

GLASS MAGAZINE[®]

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NOVEMBER 2019

STATE OF THE INDUSTRY

GROWTH IN
THE FACE
OF LABOR
CHALLENGES
AND
ECONOMIC
UNCERTAINTY



OFFICIAL
PUBLICATION

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ON THE COVER: The Rheingold, a multi-family building located in Brooklyn, New York, sports an eye-catching façade that includes C.R. Laurence's, crlaurence.com, Taper-Loc glass railing system. The company contributed 6,000 linear feet of the system to the project, which was designed by ODA, oda-architecture.com. AGM Deco, classicimageny.com/web/agm., was the glazing contractor and Blue Star Glass, bluestarglass.net, was the glass fabricator.

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BONUS ISSUE CONTENT

GlassMagazine.com/November2019

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Find the NGA's life cycle resource for the building enclosure industry

COVERAGE

See additional content, photos and video from GlassBuild America 2019

PRODUCT GUIDES

Read about the industry's automated and high-performance solutions

GLASSBLOG



MUSINGS

A Few Reflections on the Industry

By John Wheaton, Wheaton & Sprague Engineering



FORECAST

From the Fabricator: Economic Softness

By Max Perilstein, Sole Source Consultants



SUPPLIER SUPPORT

Installation Instructions: More than Troubleshooting

By Steve Schohan, YKK AP America

PROJECT NEWS

Featured in e-glass weekly. To submit projects, write Norah Dick at ndick@glass.org.

Pictured: Accenture offices in Salesforce Tower, San Francisco. The five-story staircase features sawtooth cut glass railing to match the rise of each stair, and shoe mounted glass railing on accompanying overlooks, supplied by Trex Commercial Products.



GLASS MAGAZINE

Published by the

NGA NATIONAL
GLASS ASSOCIATION
with GANA

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Glass Magazine® (ISSN 0747-4261), Volume 69, Number 10, 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. ©2019 National Glass Association. All Rights Reserved. Printed in the U.S.A.



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‘Glass is Part of the Solution’

GLOBAL GLASS ASSOCIATIONS AIM TO MAKE 2022 THE YEAR OF GLASS



KATY DEVLIN
Editor-In-Chief
kdevlin@glass.org

Glass in all its forms helps build a healthier, safer and more sustainable world. From glass used in medical equipment to the glass products that allow access to clean water, and from the glass that makes solar power possible all the way to the architectural glass products of our industry that are necessary in the construction of better buildings, glass is being used to improve lives of those around the globe.

“Glass is part of the solution,” said Reinhard Conradt, vice president of the International Commission on Glass, icglass.org, speaking during a meeting of leading international glass associations at Vitrum 2019, held last month in Milan. Because of the wide range of essential interventions of glass, the ICG is leading an effort to make 2022 the International Year of Glass through a United Nations Declaration.

According to the ICG, the United Nations recognizes important global initiatives and their contributions to society with declarations of United Nations International Years. Per ICG, the resolutions enable industries, along with groups from museums, journals and the academy, to recognize and celebrate their history, their current state, their future and their major contributions to society.

“2018 was the International Year of Light, and 2019 is the International Year of the Periodic Table. We would like to make 2022 the International Year of Glass,” Conradt said.

The UN outlined 17 sustainable development goals. Glass plays a key role in many of them, according to Conradt. The architectural glass products from our industry specifically address at least seven of the goals.

Consider goals three and four, for good health and well-being, and quality education. Numerous studies show that the daylighting and views made possible through glass in building façades are critical to occupant health, comfort and performance. Access to natural daylight and views correlates with reduced absenteeism among workers, decreased hospital stays for patients, improvement in student test scores and more.

The glass industry’s efforts to develop high-performance, sustainable building solutions target several other UN goals: seven, affordable and clean energy; 11, sustainable cities and communities; 12, responsible consumption and production; and 13, climate action. Additionally, the industry’s work to improve production processes, increase worker safety, and reduce energy consumption in manufacturing fit into the ninth goal: industry, innovation and infrastructure.

Glass is part of the solution to so many of our world’s biggest challenges. Making 2022 the Year of Glass would provide an opportunity for the global glass community to educate on the benefits and possibilities of glass. To learn more about the initiative or get involved, visit GlassMagazine.com/November2019. ■

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

Guardian Glass to Shutter Millbury Plant

Guardian Glass, guardianglass.com, will close its fabrication plant in Millbury, Ohio, according to reporting from the Toledo Blade, toledoblade.com. The plant, which fabricates consolidated glass, mirrored glass and vacuum-insulated glass, will start terminating the jobs of the plant's 100 employees in late November. According to reporting, company officials referred to the move as a "business decision" and will assist employees negatively affected.

