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THE GLASS AND GLAZING AUTHORITY

JANUARY/FEBRUARY 2020
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WORLD OF GLASS

A NEW DECADE OF INNOVATION AND CHANGE

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IN THE YEAR
AHEAD, WHAT
POTENTIAL
THREATS SHOULD
GLASS COMPANIES
WATCH FOR
AS THEY MAKE
INVESTMENT AND
HIRING DECISIONS,
BID PROJECTS AND
MORE?

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THE NEW GLASSMAGAZINE.COM, LAUNCHED IN JANUARY, FEATURES:

- A wealth of content tailored to the commercial glass and glazing audience
- Improved site navigation and readability
- Robust search functionality
- User-friendly layout and design
- Direct access to other Glass Magazine platforms and partners
- New placement and layout for Products

BONUS ISSUE CONTENT

On the new site, easily find more content related to this issue, including:

WORLD OF GLASS UPDATE

Our relaunch of WorldofGlassMap.com, standout projects and current float data

CODE REPORT

A downloadable report on the latest code updates

FORECAST NEED-TO-KNOW

2020 economic projections in a quick-read format

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By Diana San Diego, Safti First



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GLASS MAGAZINE

Published by the

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Glass Magazine® (ISSN 0747-4261), Volume 70, Number 1, is published monthly, except for a combined January/February issue, by the National Glass Association, 1945 Old Gallows Road, Suite 750, Vienna, VA 22182; 703/442-4890. There is no charge for subscription to qualified requestors in the United States. All other subscriptions will be charged \$49.95 in the U.S., and \$79.95 outside the U.S. Periodicals postage paid at Vienna, Va., and other mailing offices. POSTMASTER: Send changes of address to GlassMagazine®, Subscriptions, Box 460, Congers, NY 10920. Canada Post: Publications Mail Agreement #40612608. Canada Returns to be sent to Bleuchip International, P.O. Box 25542, London, ON N6C 6B2. For all subscription inquiries, please call 1-800-765-7514. ©2020 National Glass Association. All Rights Reserved. Printed in the U.S.A.

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A New Year, a New GlassMagazine.com



KATY DEVLIN
Editor-In-Chief
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Glass Magazine is ringing in the New Year with a relaunch of our website, GlassMagazine.com. The new website offers essential glass industry content and news in a more organized, accessible and mobile-friendly format. It is designed to better connect readers with the information they need to meet customer demands, address leading challenges, keep up with trends and run more profitable glass businesses.

2020 holds uncertainties, challenges and opportunities, as seen in the pages of this Industry Forecast issue. The new GlassMagazine.com will help us better connect readers with information to help them succeed in the new year.

“This is the first major change to the website in a little over 10 years,” says Bethany Stough, senior manager, digital media, for Glass Magazine’s publisher, the National Glass Association. “In 10 years, our industry, our readers, the NGA and the magazine have all changed, and the new website both reflects those changes and is designed to keep pace with further change in the future.”

Many of the changes to the site reflect the evolution in reader habits during the previous decade. “A website is no longer an additional vehicle for content sharing; it is a unique content sharing platform—one that is approached and read very differently from print—and for some readers, is the primary source for content,” says Stough. “To that end, the new website design and functionality makes it easier for staff to curate content for the web and makes it easier for users to find and consume content. At the same time, the website seeks to showcase content in a web-friendly format—using communicative headlines, pithy blurbs, multimedia—all in an appealing design that is accessible and mobile-friendly.”

A major site development is a complete reorganization around content topics. “We have found that our readers search the site for specific topics and want content published on that topic available without much digging. The new site does that by including an ‘All Topics’ navigation tab as well as a more robust search functionality.”

Additionally:

- Readers can expect direct access to the digital version of the magazine, right within the site. And, there is a clearer connection to our newsletter, social media, and ways to engage with and contribute to the magazine.
- A sidebar has been added to connect readers to related content for further reading.
- Product announcements have a prominent place on the site. Users can filter products by name, type or publication date, and find related product information easily.

“

2020 HOLDS UNCERTAINTIES,
CHALLENGES AND
OPPORTUNITIES. ... THE NEW
GLASSMAGAZINE.COM WILL
HELP US BETTER CONNECT
READERS WITH INFORMATION
TO HELP THEM SUCCEED IN THE
NEW YEAR.

”

Glass Magazine’s new digital platform also presents additional content and resources for readers. “We can include beautiful photo galleries, educational videos, resource toolkits, digital product guides,” says Stough. The site is also connected to the NGA family of sites, including glass.org, glassbuild.com and windowanddoor.com. “This means that no matter what site you’re on, you have the latest relevant information from NGA, from GlassBuild America and from our sister publication. Engaging with the NGA and benefiting from its resources has never been easier.” ■

WOW Factor



AISD Performing Arts Center, Austin, TX — Owner: Austin Independent School District — Architect: Pfluger Architects
General contractor: American Constructors — Installing contractor: Texas Roofing Co. — Photographer: Tom Coplen
Profiles: Flush Panels, M-42 Panel — Colors: Burgundy, Colonial Red, Terra Cotta, Galvalume

“We thought the metal would give us the ‘wow’ factor from a distance. We first considered using just a single color but the consensus was that we needed something that stood out even more. That’s why we went with the nice three-color combination.”

—Jessica Molter, AIA, LEED AP BD+C, Principal, Pfluger Architects



FLUSH
WALL PANEL
Burgundy



FLUSH
WALL PANEL
Colonial Red



FLUSH
WALL PANEL
Terra Cotta

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The GL1200 This model is capable of working with a payload 1200 pounds at a height of 13 feet. It falls between the GM800 and the GM2000-12 in capacity, and is very heavy duty.

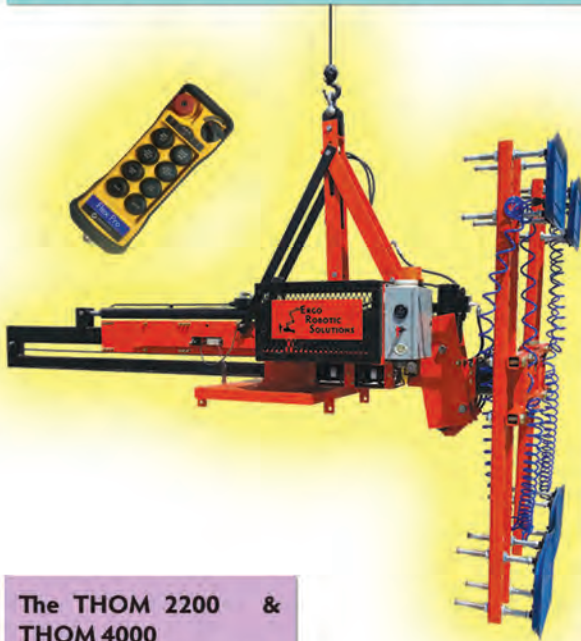
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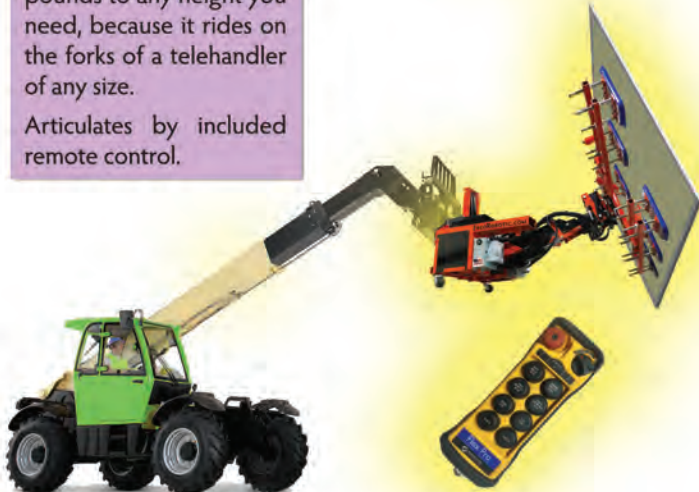


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YOUR ASSOCIATION AT WORK

NEED-TO-KNOW INFORMATION FROM THE NGA

ABROAD AND AT HOME, ADVOCATING FOR GLASS IS IN FULL SWING

The National Glass Association recently participated in the International Standards Organization TC 160 Glass in Building standard development meetings in Sydney, Australia. ISO is an independent organization that develops voluntary, consensus-based standards for nearly every industry, including architectural glass. Working Groups met to revise standards topics including active and dynamic glazing, vacuum glass, building integrated photovoltaics, glass block and pavers, toughened glass and design strength of glazing. “As the sole association representative advocating for the glass and glazing industry at ISO, NGA has a responsibility to champion the benefits of glazing and glass building products,” says Urmilla Jokhu-Sowell, NGA’s director of technical services and advocacy who attended the ISO event. “This latest round of meetings is part of that effort.”

Advocacy Committee

In addition, the NGA Advocacy Committee is developing a “Strike Team” to become equipped to advocate for glass and glazing at the legislative and regulatory levels. This team, supported by NGA’s code consultants, will seek to educate legislators and building code officials on specific issues affecting communities. ■

INTRODUCING THE NGA CUSTOMER DASHBOARD

NGA has a new online Customer Dashboard available to members and nonmembers alike. The Dashboard provides access to NGA’s member and committee directories, conference registration and the NGA Store—a one-stop shop for NGA’s technical and business publications. To access:

- Visit glass.org and click on “My Dashboard” in the upper right corner.
- Users will be prompted to log in.
- Individuals from NGA member companies: Log in with the credentials provided to you by NGA. For assistance, contact Josh Lowe at 703/442-4890, ext. 127. Everyone else: Select the “Create Account” link to enter information. ■



GLAZING 2020 TO TAKE CENTER STAGE AT BEC IN NASHVILLE

The National Glass Association is hosting its 24th annual Building Envelope Contractors Conference March 1-3 in Nashville at the new glass-clad JW Marriott hotel.

Glazing 2020: Advanced. Innovative. Complex is the theme of the Conference, which will offer forward-thinking content to prepare glass business owners for new successes in the new decade. Joe Puishys, CEO, Apogee Enterprises, will provide his unique perspective on the glass and glazing market in the state of the industry presentation. Jim Morris, the flame-throwing major league pitcher on whom the movie “The Rookie” was based, will engage the audience with a keynote address on keeping promises and maintaining integrity, sponsored by Guardian Glass.

More not-to-miss sessions include:

- navigating the technology landscape
- understanding the mind of an architect
- managing risk and reward associated with delegated design, insurance and contracts
- opportunities in delegated design and design assist
- why bird-friendly glazing matters now more than ever
- a global perspective on glass in architecture, featuring Architectural Record Publisher Alex Bachrach.

NGA’s Installing Committee will meet Monday morning of the Conference, a departure from its former schedule on Sunday afternoon. The BEC Conference programming will run through 3:30 p.m. on Tuesday, March 3.

More information and registration available at glass.org/event/bec-conference-2020. Discounted member pricing is available to individuals from NGA member companies. ■



GLASS INFORMATIONAL BULLETIN

Thermal Stress in Heat-Treated Spandrel Glass

Spandrel glass is glass that has been rendered near opaque and glazed in wall areas covering structural columns, floors, walls, or other building elements that are intended to be concealed from outside view. Increasing standards of energy efficient initiatives are placing unique and unanticipated demands on spandrel glazing. In the case of insulating glass units (IGUs) installed as spandrel glass, the use of opaque paints and enamels, low-e coatings, thick insulation and other energy efficiency elements are creating, in essence, highly efficient solar collectors. As a result, inner lites of the IGU have been known to reach temperatures of 230 °F or more, resulting in center-to-edge temperature differences exceeding 130 °F. These gradients create a large thermal stress which, under certain circumstances, may lead to breakage.

