, says Suresh Devisetti, director of product management.

The SunGuard SNX 70+ has a visible light transmission of 68% and a solar heat gain coefficient of 0.28 on Guardian UltraClear low-iron glass. The resulting 2.45 light-to-solar gain ratio is the highest in Guardian's North American SunGuard portfolio. Paired with a 0.28 U-value, this glass can help buildings achieve their energy performance goals, says Devisetti.

With a color rendering index of 95, this product transmits true-to-life light and color so that views become vivid, and interiors and exteriors are connected. SunGuard SNX 70+ Coated Glass meets architects' requests for a more uniform appearance to the exterior façade while still delivering high solar and thermal performance to meet today's stringent energy requirements, say officials.

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BEST FRAMING SYSTEM OR COMPONENT

insulbar — Polyamide Pressure Plate

BY ENSINGER INC.

As building and façade performance requirements continue to improve, alongside customer demands and other environmental factors, system designers face additional challenges to meet these more stringent standards. A simple and effective solution is to utilize a higher-performing material for the pressure plate, says Kurt Miglas, sales and marketing manager, insulbar, whose company developed a new polyamide pressure plate.

Curtain wall systems inherently have a reasonable design performance, says Miglas, due to the thermal separation between interior and exterior components and the compression gasket nature of their construction.

An often-overlooked element in curtain wall design is the external pressure plate; when constructed from aluminum, the plate can create convection within the internal cavity transmitting cold or heat from exterior to interior surfaces, explains Miglas. This convection decreases overall system efficiency and impacts product U-values.

Insulbar's polyamide pressure plate features hollow chamber design, reduces the occurrence of convection, and thermal transfer, contributing to a higher-performing system overall, as well as increasing occupant comfort levels and condensation resistance, says Miglas. ■

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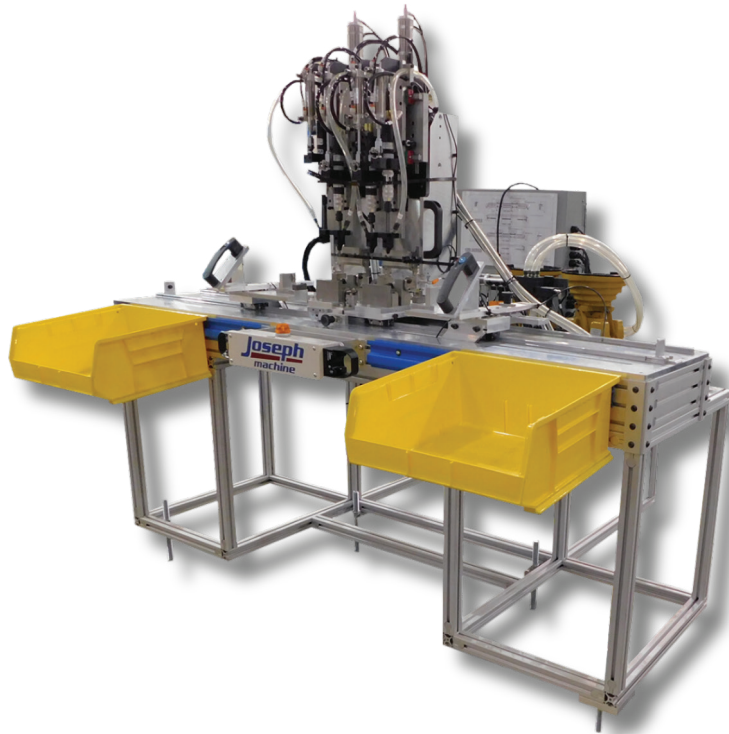


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01. Bird-friendly glass

Bendheim's entire channel glass line is now certified as Bird-Smart by the American Bird Conservancy. Architects and designers can now choose from various surface textures, hundreds of colors, thermal performance coatings, insulation inserts and frame systems. Channel glass can be manufactured in lengths up to 23 feet tall and installed in openings spanning hundreds of feet. Bendheim's channel glass façade systems diffuse light and minimize glare while offering thermal performance with a U-value range of 0.49 to 0.19. 800/221-7379 | BENDHEIM.COM

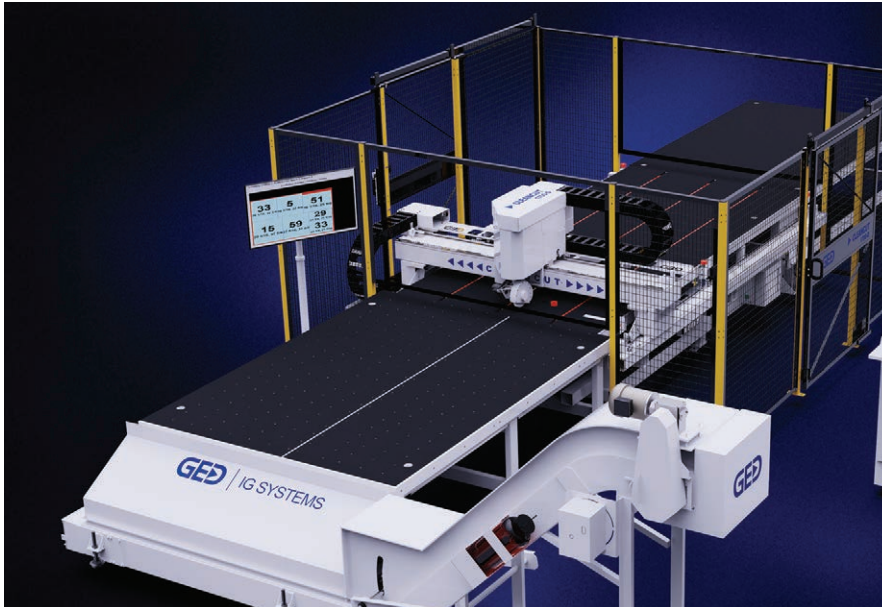
02. Flood barrier glazing system

Crawford-Tracey Corp.'s Pro-Tech Flood Barrier system includes the Pro-Tech 7SG FB and Pro-Tech 9SG FB, which meet the increasing demand for property protection and evolving building code requirements. It is a unitized structurally glazed curtain wall and storefront system with a water-resistant rating of 100 pounds per square foot, and has been tested and approved by FM Approvals per the ANSI/FM 2510 testing standard as a flood-rated passive glazing system for opening barrier applications. 954/698-6888 | CRAWFORDTRACEY.COM