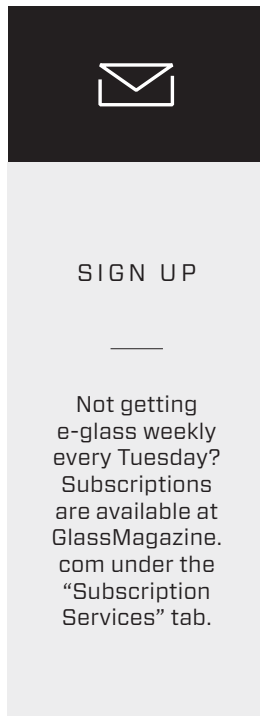
Fuyao Glass America Will Pay Fines for Firing Three Workers

The National Labor Relations Board fined Fuyao Glass America, fuyaousa.com, for firing three employees from its Moraine, Ohio, plant, as reported by the Dayton Daily News, daytondailynews.com. The fine, \$120,000, will be paid to both the NLRB and the employees, and settles charges that the company discharged the employees for wanting to unionize. Fuyao responded to Dayton Daily News reporters, denying the charges, and claiming "justifiable" termination of the employees.

Hegla Announces Majority Stake in Taifin Glass Machinery

Germany's Hegla Group, hegla.com, announced it signed a sales agreement to purchase a majority stake in Taifin Glass Machinery Oy, taifin.com. Hegla will take over 51 percent of Taifin's stock and the company will conduct its future business under the name Hegla-Taifin Oy.

"We are pleased to have found a young, dynamic, and innovative partner company in Taifin, who have already established themselves as leaders in the automotive and architectural glass tempering furnace segment with their high-quality safety



glass furnaces and unique press-bending technology," says Jochen H. Hesselbach, CEO of the Hegla Group.

American Insulated Glass Acquires Tennessee Glass Wholesalers

American Insulated Glass, aiglass.com, acquired Tennessee Glass Wholesalers, a privately held glass distributor in Knoxville, Tennessee. This is an asset-only purchase agreement designed to expand the AIG footprint, say company officials.

"The AIG team is well-known in this market and we simply could not be more pleased to be moving into a physical location in Knoxville this soon and we look forward to serving glazing contractors that we have dealt with for many years with a broader range of high-performance and custom glass solutions," says Billy Blair, president and CEO of AIG.

Convenient Payments Holdings Acquires Mainstreet Computers Inc.

Convenient Payments Holdings LLC, convenientpayments.com, a portfolio company of Beekman Investment Partners III, LP, thebeekmangroup.com, acquired Mainstreet Computers Inc., mainstreet-comp.com. Mainstreet has operated as an independent company since 1982 and continues to be independent under the new ownership of Convenient Payment Holdings LLC, say officials.

"We are impressed with the Mainstreet team and are thrilled to welcome them to the Convenient Payments family," says Casey Leloux, CEO of Convenient Payments. "Our vision for Convenient Payments has always been to partner with software companies like Mainstreet, connect them to our Intellipay payment processing platform, and provide additional resources both to accelerate growth and support critical back-office functions."

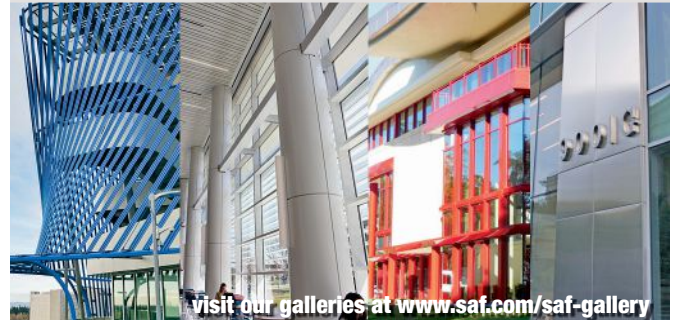
H.B. Fuller Opens New Window and IG Technical Center of Excellence

H.B. Fuller, hbfuller.com, opened a new Window and IG Technical Center of Excellence. The center, located at the company's world headquarters in St. Paul, Minnesota, provides a space for customers to generate insulating glass units for testing, try new processing conditions, and generate different systems for comparison. It also can be used as a training center to help customers better understand the capabilities of a line and how to use the products.