Background

Thermal Gradient Build-Up

Solar energy generates heat in objects as they absorb sunlight. The intensity of the sunlight is characterized as the Solar Irradiance (SI) and depends upon the latitude, altitude, time of year, time of day, cloud cover, air mass, and other factors. The greater the SI, the greater the potential for heat build-up under a given set of conditions. As for all objects exposed to sunlight, a glass lite will experience a temperature increase until a balance

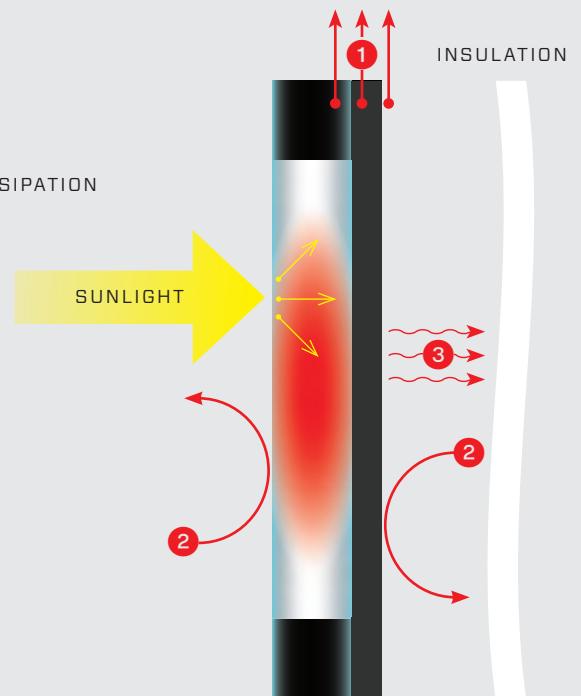
Equilibrium

ABSORPTION ↔ DISSIPATION

1. CONDUCTION
Heat transferred to surrounding surfaces

2. CONVECTION
Heat transferred to air in and around spandrel

3. EMISSION
Heat irradiated as long wave-length IR



ONLINE

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is reached between the heat gained by absorbing the solar radiation and heat lost through convection, conduction, and re-radiation mechanisms.

The amount of heat build-up also depends on the design of the glazing and the framing system. While almost all current thermal analyses are conducted on the basis of heat transfer equilibrium, maximum thermal stress in glass almost always occurs during the transient phase of heating.

Clear glass absorbs a small portion

of the solar spectrum and converts it to heat, while spandrel glass, which is designed to be opaque, absorbs more solar energy and becomes hotter than vision glass. Darker spandrel colors absorb more solar energy and get hotter than lighter spandrel colors.

Translation into Thermal Stress

Glass, like other materials, undergoes thermal expansion with increasing temperature. The thermal expansion is greatest in the area of the greatest heat

GLASS INFORMATIONAL BULLETIN—THERMAL STRESS IN HEAT-TREATED SPANDREL GLASS

Design Considerations

Design element	Lower thermal stress	More thermal stress
Framing	Structurally glazed or non-thermally broken dark colored framing	Captured with thermally broken framing
Building elevation with an inside corner condition	Not present or only on northern elevation	Present on elevations where reflection falls on otherwise sunlit units
Exterior shading	No shadows or large, straight shadows	Small shadows with angles
Color of inner lite	Light	Dark
Low-e coating	Low solar transmittance	High solar transmittance
Outer lite	Tinted	Highly transparent
Insulation	Multi-inch space between insulation and innermost lite	Little or no space between insulation and innermost lite
Ventilation	Yes	No
Other design factor	<10" vertical mullions, <2" overhangs, >75% of glass shaded	>20" mullions, >3" overhangs, 'V' or 'L,' 15-35% shaded

build-up. The expansion is greatest in the center of the lite and least in the cooler perimeter.

Factors that Influence Thermal Gradients

—

Environmental

- Solar Radiation
- Temperature
- Orientation
- Exterior Shading

Glazing Design

- Outer Lite
- Color
- Framing
- Building Elevation with an Inside Corner Condition

- Insulation
- Argon-filled IGUs

Factors that Influence Tensile Strength

—

- Surface Compression
- Surface Flaws
- Edge Quality
- Opacified Coated Glass Strength

Mitigation Strategies

—

Reducing Thermal Stress

It is important to estimate to what extent there may be a problem. If all the risk factors are low, then design flexibility is maximized. If several or all of the factors are high, then it is more limited.

Increasing Tensile Strength

It is recommended that all spandrel glass be heat-treated according to ASTM C1048, either heat-strengthened (HS) or fully tempered (FT). Various factors would determine if the lite should be fully tempered. If the risk factors are numerous and high, and the root cause(s) cannot be sufficiently addressed through design, then additional measures can be taken to increase the tensile strength of the spandrel glass.

Opacifying Coating Options

Some opacifying coatings have been demonstrated to not lower the tensile strength of heat-strengthened or fully tempered glass. Thus, heat-treated glass opacified with these types of coatings can be expected to have the strength that would be expected of newly fabricated glass.

Conclusion

—

With the current emphasis on energy efficiency, a number of design elements are combining to create severe thermal stresses in spandrel glass which, in rare cases, has led to breakage. Today's insulating glass constructions increase the potential for thermal stress on the inner lite due to high visible transmittance and more efficient low-emissivity coatings (double and triple silver) on the inside of the outer lite. Engineers should understand these phenomena, assess the risk that is associated with a project, and choose a mitigation strategy to help prevent thermally-induced breakage of spandrel glass. ■



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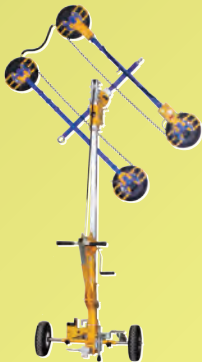
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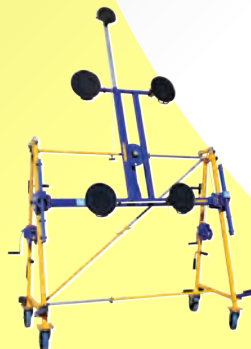
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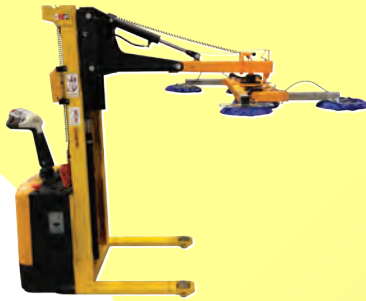
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Glasswerks Acquires Northwestern Industries Inc.

Glasswerks, a full-service premier fabricator of architectural glass headquartered in Southgate, California, acquired the assets of Northwestern Industries Inc., a subsidiary of Japan-based Central Glass Co. This acquisition marks the latest investment as Glasswerks expands its reach and share in the western glass marketplace, having recently added jumbo, bent and heat soak capabilities. The acquisition effectively made Glasswerks the largest privately-owned custom glass fabricator west of the Mississippi River, say company officials.

"I've long admired the excellent reputation for quality and service that NWI has built in this industry," says Randy Steinberg, president, Glasswerks. "Beyond the complementary product offerings, I feel our values, culture, and service align as well. We're happy to welcome NWI employees to the Glasswerks family."

Syracuse Glass Co. Partners with Lineage Capital

Syracuse Glass Co. announced a partnership with Boston-based private equity firm Lineage Capital. The Dwyer family will retain a significant ownership stake in Syracuse Glass, and John Dwyer

will continue to serve as CEO/president and chairman of the board of directors.

"I am so proud of what our team has accomplished over the years, and I am excited by what our partnership with Lineage holds for the future," says Dwyer. "Already, Lineage and its network of resources have evaluated our processes and made recommendations that will help us as we strive to be the best supplier to our customers. ... The core values and culture of SGC and Lineage are very closely aligned. I look forward to this next chapter in the Syracuse Glass Co. success story."

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Tecnoglass to Build Float Plant in Colombia

According to reporting in the Global Legal Chronicle, Tecnoglass will build a \$45 million float glass plant in Galapa, Colombia. The new plant will be located 12 miles from the company's current manufacturing facility. With a capacity of 750 metric tons per day of float glass, the new plant is slated to be completed in 2021, as published in the report.

The Novatech Group Acquires Laurier

The Novatech Group, a Toronto-based door manufacturer, acquired glass product manufacturer Laurier, based near Quebec City, Quebec, Canada. Company officials say they hope the acquisition will result in a growth plan that will unite the strengths of both companies in the high-rise, commercial and glass markets.

"Laurier's expertise, knowledge, ability and reputation are some of the elements that will complement our plants in [Quebec, Canada locations of] Anjou, St.-Agapit and St.-Apollinaire, and



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will distinguish ourselves in the glass industry,” says Harold Savard, president and CEO of the Novatech Group.

AAMA and IGMA Officially Combine as Fenestration and Glazing Industry Alliance

The American Architectural Manufacturers Association and the Insulating Glass Manufacturers Alliance officially combined into one organization with the new name, Fenestration and Glazing Industry Alliance. After a July 2019 vote by both bodies to unify, the two organizations have come together as of Jan. 1.

The AAMA and IGMA boards of directors met in early December 2019 to finalize the vision and mission of the unified organization. The vision focuses on improving home and building performance through better glass, window, door and skylight technologies and standards.

First Solar Begins Production at New Manufacturing Facility in Lake Township

First Solar started production at its new manufacturing facility in Lake Township, Ohio, according to reporting in the The Blade, a Toledo, Ohio-based newspaper.

The plant will produce its Series 6 thin-film solar panels. NSG Pilkington North America partnered with First Solar, and will supply First Solar’s facility with float glass. NSG broke ground on the facility earlier this year, which will be located 10 miles from First Solar’s Lake Township location.

Aldora Opens New Coral Springs Facility

Aldora opened a brand-new facility in Coral Springs, Florida. The 120,000-square-foot location is replacing the now closed Miramar, Florida, fabrication plant.

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The new facility is equipped with innovative capabilities and increased capacity, according to company officials. All South Florida production, pick-up, customer service and engineering teams along with leadership groups now operate from the facility. Equipment investments include: a new state of the art double bay 96-inch by 198-inch convection furnace; an automated pre-glaze line; and an automated glass lamination line with convection.

U-M Taubman College and Guardian Industries Announce Research Partnership

The University of Michigan's Taubman College of Architecture and Urban Planning and Guardian Industries formed a new collaborative research partnership in advanced glass materials.

An award from Guardian will result in two architectural research studies as a part of the new Guardian-Taubman

Research Alliance. The projects will draw on Taubman College's design and fabrication expertise, enhanced by an interdisciplinary team of researchers from engineering, robotics and sustainability science, as well as experts in the construction, real estate and building industries.

"Guardian prides itself on its innovation," says Sheldon Davis, vice president for research and development at Guardian Glass. "Employees throughout the company, including those beyond our R&D capability, take pride in our innovations. We push to find new ways to create value for society and to reduce the resources used to do so."

Bonnell Aluminum Rebrands

Bonnell Aluminum started a rebranding of the company. Bonnell and its subsidiaries, AACOA and Futura, will all fall under the Bonnell Aluminum banner. Together, they provide a comprehensive

range of custom extruded, fabricated and finished aluminum solutions to the building and construction markets.

"Bonnell is a brand that has resiliently stood the test of time by continually evolving, improving and expanding to meet the needs of our growing customer base," says Brook Hamilton, president of Bonnell Aluminum. "With this launch, we are now unifying all of our assets behind a revitalized brand that conveys our reputation as a trusted and complete one-stop aluminum extrusion solution company to all of our customers." ■

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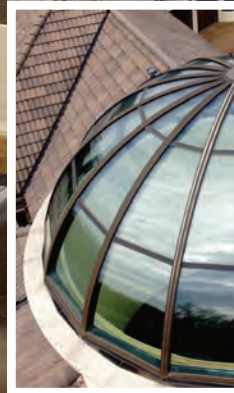
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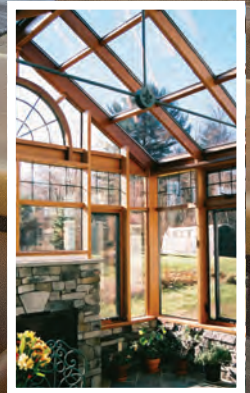
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INDUSTRY VETERANS LAUNCH GLAZING HARDWARE SUPPLIER IN CALIFORNIA

Frameless Hardware Co. leaders eye service and innovation with new company **BY NORAH DICK**

There is a new company, led by some familiar faces, in the glass hardware business. In October 2019, glass industry veterans Chris Hanstad and Barry Sutherland founded Frameless Hardware Co., a supplier and manufacturer of glass and glazing hardware solutions in Southgate, California. Hanstad, president of FHC, and Sutherland, senior vice president, plan to use their tenure in the industry to create a service-focused, innovative supplier for industry companies.

Hanstad and Sutherland have decades of glass industry experience between them. “I started right out of college, and fell into the glass industry,” says Hanstad. “I learned and grew and got into the hardware side of the glass

industry with [C.R. Laurence Co.]” Hanstad worked for CRL, crlaurence.com, for 15 years, most recently serving as a vice president.

Sutherland’s entrance into the industry was Sommer & Maca, the glass machinery company that was acquired by CRL in 2008. “I started from the bottom up, in the warehouse, will-call, and then as the western salesman at Sommer & Macca for four years.” Sutherland would also go on to work for CRL, serving as director of commercial hardware for 20 years.