03. Wall system

WoodnLite Doors and Sidelites' new Frameless Wood and Glass Wall WG275 is a demountable wood and glass wall system designed to elevate commercial spaces. The WG275 system combines the warmth of wood with the sleekness of glass, offering a versatile solution for modern interior design challenges, say company officials. It is also customizable to meet customers' specific design requirements, from wood finishes to glass types and configurations. 818/768-6424 | WOODNLITE.COM

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GED Integrated Solutions offers the CleanCut family, including the rapid CleanCut 1800 Series and the CleanCut 1700 Series cutting tables. Both cutting tables combine patented technologies in hardware and software. The CleanCut 1800 Series, like the 1700 Series, includes a cutting-only model and an edge deletion and cutting model. Both models include enhanced speed, updated technical features, and increased throughput while maintaining the options manufacturers want when selecting a glass-processing system.

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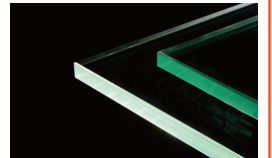


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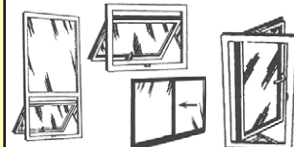
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DEEP LEARNING: AI IN FLAT GLASS MACHINE TECHNOLOGY

BY MARC EVERLING

As digitalization and automation progress, the integration of artificial intelligence is an important step for the flat glass industry to optimize processes, reduce energy consumption and CO₂ emissions, and increase international competitiveness. When analyzing errors in manufacturing processes, using AI and deep learning technologies makes for rapid and precise analysis and interpretation of increasingly complex, extensive datasets. The objective: fewer defects and less downtime, producing the same product in less time while using less energy and resources.

The theme “AI in machine technology” is also an important topic at glasstec 2024, the leading trade fair for not only glass producers but also for the machine manufacturers involved. The following are key takeaways about the use of AI in the industry, based on interviews with leaders from VDMA’s Glass Technology Forum and glasstec exhibitors.

Systems that learn and adapt

AI denotes the ability of a machine or



system to perform tasks that would require human intelligence, such as learning and problem solving, language recognition and reproduction, image recognition, and possibly “intuition” from experience. “It is the adaptability of machinery and equipment builders that drives innovations and allows our industry to remain competitive,” says Gesine Bergmann, head of the VDMA Glass Technology Forum.

New levels of optimization

“The industry and modern factories are already very advanced, and the

efficiency of glass production and the resulting glass quality using conventional means have almost reached the limits of optimization,” says Peter Seidl, head of product management at machinery producer Grenzebach. AI provides companies with new avenues for adding efficiency along production lines.

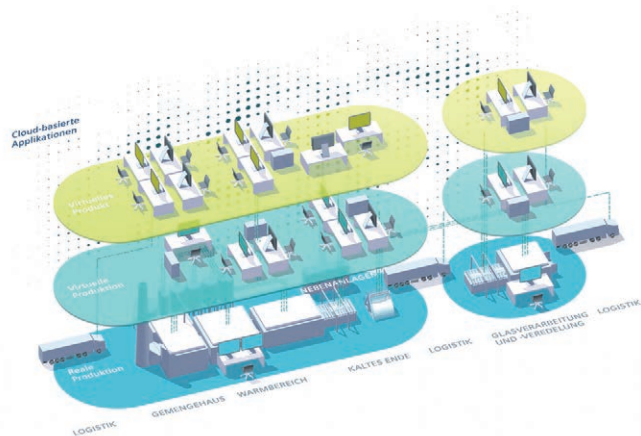
Florian Sterzing, R&D team leader of data analytics, ISRA Surface Vision, adds, “Initially, these systems learn by given data and then also from each experience acquired. Specialized decision-making AIs can be trained for every application, every production area that generates data. This helps to cut maintenance times, avoid downtimes and, hence, also reduce CO₂ emissions: the same product, made in less time with less resources and energy used.”

Predictive analysis

AI systems can be trained to provide predictive analysis and even decision making. “The most important and most heatedly disputed development area currently is predictive analytics, where AI-assisted systems analyze historical trends, identify patterns and anticipate bottlenecks and inefficiencies, thereby prompting continuous process improvements,” says Sterzing.

Ethical implications of disruptive technologies

Every disruptive technology comes with ethical implications: railways, automobiles, the Internet, mobile communication—wherever new technologies emerge there is always also uncertainty as to whether familiar structures will fall by the wayside. It therefore seems essential that AI systems are developed and used in a fair, transparent and ethically responsible manner while also gauging the implications for the world of work at an early stage, with a view to reshaping it with farsightedness and care in the interest of man. ■



Graphic from Siemens AG demonstrates how digitalization promotes production of glass with transparency at every level.

Marc Everling is head of Marc Everling Sustainable Communications.



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