"We wanted to create a collaborative space for R&D, customer and commercial teams to test new ideas, evaluate products and demonstrate our world-class capabilities," says Brian White, technical manager for the North America IG and window business.

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Bovone to Open New Branch in US

Bovone, bovone.com, an Italian manufacturer of solutions and technologies for the secondary processing of flat glass, will open a new branch in the U.S. to serve the North American markets. The branch will open in 2020.

“We are excited about this new venture,” says Federica Bovone, sales manager at Bovone. “Bovone has been successfully selling its machines in the U.S. for 45 years and the time has come that we expand into this market with a physical location so we can continue to effectively and efficiently meet the demands of our loyal customer base.”

Q-railing Expands with Branch in New York

Q-railing USA, q-railing.com, opened a new branch of the company in New York City. Clients throughout the Northeastern U.S. can now have direct, face-to-face contact with Q-railing sales consultants. Thanks to its central location, the new branch also offers flexible and speedy service, say company officials.

“Q-railing firmly believes in the power of having close relationships with its customers,” says Jan Hulin, general manager of Q-railing USA. “Being geographically close to them plays a huge role in having good and personal contact. This physical proximity also enables us to keep shipping costs and lead times low, which in turn allows our customers to start their railing projects quickly.”

Quanex Invests in its Mikron Washington Facility

Quanex Building Products, quanex.com, invested in 10 new extrusion lines from Extrunet for its Mikron brand of vinyl window and door profiles at its Kent, Washington, facility. Quanex anticipates that the new lines will be fully operational by early 2020.

“We’re making this investment because we fully believe in Mikron and its continued success,” says Bob Daniels, president, North American Fenestration, Quanex Building Products. “By driving new efficiency in our manufacturing capabilities, our customers will experience the benefits first-hand in the form of improved production stability and overall customer experience.”

Stürtz Machinery and Pertici North America Launch Alliance

Pertici North America, pertici-na.com, partnered with Stürtz Machinery, stuertz.com, to expand Stürtz’s presence in the aluminum fabrication arena.

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NEWS TO KNOW

we opened up shop in northeast Ohio in 1997,” says Ellis Dillen, president and CEO of Stürtz. “While our success and growth to this point has focused on the PVC fenestration market in North America, we feel like the time is right to expand our reach into the aluminum fabrication market. The opportunity to partner with a well-known, reliable worldwide partner like Pertici gives us a running start into this new venture.”

SmartLift US Introduces Financing Arm

SmartLift, smartliftus.com, partnered with Ann Arbor-based UniFi Equipment Finance Inc., unifiedge.com. Through this partnership, UniFi will provide monthly payment financing for customers, and the companies will jointly market the new program.

“By providing this new financing avenue to our customers, we are making it easier for small and medium businesses

to purchase a SmartLift glass manipulators that improves safety, reduced labor cost and increased production,” says Steven Brooks, national sales director at SmartLift US. “UnFi is a long-time preferred finance partner and this expanded relationship supports our ability to drive sales and substantially enhance our offerings.”

Atis Group Adds Commercial Production Capacity in St-Apollinaire

Atis Group, atisgroup.ca, inaugurated its new commercial aluminum window production line during a launch event in St-Apollinaire, Quebec, Canada.

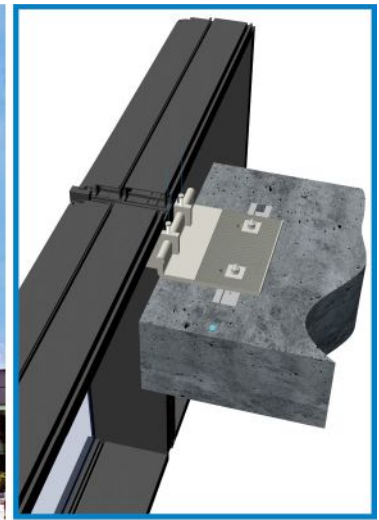
“Our ultimate goal is to take the necessary measures to be able to continue to support our clients’ architectural projects,” says Benoit Alain, president and CEO of Atis Group. “This new production line will allow us to meet the increasing demands of our

professional customers and turn their visions into reality. I would like to thank all our employees for their efforts and commitment which made this project such a success.”