Hanstad and Sutherland founded FHC with an eye to the glazier. “We saw that the industry is lacking a service-oriented, consumable product provider, and that’s where we want to excel. The glazier is a

very important customer, and that level of service is missing [in the industry],” says Hanstad.

Their service-oriented approach will include the ability to respond to customer needs quickly, with a personalized focus. “If glaziers need help on projects, we’ll be available to answer the phone, to provide technical sales support. We want to have inventory on the shelf, and have what they need,” says Hanstad. Glaziers will be able to place orders at a staffed will-call counter, or on the company’s e-commerce marketplace, which Hanstad also emphasizes as part of the company’s commitment to service. “The website is critical. It’s a [business to business] website for the glazier that gives them an Amazon-style experience,” he says.

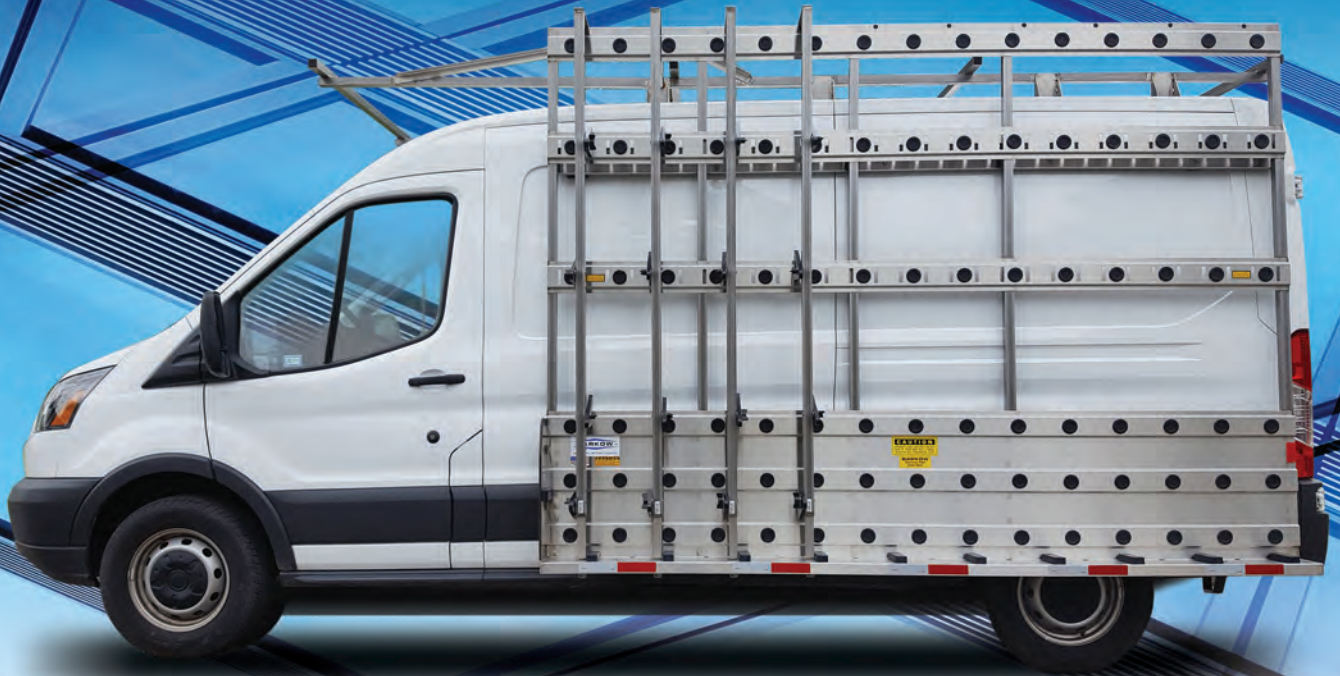
In addition to service, FHC is focused on product development and manufacturing, say the founders. “We have big plans to be innovative,” says Hanstad. “We’re not just planning to sell the consumable items, but also new products. We’d like to patent and offer something proprietary to FHC. It’s all part of helping the industry to evolve and grow.”

FHC is opening in a strong market, both locally and nationally, say Hanstad and Sutherland. “We’re in a great place in Southern California,” says Hanstad. “It’s a very large local market that we’re focusing on first.” The company will target the West Coast, including Oregon, Washington, Southern and Northern California, as well as the Las Vegas and Phoenix markets, but will have the capacity to ship nationally.

“Our biggest potential headwind is supporting the needs of the customer and responding quickly,” says Sutherland. “As we launch and our business continues to grow, we want to be in a position with stock on our shelves, and with the ability to respond to the needs of the customer.”

According to Hanstad, the company’s size will likely allow it to remain agile in responding quickly to both customers, and an uncertain market ahead. “We’re lean and mean,” he says. ■

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THE BOTTOM LINE

Despite notable M&A activity in glass in recent years, the industry remains fragmented, presenting consolidation opportunities to expand infrastructure and achieve synergies through scale. High-quality companies with proven business models and quantifiable growth prospects continue to garner significant buyer interest and premiums in today's competitive market.

MARKET INTEL

GLASS INDUSTRY M&A

Consolidation introduces new players, while supply chain remains fragmented

BY ANDREW PETRYK



Sources: Freedonia Group, Glass Magazine, S&P Global Market Intelligence, PitchBook, company filings and other publicly available data.

Consolidation has reshaped the glass supply chain and redefined geographies and industry participants. The value chain has seen consolidation among a diverse base of companies, from value-added glass and metal fabricators to glazing contractors that support regional and local markets. This evolution underscores a still fragmented supply chain, presenting consolidation opportunities to expand infrastructure and achieve synergies through scale. This article presents key market acquisitions from recent years and offers an outlook for future activity.

Private equity activity

Private equity funds historically have shown broad-based interest in the building products industry, and noteworthy has been recent interest in the glass space. Financial sponsor

transaction activity is accelerating, with acquisitions a primary lever to build regional and national consolidation platforms in a fragmented marketplace. Examples of private equity platform investments in the sector include:

- Stellex Capital Management invested in Custom Glass Solutions in October 2018, which it purchased from Guardian Industries. It also announced the add-on acquisition of North American Specialty Glass in May 2019, bringing new capabilities in framed assemblies to the company. NASG was purchased from Consolidated Glass Holdings.
- AV Capital is growing American Insulated Glass, which it acquired in 2017, with the stated goal to pursue M&A opportunities to expand the company's geographic coverage and service capabilities. The sponsor announced the

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acquisitions of Tennessee Glass Wholesalers in September 2019 and Innovative Glass of America in November 2018, moves intended to expand the company's footprint in the Southeast U.S.

- Consolidated Glass Holdings, a portfolio company of Grey Mountain Partners, has completed nine deals since acquiring the business in 2011, including J.E. Berkowitz in November 2016, its last acquisition to date.
- Acquisitive Trulite has completed seven bolt-on acquisitions under the ownership of Sun Capital

Partners, which purchased the company in 2010. Among the deals are VFG Group in 2016, which expanded Trulite's presence in the Canadian market; and AGC's U.S. commercial fabrication assets in 2014. The latter deal broadened the company's national footprint, adding flat glass expertise for applications in the solar, construction, automotive and other specialized industries.

Strategic acquisitions

Industry players are selectively pursuing strategic acquisitions to bolster topline

growth, with buyers looking to access technology, broaden product portfolios and expand geographic markets. Some illustrations include:

- Sweden-based Assa Abloy completed the purchase of Stiles Custom Metal in October 2019. Stiles supplies built-to-order commercial steel doors and window systems to customers nationwide. The acquisition is expected to strengthen the company's U.S. offering in the segment and grow its West Coast footprint.
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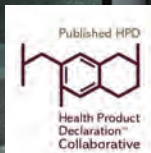


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INSIGHTS | MARKET INTEL

acquired architectural glass and metal fabricator SIGCO in July 2018, a move to grow its glass fabrication and architectural aluminum products businesses. Maine-based SIGCO is a leading supplier in the New England region.

- Vitro has historically been among the active consolidators. The 2017 purchase of Pittsburgh Glass Works and PPG Industries' flat glass business in 2016 solidified its U.S. market position with the largest float glass capacity.
- Koch Industries acquired Guardian Industries in 2017, adding new capabilities in glass manufacturing, coatings, and specialty building products distribution.

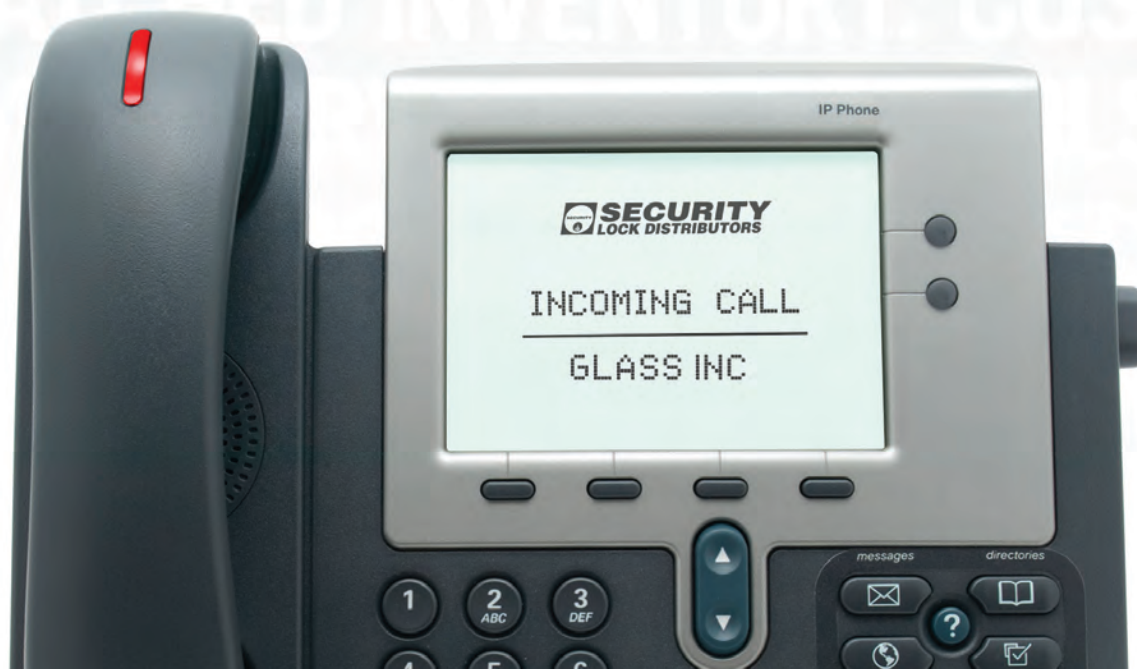
Valuations

The broader M&A market remains increasingly competitive for high-quality assets, which has fueled an elevated pricing environment throughout 2019. In November, the average EBITDA multiple for strategic and financial acquirers increased to 9.04x in the lower middle market (defined as enterprise values of \$500 million or less). The financing markets are flush with capital and remain highly liquid, with leverage levels—measured by total debt to EBITDA—rising to near-decade highs.

Economic uncertainty has muted growth expectations, with cyclical industries such as building products subject to greater scrutiny and valuation discounts. Proven business models with quantifiable growth prospects continue to garner significant buyer interest and premiums in the current market. ■

Andrew Petryk is managing director of Brown Gibbons Lang & Co., bglco.com, a leading independent investment bank and financial advisory firm focused on the global middle market. He can be reached at 216/241-2800.

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”

ARE YOUR CLAIMS COVERED?

Changes in the insurance marketplace can lead to coverage gaps **BY MATT JOHNSON**



Recent changes in the insurance marketplace can affect policy triggers. To ensure claims are covered, glass company owners should be familiar with the types of policy triggers, the changes in the market and risk management techniques.

Two types of triggers

In the insurance industry, a trigger is essential to securing and maintaining coverage for a claim. The concept of insurance trigger involves two things. First, it requires an event that potentially triggers the obligation of an insurer to respond—usually this is damage or injury. Second, it involves questions of time to determine which triggered insurers must respond. Both components of the policy trigger are controlled by the policy’s terms.

While each policy contract is unique, most insurers use triggers that are either occurrence-based or claims-made. An occurrence policy is usually triggered when a harm-causing event happens and allows a claim for that event to be submitted after the policy expires. A

claims-made policy, on the other hand, is usually triggered when the claim is submitted to the insured and reported to the carrier.

Obviously, those descriptions are simplified, and policy terms are more complex. In practice, however, the concepts of trigger are likely familiar even if the names are not. For example, the typical auto and worker’s compensation policies tend to rely on claims-made triggers, which is why it is important to renew policies yearly, negotiate retroactive dates, and advise an insurer immediately after an incident. On the other hand, commercial general liability coverage tends toward occurrence-based policies, with long tails that allow claims for damage to be submitted years or decades later.

Marketplace changes

Recently there has been a change in the commercial general liability insurance marketplace that upends normal expectations. Specifically, many insurers have priced occurrence-trigger policies at a commercially unreasonable level for



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many companies. This has pushed many into securing commercial general liability coverage with claims-made trigger policy terms.

This change in the general liability market has been driven by many things across all industries. With regard to glazing and construction trades, however, a frequently identified reason is the lack of reliable loss predictions due to various issues surrounding construction

litigation. This data gap hinders actuaries from effectively pricing policies. And this, in turn, leads some consumers to overpay, while others pay far too little for their actual coverage needs.

Potential for gaps in coverage

All companies—glass industry included—must be mindful of the issues accompanying changes in insurance triggers caused by market dynamics. Not

doing so risks gaps in coverage. Gaps can result when occurrence policies replace claims-made coverages and retroactive dates are not monitored. Internal policies for claim monitoring become even more important when moving into claims-made policies, because the submission of claims can be an essential step to securing coverage. Additionally, contractual concerns can arise where an agreement requires certain insurance terms or coverage triggers that may not match current policy terms.

Risk management

Effective risk management begins with an understanding of the policy terms themselves. Business owners should develop a working understanding of the types of coverage triggers policies and how they can affect business practices.

That understanding allows owners to make more educated choices regarding the types of coverage and policy conditions that are essential or negotiable. Like most things, insurance policies are negotiated matters. A more sophisticated understanding of coverage triggers and how they intersect with business models and potential future risk allows for a more thorough exploration of pricing and coverage options. This is a better negotiation start than an approach of simply “getting what we had last year.”

Finally, understanding insurance triggers and the need for policy negotiation can help inform decisions regarding internal tools for data and business intelligence analysis. With insurers forced to price based on uncertainty in markets, a company that can show claim trends, costs and experiences over time may be well-positioned to negotiate an individual rate for occurrence or claims-made coverages, regardless of a data gap in any particular industry. ■

Matt Johnson is a member of The Gary Law Group, prgarylaw.com, a Portland-based firm specializing in legal and risk issues facing manufacturers of glazing products. He can be reached at matt@prgarylaw.com.

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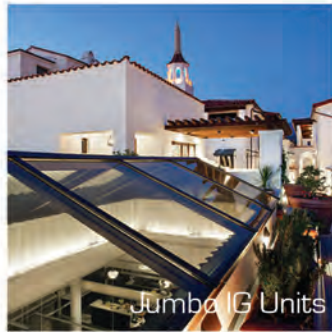


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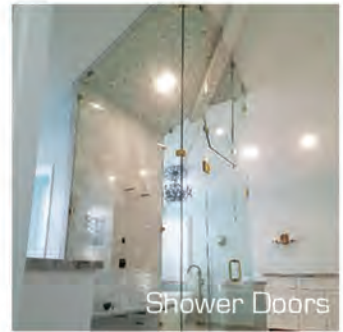
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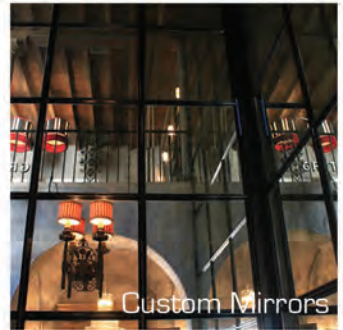
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CODE WATCH

NEED-TO-KNOW CODE, STANDARD AND REGULATORY UPDATES



THE BASELINE ENERGY CODE, ASHRAE 90.1-2019, WAS PUBLISHED IN OCTOBER 2019. THE INTERNATIONAL ENERGY CONSERVATION CODE ALIGNED WITH ASHRAE 90.1, AND CHANGES MADE IN THE 2019 VERSION OF ASHRAE WILL ALSO GO INTO EFFECT IN THE 2021 IECC.

Updates to watch in ASHRAE 90.1-2019 and 2021 IECC

- Another 5 to 17 percent reduction in U-factor
- Minor adjustments to SHGC requirements, but new criteria for fixed vs. operable SHGC
- In many cases, very roughly a “zone shift” between 2016 and 2019: what was required in Zone 7 will move to Zone 6, Zone 6 to Zone 5, etc.
- New climate zone map with shifting boundaries
- Push for improved framing, warm-edge spacers, argon gas fill, and fourth surface low-emissivity coatings, while still being cost-effective and practical
- Stronger daylighting requirements, including demand for more controls and toplighting
- NOTE: Updates did not include reductions in window area.

Items to watch in the next cycle

- Increased attention to thermal bridging
- Fewer opportunities for performance trade-offs
- Envelope backstops. Envelope backstops require a minimum level of envelope performance no matter what else is added to the building for performance. They will not be in ASHRAE 90.1-2019 or 2021 IECC, but are being enacted in certain locations: New York City, Massachusetts and Washington state
- New prescriptive requirements for on-site renewable energy, including rooftop solar and BIPV.

THE ONGOING THREAT OF ACTIVE SHOOTERS AND INTRUDERS IN SCHOOLS, BUSINESSES, CHURCHES AND MORE HAS DRIVEN CODE AND STANDARD BODIES TO DEVELOP STANDARDS TO KEEP OCCUPANTS SAFE.

Security glazing standards

- No codes, standards or test methods exist specifically for active shooters or intruders. However, there are about 40 already-existing standards for security glazing—from impact standards to forced entry standards, blast standards, burglar-resistance standards and more.

Action items

In-process code and standard activities for intruders and active shooters.

- NFPA fast-tracked a standard, NFPA 3000, that identifies and ranks building hazards; provides resources for first responders to use during an incident; and offers support to communities following an event
- ASTM is working on a test standard to address mitigating armed attacks on buildings, with a focus on schools
- ICC established a committee on building safety and security, which will undertake a building code to protect building occupants from intruders, active shooters and other life-threatening hazards. Development is in early stages, and the code likely won't be finalized for 3 to 6 years
- NOTE: A key challenge in developing intruder-resistance and active-shooter building standards is lack of knowledge of full product systems.

SEVERAL CODE AND STANDARD BODIES DICTATE FIRE-RATED GLAZING REQUIREMENTS: THE INTERNATIONAL CODE COUNCIL'S INTERNATIONAL BUILDING CODE, ICC INTERNATIONAL FIRE CODE AND ICC INTERNATIONAL EXISTING BUILDING CODE. ANOTHER CODE TO WATCH IS THE NATIONAL FIRE PROTECTION ASSOCIATION'S LIFE SAFETY CODE, NFPA 101.

Most common test standards

- ASTM E119, the fire-resistance test
- NFPA 80 installation and maintenance standard for fire doors and other opening protectives
- NFPA 252 fire-rated door test
- NFPA 257 fire-rated window test.

New fire-rated code developments to watch

- Approval to use all-wood construction up to 18 stories, opening the door for timber curtain wall in taller structures
- Removal of sprinkler variances. Glass industry code advocates have worked with a number of industries for more than 10 years to rewrite IBC 703.4, removing sprinklers as an alternative methodology to fire-rated building materials. In order to permit sprinklers as an alternative, owners must receive express permission from the authority having jurisdiction.

CODE WATCH

BETWEEN 365 AND 988 MILLION BIRDS ARE KILLED EVERY YEAR IN THE UNITED STATES DUE TO COLLISIONS WITH GLASS; IN CANADA, THE ESTIMATE IS 16 TO 42 MILLION. MOVES TO ADDRESS THE PROBLEM ARE COMING FROM REGULATIONS, CERTIFICATIONS AND THE COURTS.

Bird-safe regulations

- Jurisdictions in California, Illinois, Maryland, Minnesota, Michigan, New York, Oregon and Washington have adopted some form of bird glass regulations, voluntary or required
- In Canada, requirements are in effect in British Columbia, Calgary and Ontario
- Cities including Toronto and San Francisco have created bird-friendly codes
- The Canadian Standards Association published a bird-friendly glass standard for new and existing buildings
- In the U.S., the proposed Federal Bird-Safe Buildings Act would require bird-safe glass for GSA projects.

Green codes

- Green certification programs are also driving demand for bird-friendly design. The U.S. Green Building Council's Leadership in Energy and Environmental Design program includes Pilot Credit 55 for the use of glass with bird-friendly patterns.

Lawsuits

- Lawsuits over bird deaths are also becoming a greater concern, particularly in Canada. In several high-profile cases, owners have been sued for violating the Environmental Protection Act and the Species at Risk Act.

FOR DETAILED INFORMATION ON CODE, STANDARD AND REGULATORY UPDATES, LOOK TO THE FOLLOWING RESOURCES.

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Compiled by Katy Devlin

Source: The National Glass Association, glass.org, code and advocacy team: Urmilla Sowell, technical services and advocacy director; Karen Wegert, associate director, technical services; and code consultants Tom Culp, owner, Birch Point Consulting, and Thom Zaremba, partner, Roetzel & Andress.



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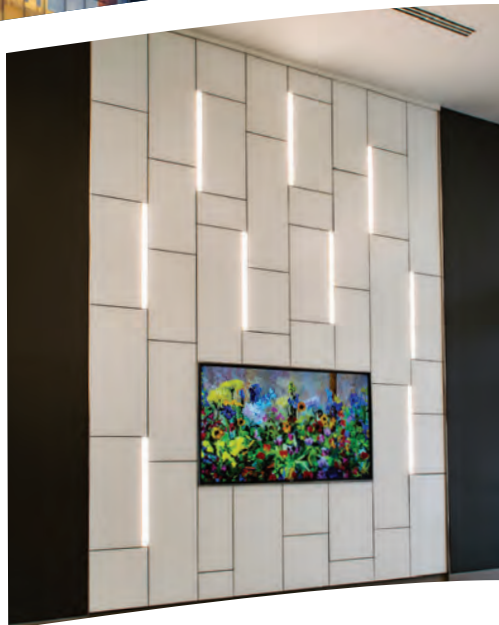
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A black and white photograph with a blue tint showing a person in a uniform handing a cardboard box to another person. The background is blurred, suggesting an outdoor setting with trees.

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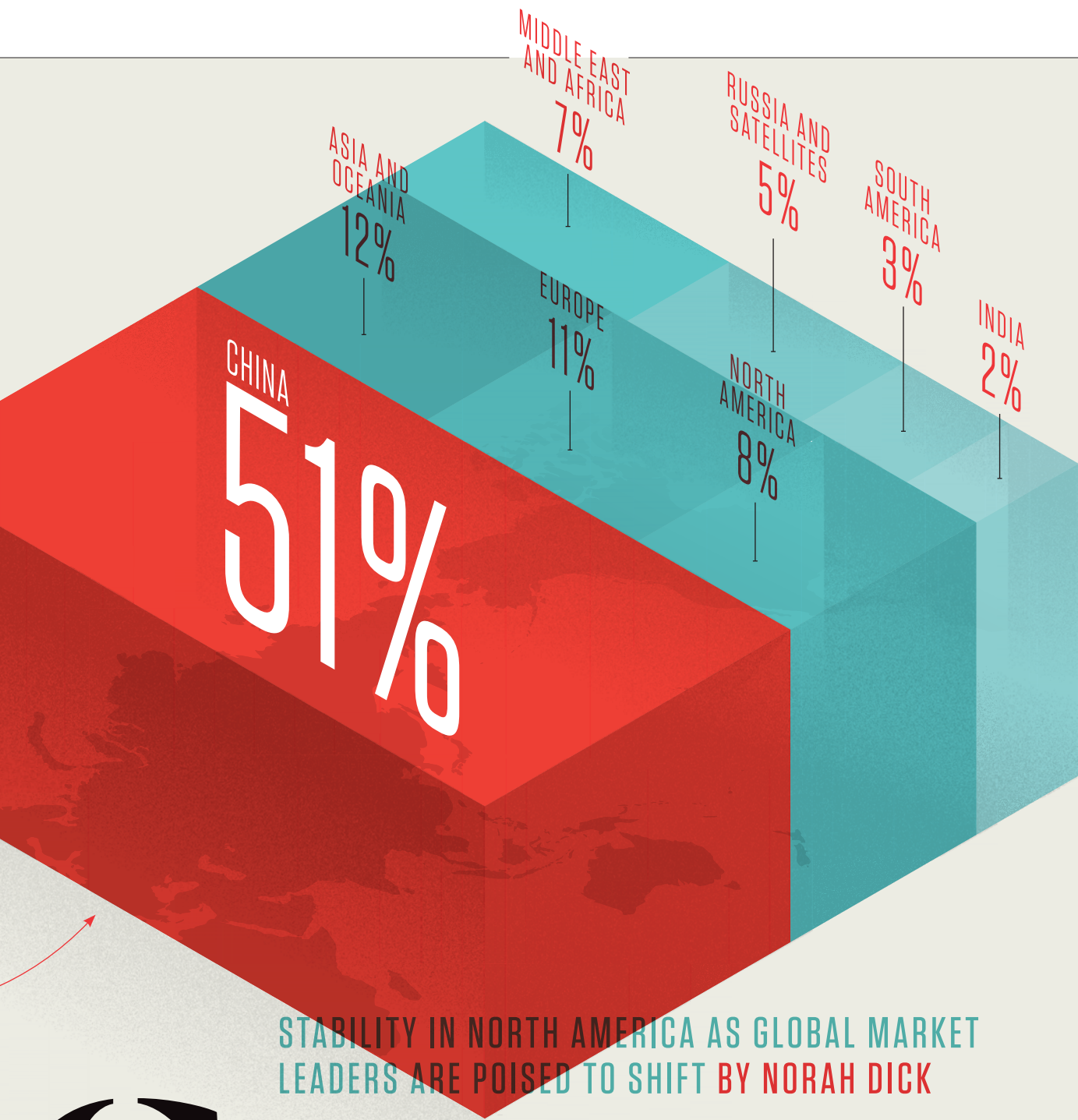


Online: For a complete updated database and interactive map of global float locations, visit WorldofGlassMap.com.