China Retaliates Against 15% US Tariff

The U.S. imposed 15 percent tariffs on some Chinese goods, valued at \$300 billion, as of Sept. 2, according to Reuters, reuters.com. The Chinese government responded with retaliatory tariffs, and filed a complaint with the World Trade Organization. ■

News from Aug. 21, to press time, Oct. 2, 2019. Read these stories, and others, in their entirety at GlassMagazine.com.



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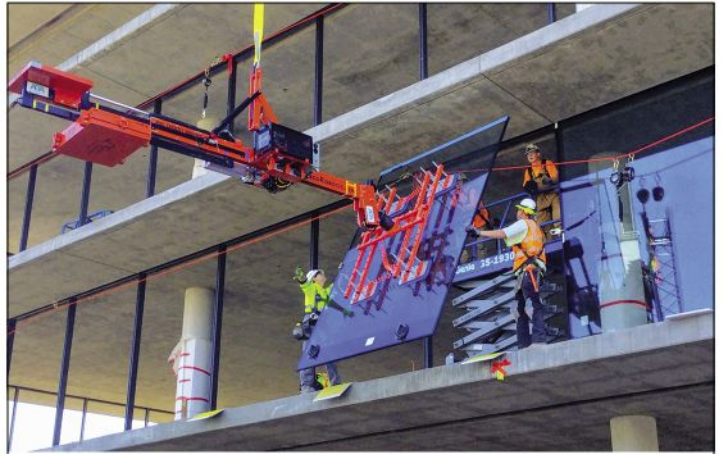
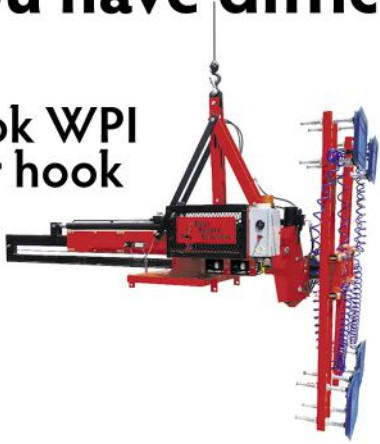
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Upcoming NGA Chair Chris Bole (left) and Angelo Rivera, immediate past chair.

NGA ANNOUNCES BOARD LEADERSHIP FOR 2019-2020

The National Glass Association announced its board leadership for the 2019-2020 term.

At its meeting at GlassBuild America in Atlanta in September, the NGA board of directors welcomed Chris Bole, Pikes Peak Glass Inc., pikespeakglass.com, as chair for the upcoming term, while Cathie Saroka, Goldray Glass, goldrayglass.com, was voted in as chair-elect. Doug Schilling, Schilling Inc., schillinginc.com, continues as treasurer, and Angelo Rivera of Faour Glass Technologies, faourglass.com, will serve as immediate past chair. ■

NGA ANNOUNCES FRIESE FOUNDATION PARTNERSHIP

During the Glazing Executives Forum held at GlassBuild America in September, officials from the National Glass Association, glass.org, announced a partnership with the Friese Foundation to foster glass industry education and training. The partnership involves Friese Foundation support of the NGA's online learning platform MyGlassClass.com.

Through a generous donation from the Friese Foundation, individuals interested in training will have access to scholarships and discounted rates, say NGA officials.

"Nothing is more important than investing in our industry," says Don Friese, former head of C.R. Laurence Co., and founder of the Friese Foundation. "Think of the industry as your challenge, and get your team on MyGlassClass.com. It is an opportunity for a lot of people to grow, make some money, become better citizens, and together we will all be successful."

Friese Foundation president DJ Friese accepted special recognition from the NGA during the Forum. ■



“
NOTHING IS MORE IMPORTANT THAN INVESTING IN OUR INDUSTRY
”

DON FRIESE
FOUNDER OF THE FRIESE FOUNDATION

GLASSBUILD AMERICA 2019 REFLECTS INDUSTRY'S STRENGTH

The glass and fenestration industries convened in September for the largest GlassBuild America in Atlanta in recent years. The essential industry trade show drew 8,200 attendees to a 187,000-net-square-foot exhibit floor with more than 420 exhibitors demonstrating the latest in industry innovations.

"The industry made it known that we're here, we're strong and we're looking to grow; this response to GlassBuild mirrors NGA's renewed commitment to elevate the image of glass as a safe, healthy, sustainable and inspiring building product," says Andrew Haring, vice president of

business development for NGA. "Exhibiting companies clearly stepped up their game across the board, sharing space with all sorts of new first timers, while attendees and exhibitors alike universally noted a strong uptick in energy, engagement, and offerings."