Right: An estimated 459 float glass lines are in operation around the world. China remains the global leader in float capacity, with over 50 percent of lines worldwide. The rest of Asia and Oceania represent 12 percent of the world's float lines, with Europe right behind with 11 percent. North America, which is back up to 38 float lines, has 8 percent of the world's lines.

Source: Bernard Savaète, head of BJS.Différences.

THE WORLD OF Glass



STABILITY IN NORTH AMERICA AS GLOBAL MARKET LEADERS ARE POISED TO SHIFT BY NORAH DICK

The global float glass industry continues to see a shift in market leaders, expansions and investments in emerging regions, and trends toward efficiency and sustainability in production and processes. In its 2020 World of Glass Annual Report, Glass Magazine identifies key updates in the market throughout the previous year. In North America, 2019 marked a return to relative stability for the float glass market. Float lines remained at the same operational level at 38 lines, with foreign investment and future expansion beginning to take center stage. Learn more about changes throughout the Americas on page 54. Globally, expansion continued for major players abroad, especially in eastern Europe and Southern Asia. Find complete coverage on page 56. In terms of market trends, demand for complex fabrication, and the need for glass to do more, necessitated further research innovation. Additionally, the industry continued to witness an ever-growing emphasis on sustainable products and processes. See page 58 for more.



ADVANCES IN THE AMERICAS

The Americ

OHIO



LAKE TOWNSHIP AND TROY TOWNSHIP

NSG Group broke ground on its new float glass plant in Troy Township, Ohio. The plant will supply solar panel manufacturer First Solar, which opened a new facility in nearby Lake Township, Ohio. The new plant represents a \$350-million investment by NSG, and also includes the upgrade and restart of a dormant float line in Vietnam.

WHILE THE NORTH AMERICAN MARKET REMAINS BELOW PEAK, SEVERAL COMPANIES HAVE MADE MAJOR INVESTMENTS IN RECENT YEARS.



TENNESSEE

CHURCH HILL

In January 2019, AGC Glass North America opened its new MSVD coater at its Greenland plant in Church Hill, Tennessee.

GEORGIA



ATLANTA

Şişecam Group entered into an equal production partnership with Ciner Group, a U.S.-based producer of soda ash. This is the first major foray Şişecam has made into the North American market.

CANADA



(TBD)

Xinyi Glass Canada company officials have not announced a new location since its application to open the facility in Guelph/Eramosa Township, Ontario, was vetoed by the local council in July 2018.

COLOMBIA



GALAPA, COLOMBIA

Tecnoglass announced plans to build a new float glass plant in Galapa, Colombia, set to be completed in 2021. The plant is part of its new joint venture with Saint-Gobain through Saint-Gobain's Colombian subsidiary, Vidrio Andino.



Online: Read more about Fuyao Glass' at-times complicated entrance to the North American market at GlassMagazine.com

nessee. This comes on the heels of the launch of jumbo coaters from Guardian Glass and Vitro Architectural Glass in 2018.

North American fabricators could also see additional float capacity coming from a new line in South America. Tecnoglass, a major fabricator and supplier to the North American market, joined the float glass market by partnering with Saint-Gobain in a joint venture, Vidrio Andino, a company which is also planning a new manufacturing facility. Vidrio Andino has been the fabricator's main supply source since 2013. The new ventures have implications for supply in the Americas and pose questions about cross-market ventures for float companies that fabricate, and fabricators that manufacture, flat glass.

Against a backdrop of relative calm for long-standing North American float manufacturers, new questions are raised by emerging players in the region. Uncertainty remains regarding Xinyi's decision to open a new location in Canada; the company's original location was vetoed by the local town council after community protest. Per reporting at the beginning of 2019, the company was considering the alternative Ontario locations of Stratford, London, Welland and Amherstburg.

Float glass manufacturer Fuyao Glass America, which operates an automotive glass manufacturing plant in Ohio, has also faced issues in recent years, including a class-action lawsuit, settled in December 2019.

North America experienced continued stability in 2019. After the disruptions of 2017, including three lines unexpectedly down, 2019 saw 38 float lines

again in operation, with several companies making moves to expand and invest.

While acknowledging a rebounding market, the industry has not yet returned to pre-recession levels, says Bernard Savaète, head of BJS.Différences, consultant to the float glass industry. "We are not yet back at that [pre-2008] stage," says Savaète. "Despite the fact that we did increase again between 2012 and now, we are not yet back to the peak."

While the North American market remains below peak, several companies have made major investments in recent years. Most notably, NSG Group broke ground on its new float glass plant in Troy Township, Ohio, in 2019. Additionally, in January 2019, AGC Glass North America opened its new MSVD coater at its Greenland plant in Church Hill, Ten-

as



GLOBAL EXPANSION

Europe & Asia

POLAND



DĄBROWA GÓRNICZA

Saint-Gobain inaugurated its modernized float production line at this facility at the beginning of the year. The investment will increase Saint-Gobain Poland's float glass production potential for the construction sector by 25 percent, say company officials.

UJAZD

Euroglas opened its fifth float glass furnace in Poland. Officials say the new line will help the company meet increased demand in the Polish and European glass market.

IN ASIA, CHINA CONTINUES TO DOMINATE GLOBAL FLOAT PRODUCTION. HOWEVER, THE COUNTRY WILL CONTINUE TO CONSOLIDATE ITS LINES

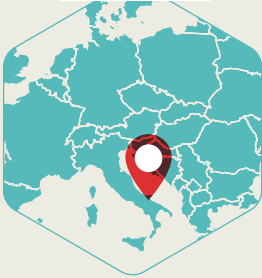


HUNGARY

OROSHÁZA

Guardian Glass inaugurated its new laminating line at the company's float plant in Orosháza in March 2019.

ITALY



MANFREDONIA

Şişecam Group completed its renovation and modernization of its Manfredonia plant, which represents the company's second investment in an Italian facility.

CHENNAI

Saint-Gobain inaugurated its new float line in Chennai, constructed in 2018.



INDIA

Major players in the global market continued to speed ahead with new plant openings, as well as needed updates and repairs to existing furnaces. Companies

reported continued growth in Eastern Europe, especially Poland; Saint-Gobain, Euroglas and NSG/Pilkington all opened or inaugurated float lines or facilities there in 2019. Şişecam, Pilkington, Saint-Gobain and AGC Glass Europe all refurbished, or plan to refurbish, float lines across Europe.

In Asia, China continues to dominate global float production. However, the country will continue to consolidate its lines, according to Bernard Savaète.

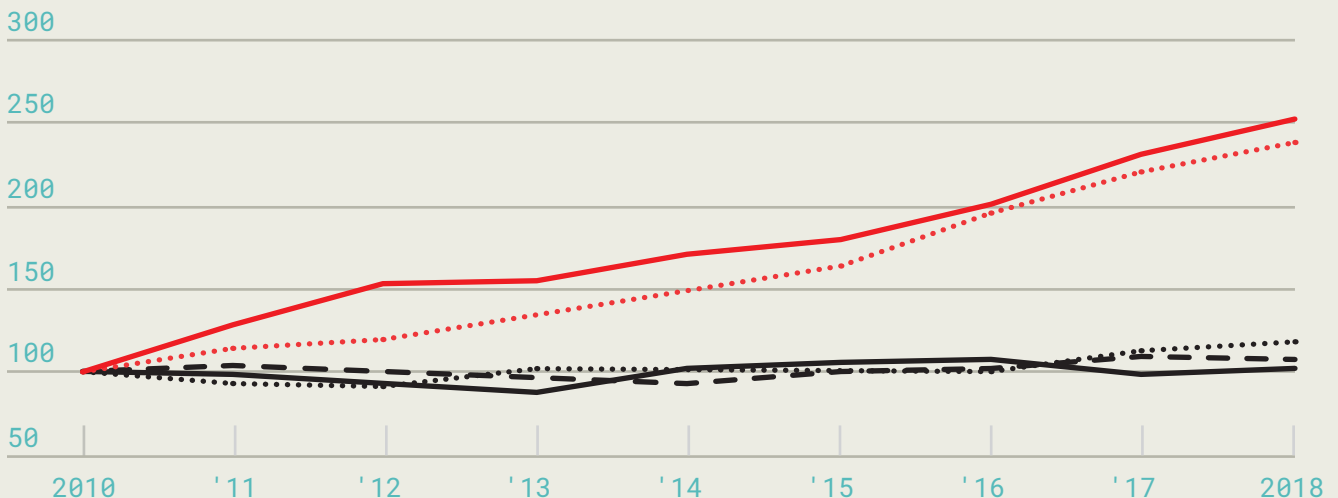
Despite the consolidation, several Chinese companies are increasing their global footprints. Savaète says that the increased sales of Fuyao and Xinyi Glass may point to a major reorganization in the float glass market (see chart below). "Most Western companies have flat sales for the last 10 years, Xinyi and Fuyao increase almost 10 to 20 percent every year," Savaète says. "If we keep the same trend, we will see a completely new hierarchy inside our businesses."

MOST WESTERN COMPANIES HAVE FLAT SALES FOR THE LAST 10 YEARS; XINYI AND FUYAO INCREASE ALMOST 10 TO 20 PERCENT EVERY YEAR

SALES OF MAJOR GLASS COMPANIES

(base 100)

— XINYI — SAINT GOBAIN
 FUYAO NSG
 — AGC



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Innovation & Trends

2019 WAS ALSO A YEAR THAT DEMONSTRATED CONTINUED INNOVATION IN FLOAT GLASS, BOTH IN THE PRODUCTS DEVELOPED AND THE MANUFACTURING PROCESSES THAT WERE INSTITUTED.

SOLAR

Companies continue to invest in solar panel technology. NSG Group broke ground on its 511,000-square-foot facility in Troy Township, Ohio, slated to start operating by the end of 2020. From that facility, NSG will supply First Solar, a manufacturer of solar panels, with float glass. First Solar's new facility began production in nearby Lake Township, Ohio, in October of 2019.

SOLAR CONTROL

Several companies also released solar control products for new markets. Guardian Glass introduced new coated solar control glass products for the Middle East and Africa markets, including two additions to its SunGuard Double Silver range, as well as one addition to its Guardian ClimaGuard range. Şişecam Flat Glass launched its reflective solar control glass for the India market, branded as "Şişecam Tentesol."

SUSTAINABILITY

Innovation also took the form of continued attention to sustainable practices. Phoenicia Glass Industries, a float manufacturer and fabricator based in Israel, partnering with Clear Glass Solutions, officially inaugurated a new laminated glass recycling plant, designed to reduce carbon demand, decrease environmental pollution and prevent landfill waste, according to the company. "CO2 emission will continue to drive the increase of glass recycling," says Savaëte. "I do strongly believe that will become a key subject in years to come."

As a milestone in sustainable practices, Vitro Architectural Glass became the first float glass producer to earn the U.S. Environmental Protection Agency Energy Star certification for superior energy efficiency. The plant uses high-purity oxygen, not air, to combust raw materials, allowing the facility to both use less energy and reduce greenhouse gas emissions compared to other furnaces, say company officials. ■

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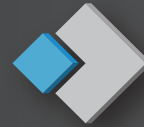
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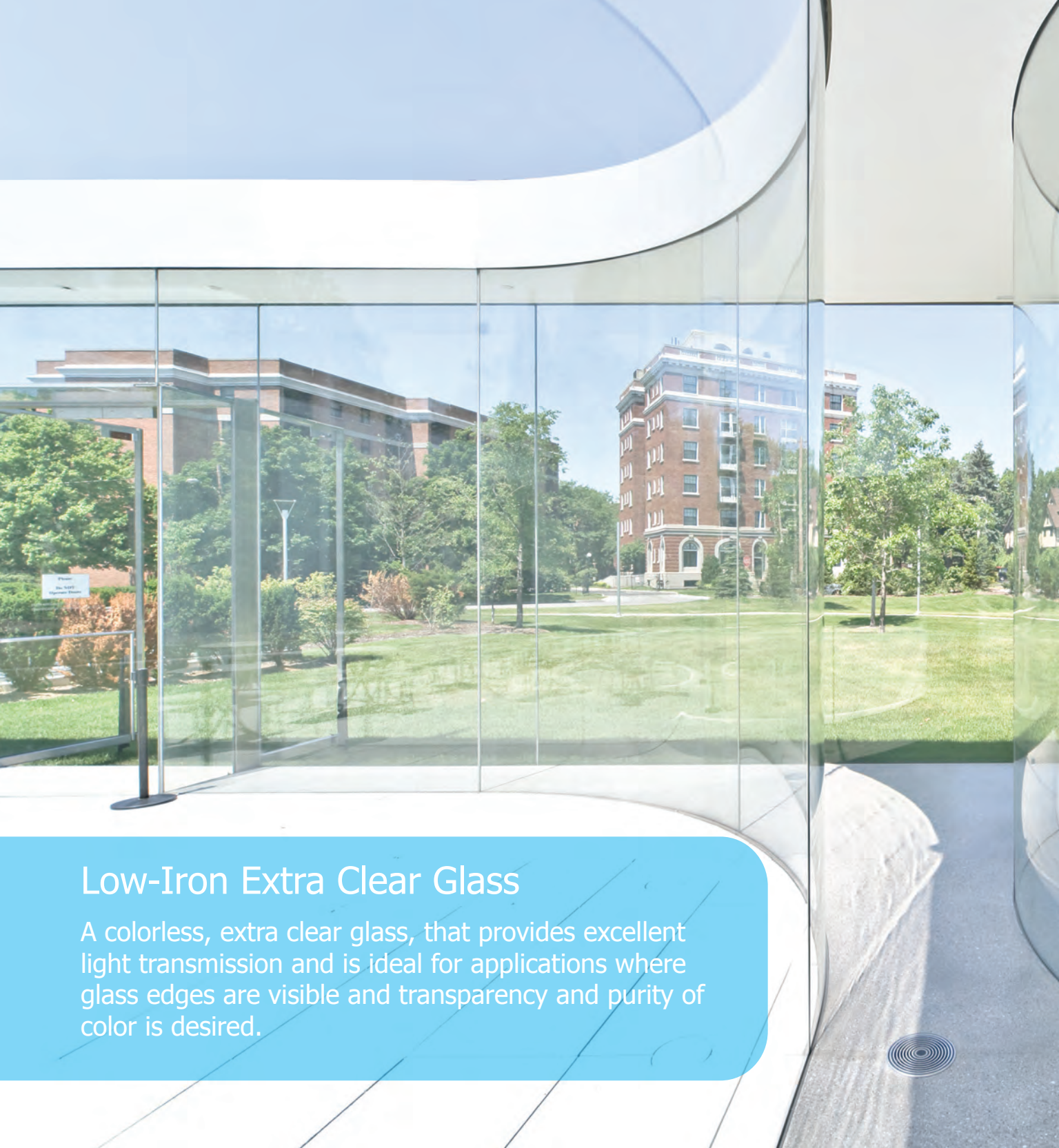
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**By
Katy Devlin**

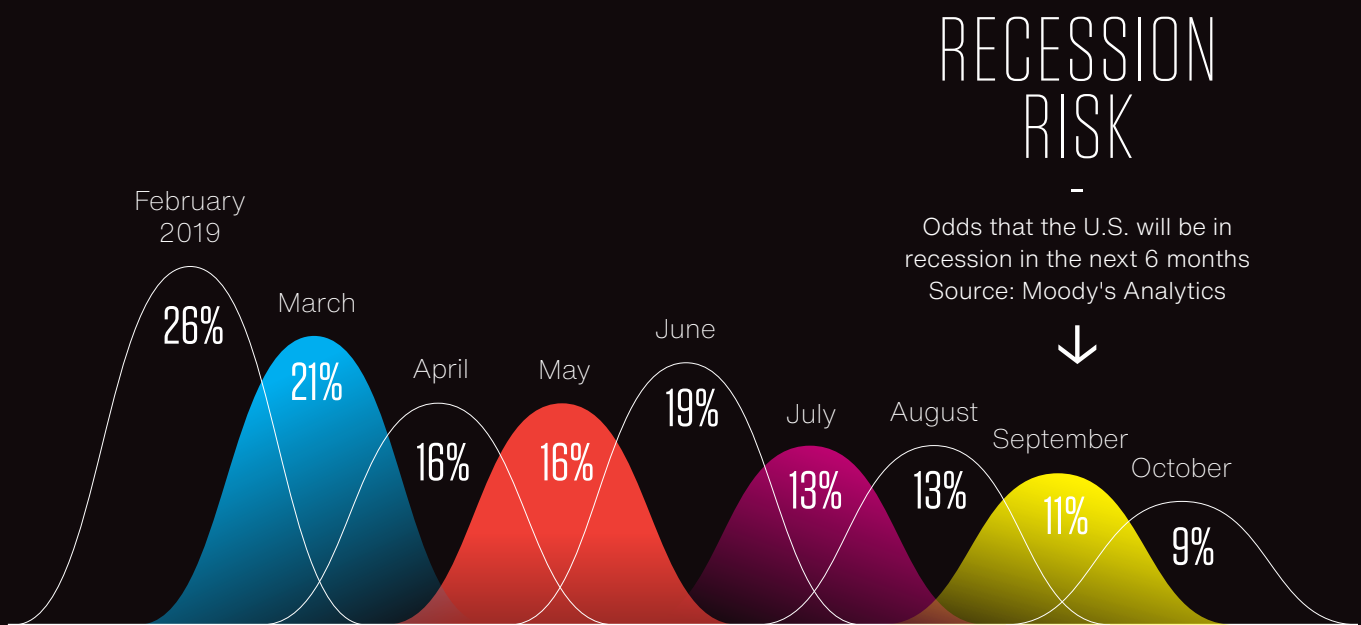
THE U.S. ECONOMY witnessed an unprecedented 10 years of economic expansion as it emerged from the Great Recession. “The economy hit a record this summer as it crossed the 10-year mark of economic expansion, making this the longest expansion in U.S. history, at least back to World War II,” according to Cristian deRitis, deputy chief economist, of Moody’s Analytics.

Commercial construction spending, which is at the trailing edge of the economy, has followed suit, expanding an estimated 34 percent, with year-over-year gains since the lows of 2010 and 2011.

What will 2020 have in store for the overall economy and for construction? And, what potential threats should glass industry companies watch for as they make investment and hiring decisions, bid projects and more in the year ahead?

Glass Magazine’s 2020 Forecast seeks to answer these key questions and others. It is based on presentations delivered by leading construction economists during Fall 2019. They include: Connor Lokar, economist, ITR Economics, itreconomics.com, who spoke during the 2019 Glazing Executives Forum in September; Richard Branch, chief economist for Dodge Data & Analytics, construction.com, and Cristian deRitis of Moody’s Analytics, moodyanalytics.com, who spoke during the 81st Annual Dodge Outlook Conference in October; and Kermit Baker, chief economist, AIA, aia.org, Alex Carrick, chief economist, ConstructConnect, constructconnect.com, and Ken Simonson, chief economist, The AGC of America, agc.org, who presented in a November forecast webinar from ConstructConnect, the AIA and AGC.

Is the U.S. headed into a recession?



The U.S. economy is slowing but is unlikely to go into recession, say economists.

According to Moody's Analytics, the probability of recession through the first quarter of 2020 is less than 10 percent as of October, which is noticeably down from the odds published earlier in 2019. "Do I think there will be recession in the next 12 months? It's highly unlikely. After that, it depends on the various risk factors," says Moody's deRitis. Key risk factors to watch, per deRitis, include everything from an escalation in the trade war to a stock market correction to a no-deal Brexit.

Richard Branch, chief economist for Dodge Data & Analytics, says the economy remains fairly healthy, making a recession unlikely in 2020. "We talk a lot about recession, slowdown, contraction. But the economy is in good shape—decent shape," he says.

Branch says he anticipates the economic growth to slow to 1.5 percent for 2020, though it won't be steady throughout the year. "We see 2020 starting off right where we are now, at about 2 percent, and then we will start to see a downward slope through the fourth quarter where we'll be looking at something like

.2 or .3 percent growth."

A slowdown in 2020 will be mild, says Connor Lokar, economist, ITR Economics. "Things are going to get worse before they get better. However, we have a non-recession outlook. This is a pause in the business cycle. This is not the Great Recession 2.0."

Lokar advises glass companies to use the mild slowdown as an opportunity to address any issues in their business that have come to bear during the years of continuous growth. "There is an opportunity for you to take that slowdown to address bottlenecks. Reset yourself as we look to 2020 and beyond," he says.

What's in store for construction in 2020?

2020 CONSTRUCTION FORECAST

Averages, based on forecasts from
AGC, ConstructConnect and Dodge
Data & Analytics



Overall
-0.1%

Education
2.6%

Health Care
3.1%

Office
1.7%

Retail
-8.0%

Multifamily
-3.2%

Forecasts for construction in 2020 range from falling 4 percent, per Dodge Data & Analytics, to increasing 1 to 5 percent, per AGC of America. An average of leading forecasts shows essentially flat construction spending in 2020—a decrease of .1 percent. “The market is still quite favorable for construction,” says AGC’s Simonson.

By segment, institutional building is expected to see mild growth. Average forecasts indicate 2.6 percent growth for education and 3 percent for health care.

In the commercial segment, office construction is poised for more tepid

growth of 1.7 percent, per averages. However, retail construction is expected to continue its falloff, decreasing 8 percent.

Forecasts are mixed for multifamily residential, which had been a growth sector in the early years of recovery. AGC of America forecasts growth between 0 and 5 percent for multifamily in 2020, and ConstructConnect projects essentially flat performance, with growth of .79 percent. However, the Dodge forecast is much less optimistic, with projected declines of 13 percent for the segment in 2020.

Who are the regional winners and losers?

2017 —
2018 ...
2019 ■

West
50.2

South
52.1

Midwest
49

Northeast
47.2

ABI REGIONAL FORECASTS

Scores above 50 indicate growth, with a 6-to-9-month lead time. Source: AIA

Across the U.S., growth in building activity is slowing, according to the Architectural Billings Index, an economic indicator from the AIA that measures nonresidential construction activity with a lead time of approximately 9 to 12 months. However, there are regional winners and losers in the ABI.

Winners: South and West

Per the Architectural Billings Index, the South will lead construction growth in the coming year. As of October, the year-to-date ABI for the South was 52.1 (any score above 50 indicates growth). The West is poised for steady performance, with an ABI of 50.2.

Losers: Northeast and Midwest

The year-to-date ABI for the Northeast came in at 47.2, indicating continued sluggishness in the region, following stagnant performance in 2018. The Midwest is also in negative territory at 49.0.

What are the largest threats to the construction economy?

Skilled labor

Labor—specifically the lack of skilled labor—will be the biggest drag on the construction economy in the coming year, say economists.

“One of the biggest negatives we see is the lack of skilled labor. It will be a serious crimp on 2020,” says Dodge’s Branch. “Contractors are not worried about jobs. They think there are enough jobs to keep them going. They don’t have the ability—the skilled labor—to get the jobs done.”

Trade uncertainty

Unpredictable trade policies have had an effect on construction, economists say. “Trade uncertainty, policy uncertainty, is causing companies to pull back on hiring or to pause or cancel capital investment,” says Branch.

The impact of ongoing uncertainty could extend to material costs and demand for new construction, says Simonson.

What are the building trends to watch?

High-end projects

Since the recovery, projects, particularly in multifamily, have trended toward the high end. “Back in 2008, 9 percent of [multifamily] projects tracked by Dodge were valued over \$100 million in hard construction costs. In the past few years, 21 percent have been over \$100 million,” says Branch. Most of the high-end projects are located in New York City. If there is a slowdown in the global economy, the high-end multifamily market would likely feel the effects, Branch notes.

Existing buildings

During the recession while new construction spending plummeted, work on existing buildings spiked. The sector that had held a one-third share of architect billings pre-recession grew to 45 percent. Despite expectations that investment in the sector would fall back during recovery, it has maintained the higher share of activity. “There seem to be growing incentives to fixing up existing buildings,” says ConstructConnect’s Carrick.

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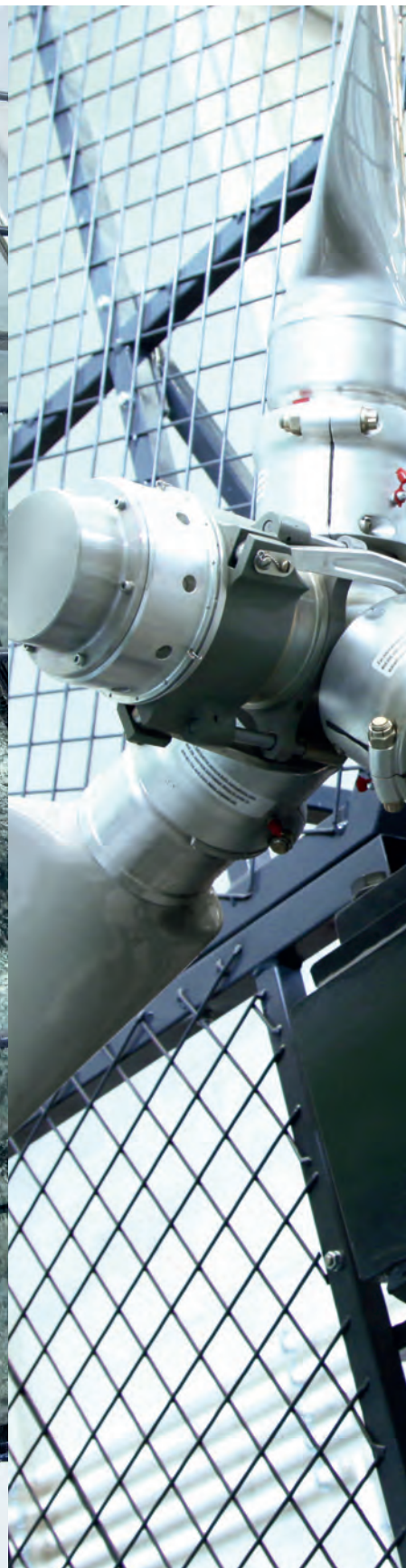
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PRODUCTS



SPOTLIGHT

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Mainstreet Computers offers glass industry clients a range of web services, including social media integration into its custom-built websites, as well as social media management. “The glass industry is very competitive and by ensuring a strong online presence you make yourself more visible, build your brand, and reach a further demographic,” says Diane Staples, sales representative, Mainstreet Computers.

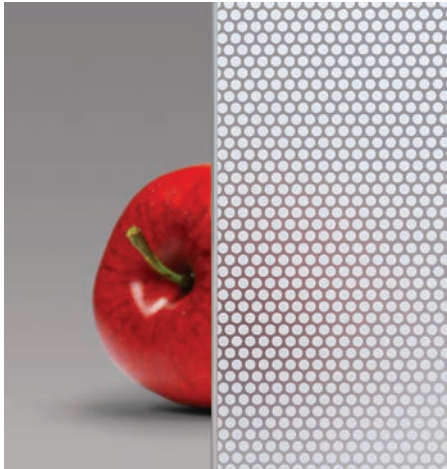
The company provides custom-built websites with SEO coding that can incorporate social media links. Mainstreet integrates social media links on the client’s website that will then take the viewer to the company’s social media platform. “Most people use some form of social media,” says Staples. “By adding [the client’s] link on their website, it gives more credibility and a more personal look into their business.”

Staples says the company identified the need to integrate social media links to provide another means of accessing their business. “We found that many of the prospective clients we spoke with used Facebook as their primary means of online advertising but were not getting the opportunities they hoped for. We saw integrating their social media sites provided a secondary access into their business platform,” says Staples.

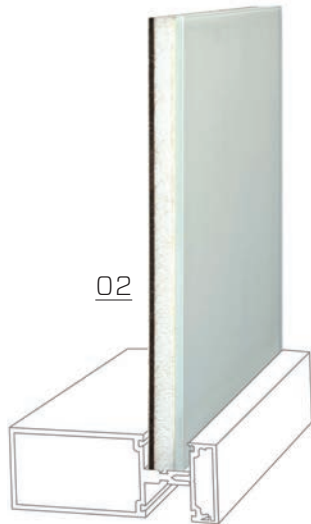
In addition to connecting a client’s social media sites to their websites, Mainstreet will also manage the client’s platforms, including Facebook and LinkedIn, among others. “Our team will create daily posts, manage the accounts and give them the professional, current image they need for their business. We can also manage paid ads on social media platforms for clients who are looking for a little boost in their presence,” says Staples.

As part of their management service, the Mainstreet team will monitor incoming comments on platforms, and provide monthly reporting. Posts can be customized based on the information supplied by clients. ■

734/699-0025 | MAINSTREETCOMP.COM



01



02

01. Fritted glass

Bendheim added a new type of exterior specialty glass, Lumi Frit, to its exterior glass offering. The Surface 1 fritted glass allows architects to create customized, brilliant white glass facades. Lumi Frit minimizes glass reflections, making patterns more pronounced and easier to view from a distance, providing an attractive option to highlight custom designs, say officials. By interrupting continuous reflections, the glass also becomes visible to birds, mitigating the risk of accidental bird strikes.

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02. Unitized spandrel

Mapes Panels updated MapeSpan, spandrel glass laminated into a unitized panel with an interior finish. The panels are now available in thicknesses up to 6 inches and can be made with gypsum board interior substrate for use in fire-rated conditions. Panels can also have rabbeted interior edges to accommodate standard glazing pocket while allowing for higher overall R-value.

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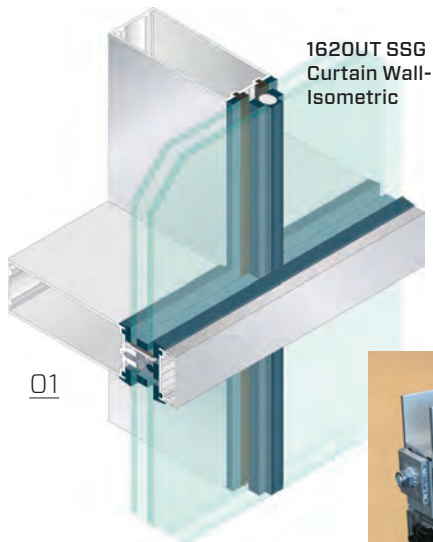
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PRODUCTS



01



02



03



04

01. Structural curtain wall

Kawneer Co. introduced the 1620UT/1620UT SSG curtain wall system. Built on the success of the 1600UT Curtain Wall platform, the new system offers a narrow two-inch sightline and is an option for low- to mid-rise applications. The curtain wall features an engineered polymer thermal separator and accommodates 1-inch insulating glass, making it applicable in climates where high thermal performing façades are needed.

770/449-5555 | KAWNEER.COM

02. Impact system

Tubelite Inc. introduced its ForceFront Storm hurricane/impact architectural entrance door systems with an expanded choice of approved hardware. The doors are available as standard medium and standard wide stile in 1.75-inch depths, or monumental medium and monumental wide stile in 2-inch depths. The hardware choices include: concealed vertical rod and rim exit devices; active and inactive door lock assemblies; removable mullions; and continuous gear, offset pivot or butt hinges.

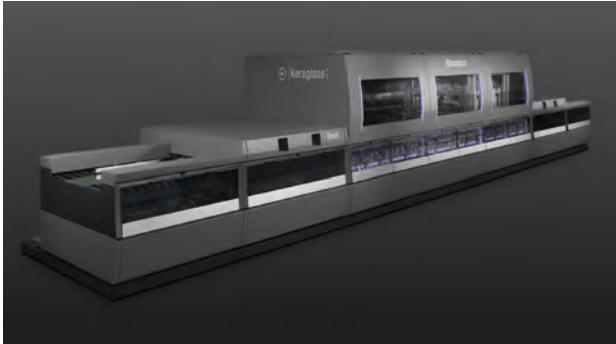
800/866-2227 | TUBELITEINC.COM

03. Monumental skylight

Exterior Technologies Inc. expanded its skylight product offering with a new Skygard 2500 Series aluminum-framed, monumental glass skylight system. Available in pyramid, single slope and ridge configurations, ExTech's new skylight complements commercial, institutional and industrial building designs. The Skygard 2500 is engineered with separate gutters to control condensation and leakage, and accepts glass up to 1 5/8 inches thick, including monolithic or insulating glass units. 800/500-8083 | EXTECHINC.COM

04. Window hardware

Roto expanded its Patio Alversa window hardware with the addition of new technical features designed to increase user comfort. The hardware's range for parallel sliding and tilt and slide windows was enhanced to meet the requirements of builders. Enhancements include a new ball-mounted roller unit in all versions, which ensures quiet, smooth operation and reduced wear. The hardware is also designed with protection against jamming in its factory configuration. For builders, this innovative roller unit technology means safe window guidance. 860/526-4996 | ROTONORTHAMERICA.COM



05



06

05. Digital printer

Keraglass released Dinamica, the company's newest digital printing system. The operator can choose between multi-pass or single-pass printing. With multi-pass printing, after the automatic alignment operation, the glass sheet is stopped and scanning printed, with the facility to change the color printing sequence. With the single-pass process, the printing unit is fixed, and it is the glass that moves, allowing the application of a single coat in multiple colors.

336/668-2300 | MATODI.BIZ

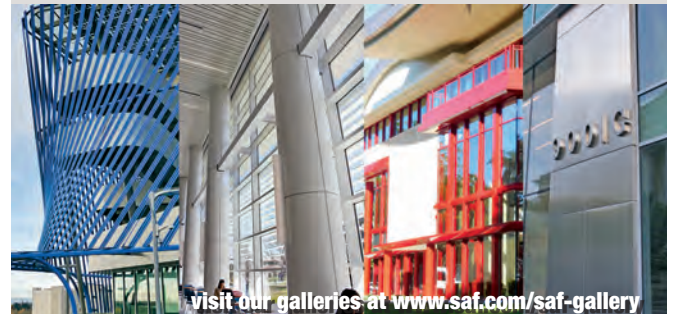
06. Anodize

Linetec continues to grow its palette with the introduction of Bordeaux Anodize. This new color is available as another of Linetec's proprietary finishes for architectural aluminum products, and the hue leans toward rich burgundy tones and is created using organic tin and copper metals in the anodizing process. The finish meets or exceeds all AAMA-611 Class I specifications and weathering tests, and is supported with a five-year warranty.

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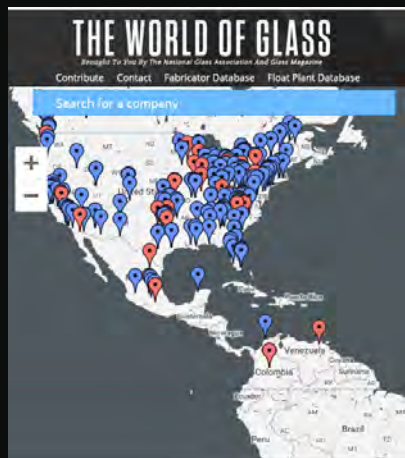
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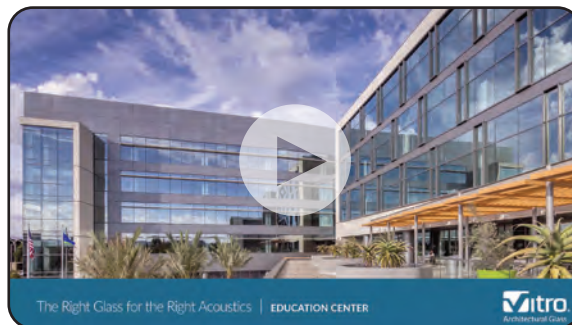
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PRODUCTS



01

01. Educational videos

Vitro Architectural Glass added three updated videos to its newly rebranded Vitro Glass Education Center. The videos include "Determining the Right Glass for the Right Acoustics," "Managing Thermal Stress Risk," and "Bent and Laminated Glass Demonstration." The videos are designed to help architects, specifiers, designers and students understand the versatility of glass and its ability to meet a wide range of architectural applications, say officials.

855/887-6457 | VITROGLAZINGS.COM

Waterborne coatings

(not pictured)

Schilling Inc. released two new waterborne coatings product lines for the architectural coatings market, available for immediate delivery. The HydroCryl acrylic thermosetting coating is designed for those who wish to spray glass substrate items like the backs of flat glass. The HydroThane polyurethane thermosetting coating is designed to provide a decorative coating for glass used in applications that will require excellent durability, chemical and abrasion resistance. 800/726-6626 | SCHILLINGINC.COM



02

02. Protective wear

CutPro released its 2020 product range. The temperature variation between the cold end and the hot end of a float glass plant can pose an extreme challenge to comfort and breathability, a factor which turned out to be of greatest importance when designing the latest garments, say officials. All CutPro garments are fully CE marked and manufactured using the thoroughly field-tested Cut-Tex PRO fabric. +[44] 0845-5193-953 | CUT-PRO.COM

Design software

(not pictured)

Faro Technologies' BuildIT Construction 2019.5 software now provides faster, more reliable and customizable importing of design models from scan data, according to the company. With several developments, users can conduct accelerated and precise onsite analytics for quality assurance specifications. Users can get results 90 percent faster than with previous versions, according to officials. Customizable and additional file formats have been included for importing design models from scan data. 800/736-0234 | FARO.COM



Lurie

Vitro Architectural Glass

Vitro Architectural Glass welcomed *Brian Lurie* and *Daniel Sutton* to the company's management team. Lurie was named national architectural manager for Northern California, and Sutton will be national architectural manager

for the Great Lakes region.

As a member of Vitro Glass's national architectural team, Lurie will deliver product, technology and service solutions to architects, designers, specifiers and other customers in the commercial construction industry.

Sutton joined the Vitro commercial marketing group in 2017, providing project analysis, LEED compliance documentation and customer support. In his new role, he will focus on delivering product, technology and service solutions to architectural designers and other customers in commercial construction markets in Indiana, Michigan, Ohio, western New York, western Pennsylvania and West Virginia.



Gates

Western Window Systems

Western Window Systems' president, *Scott Gates*, will depart the company on Jan. 31,

2020, to form an entrepreneurial clothing company with the social goal of helping inmates gain new skills, earn fair wages, and provide for their families. Western Window Systems is part of the PGT Innovations family of brands. Prior to beginning his role as president in August 2015, Gates served as Western Window Systems' president and chief operating officer following assignments as vice president and general manager and marketing director.

Bovone, Salem Distributing Co.

Bovone and Salem Distributing Co. appointed *Doug Mangus*, longtime



Mangus

machinery sales director with Salem, to head up the soon-to-open Bovone North America. Mangus was selected as general manager based on his important experience gained over numerous years of working side by side with Bovone's Italian headquarters, say company officials.

Salem also promoted two machinery sales engineers to sales directors. *Michael Rosato* is now machinery sales director, West Coast, and *David Anderson* is now machinery sales director, East Coast. Rosato is a veteran in the glass industry with over 36 years of experience. His extensive experience in the shop, around the machinery and in the field has allowed him to establish deep customer relationships and work closely with manufacturers to develop and improve their machinery lines. Anderson is a seasoned fabrication solution provider having 23 years of experience in the glass and stone industries. Anderson began working in the glass industry directly out of school.



Gupta

Kinestral Technologies

Kinestral Technologies Inc., producer of Halio electrochromic glass, appointed *Alok Gupta*

as its new chief strategy officer. Gupta will help Kinestral capitalize on its momentum as the company expands its manufacturing and operations to meet growing global demand. Gupta brings more than 25 years of experience in investment banking, engineering, and operations to Kinestral. He previously headed the semiconductor and electronics investment banking group at Mizuho Securities and spent several years with the tech investment banking team at Citigroup.

Pilkington North America

Pilkington North America Inc. appointed *Matthew Hargather* as regional sales and marketing manager for architectural



Hargather

glass North America, covering the East Coast region. Hargather joins Pilkington after working as the regional sales director in the eastern U.S. for Paintzen/PPG.



Zavatti

Davlyn Group

The Davlyn Group a supplier of technical textiles, welcomed *Mauricio Zavatti* to the company as CEO.

Zavatti brings a unique combination of industrial, international, and leadership experience, following progressively senior roles at Danaher Corp., Tyco International and Belden Inc.



Giusti

Tubelite Inc.

Tubelite Inc. named *John Giusti* as logistics manager in Walker, Michigan. He will report directly to Tim

Salach, vice president of finance, and his focus will be on freight operations, and material planning and logistics. Giusti comes with an extensive background in supply chain and logistics, most recently serving as the North American director of supply chain at Gordon Food Service, a wholesale food distributor in Wyoming, Michigan. In this position, he was part of a team responsible for the development and deployment of a private fleet of more than 3,000 delivery vehicles that drove over 100 million miles annually.



Stauffer

Graham Architectural Products

Graham Architectural Products added *Peter Stauffer* and *Tim Finley* as independent sales representatives. Stauffer



Finley

will be covering the Pacific Northwest for Graham, specifically Idaho, Montana, Oregon and Washington. Most recently, he served as a regional manager

for Southern Aluminum Finishing. Finley will be serving Iowa, Minnesota, North Dakota, South Dakota and Wisconsin. His background is in commercial glass, having most recently served as national sales manager for SageGlass/Saint-Gobain. In January of this year, Finley started T.Fin Building Solutions, an independent rep firm.



Bowers



Cox



Aftimos



Walter

Wausau Window and Wall Systems

Growing its architectural sales team, Wausau Window and Wall Systems hired three new representatives: *Andy Bowers*, *Kenneth Cox* and *Antonio Aftimos*. In addition, *Chad Walter* will be serving customers in Illinois and Indiana.

Based in Tennessee, Bowers has more than 20 years of experience serving customers in the surrounding southeastern states.

For more than 10 years, he worked with BASF Construction Systems as a building and parking restoration specialist supporting parking,

building and stadium restoration projects along with new construction.

Now a member of Wausau's eastern regional sales team, Cox also brings more than 20 years of experience selling windows, doors and other building products. Located in Charleston, South Carolina, he joins Wausau from LaCantina Doors, where he worked as a sales specialist for the East Coast. He also has held sales and management positions with Jeld-Wen Windows & Doors and Andersen Windows & Doors' Silver Line Building Products.

Part of Wausau's western regional sales team, Aftimos draws from a 20-year career and more than a decade of experience working closely with glaziers, contractors and architects. Based in

Houston, he most recently served as vice president of sales and marketing at Columbia Commercial Building Products. Prior to this position, he was the director of sales for Cristacurva Fabricated Glass, responsible for the U.S. and Canadian markets.

A Wausau associate for 20 years, Walter now provides direct local support to customers in Illinois and Indiana. A veteran of the U.S. Marine Corps, Walter joined Wausau while he continued his service in the Reserves training military police officers. He started with the company in the manufacturing center and was promoted to production lead. He transitioned to work on Wausau's pre-engineered product offering as a product and pricing specialist, and later, as the team leader.



Campbell

Quanex Building Products

Quanex Building Products named *Chris Campbell* as its new territory sales/national

account manager for the Northwestern United States. Campbell brings more than 14 years of professional design and engineering experience to the role and has worked within the fenestration industry for more than 10 years. He most recently led the engineering team at Thermo-Tech Windows in Minnesota, where he helped implement automation initiatives, improving quality and production while heightening manufacturing efficiency.



Hammond

YKK AP America Inc.

YKK AP America Inc. appointed *Jim Hammond* as architectural sales representative for the Boston

branch. Hammond will support the company's customers in the region and strengthen YKK AP's local service to the market, which includes Connecticut, Massachusetts, Maine, Rhode Island and southern New Hampshire. Hammond comes to YKK AP America

with a strong background in sales and territory management, as well as a deep understanding of customer needs in the northeastern U.S., say officials.



Hamidzada

A+W Software

A+W Software welcomed *Tareque Hamidzada* to its customer services team as an application specialist.

In Hamidzada's new position, he will be responsible for providing A+W customers a high-quality experience by implementing its solutions and supplying consultative guidance on products and services, say company officials. Hamidzada comes to A+W Software with a background in software-as-a-service development and system development/support in the food-service data industry.



Dowdy

Kensington Glass Arts

Kensington Glass Arts welcomed *Naumann Dowdy* as senior project manager for the KGA Building Envelope Team, and *Kostiantyn Leonov* as estimator. Getting his start in the glazing industry in 1999, Dowdy began as a draftsman



Leonov

doing shop drawings by hand. He has worked for several glazing companies during his career in the industry, but most of his experience came from working at a local Maryland company, Custom Glass Services. Dowdy's experience in the industry made him the ideal senior project manager candidate, say officials. ■

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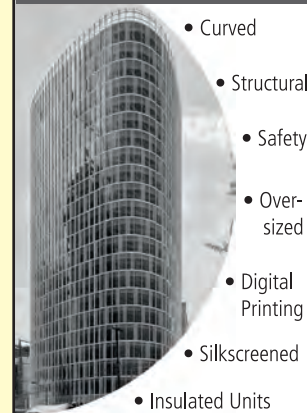
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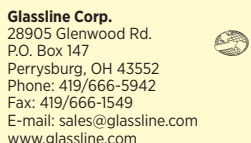
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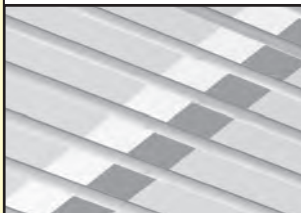
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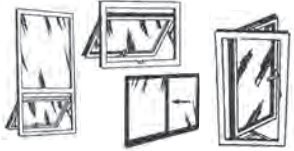
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Companies from all parts of the glass and glazing industry have implemented innovative, out-of-the-box ideas to improve business from the ground up. Here's an Idea showcases these sometimes small behind-the-scenes ideas that can make a big impact on a company's bottom line. If you have an idea that you would like to share, contact Norah Dick, ndick@glass.org.

GLAAS INC. SETS WOMEN UP FOR SUCCESS IN GLAZING



In response to the ongoing glass industry labor shortage, Australia's glass industry association, GLAAS Inc., developed a program to recruit and train women for careers in glazing, says Patrick Gavaghan, the organization's national project manager.

The new project is part of the Australian government's "Launch into Work" initiative, an outcome of the 2014 G20 summit, held in Brisbane, Australia. The summit committed G20 countries to reduce the gender gap by 25 percent by 2025, compared to rates in 2012. "Launch into Work" partners with employers and industry associations, like GLAAS, to provide preemployment training for women in the labor force.

As in the U.S., Australian companies have had difficulty attracting women into the glass industry, says Gavaghan. "The challenge we had as an industry was that most of our female glaziers came to us from family businesses," he says. "There was never much from outside the industry, where we get many of our other apprentices. The initiative is about bringing in more people in from outside [the industry]."

Preemployment training

To create its pool of potential participants, GLAAS partners with a government recruiter, which is supplied by the association with a profile the recruiter can use to select a minimum of 20 women. GLAAS then presents the women with an introduction to glazing, outlining the basics of the job and its benefits, says Gavaghan. Participants who remain interested in pursuing the training then take basic introductory tests, including a background check and drug test.

From those who pass these initial tests, the association selects 10 for the program. The preemployment glazier training, provided by a public provider system for trade qualification, includes four or five of the professional modules included in the country's trade certification for glazing. The formal qualification takes about three years to complete.

Apprenticeships

GLAAS secures industry apprenticeships for the graduates, well before they finish the training. It's a win-win, says

Gavaghan, as the workers are guaranteed employment, and employers are guaranteed interested, trained labor. "When we place them into the employer, that means [the employer has] got a glazier who is interested in the industry, she's happy with it. She also comes to the employer semi-skilled, so she hits the ground adding value."

Lasting benefits

Gavaghan emphasizes the many benefits for women in joining the glazing industry. After certification, glaziers in Australia work for a company for two to three years, and then have the opportunity to become independent contractors, says Gavaghan, completing contract work with their original company, among others.

This elastic career trajectory could be helpful for women, he says, especially those thinking of starting a family. "You can go into the trade, run for two to three years, and then take time off, for maternity care, or whatever you want to do, and then come back to that trade with very minor updating required," he says. ■



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