2019 GlassBuild America sets a precedent for future events, Haring says. "The folks who were here saw it, and the ones who missed it will surely join us next year."

Read more coverage from the show on page 48. GlassBuild America 2020 heads to Las Vegas, Sept. 15-17. ■



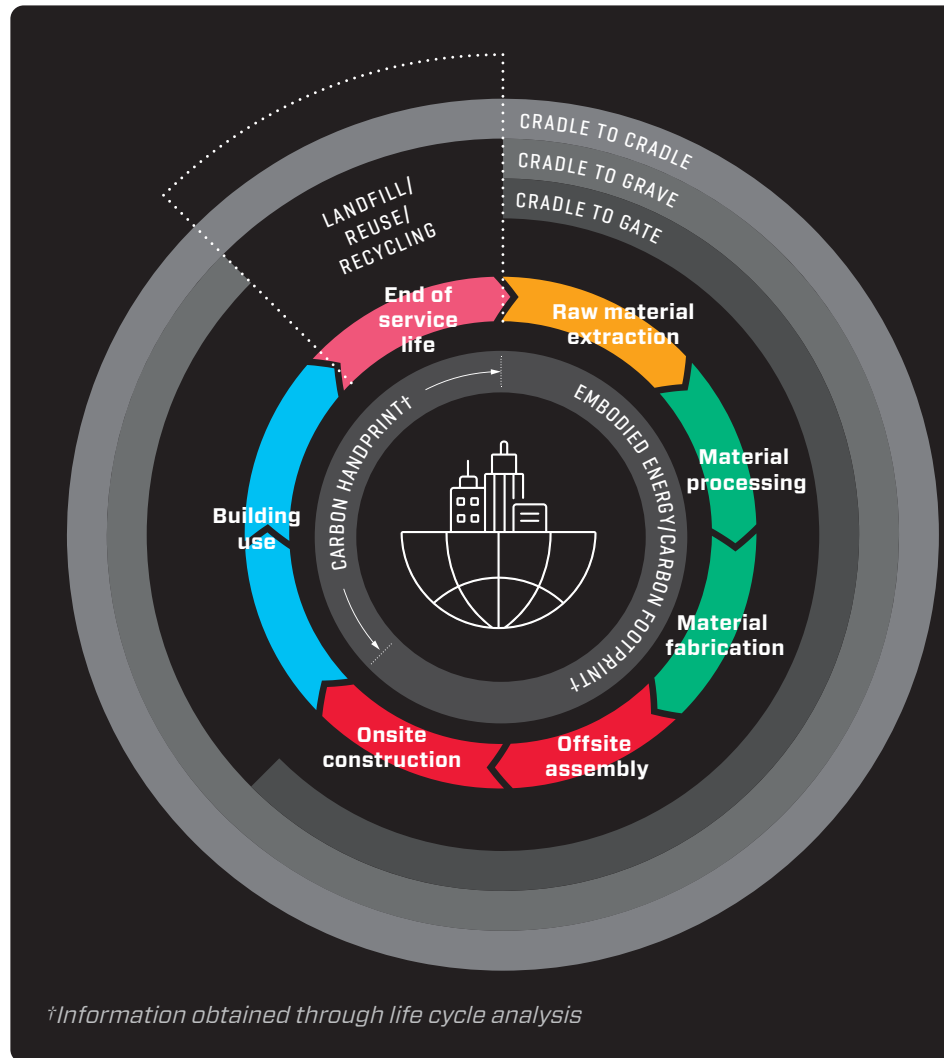
THE GLASS ADVOCATE

EDUCATION, ADVOCACY AND TECHNICAL CONTENT FROM THE NGA

DECIPHERING CRADLE TO CRADLE, TO GRAVE AND TO GATE: A LIFE CYCLE RESOURCE FOR THE BUILDING ENCLOSURE INDUSTRY

Working with technical and advocacy industry volunteers, the National Glass Association, glass.org, developed a document to help industry companies and their customers understand the various methods of calculating environmental impact and life cycle for building materials. The informational graphic notes the steps of building material production, from sourcing to manufacturing, fabrication, use and deconstruction. Further, it notes steps of the process that are included in the three primary methods of measuring environmental impact: cradle to cradle, cradle to grave, and cradle to gate.

The downloadable document helps to address confusion in the market regarding determining the environmental impact of building materials, according to volunteers. The graphic is intended to clear up that confusion for the glass industry and for its customers across the supply chain, from architects to owners and more, they say. ■

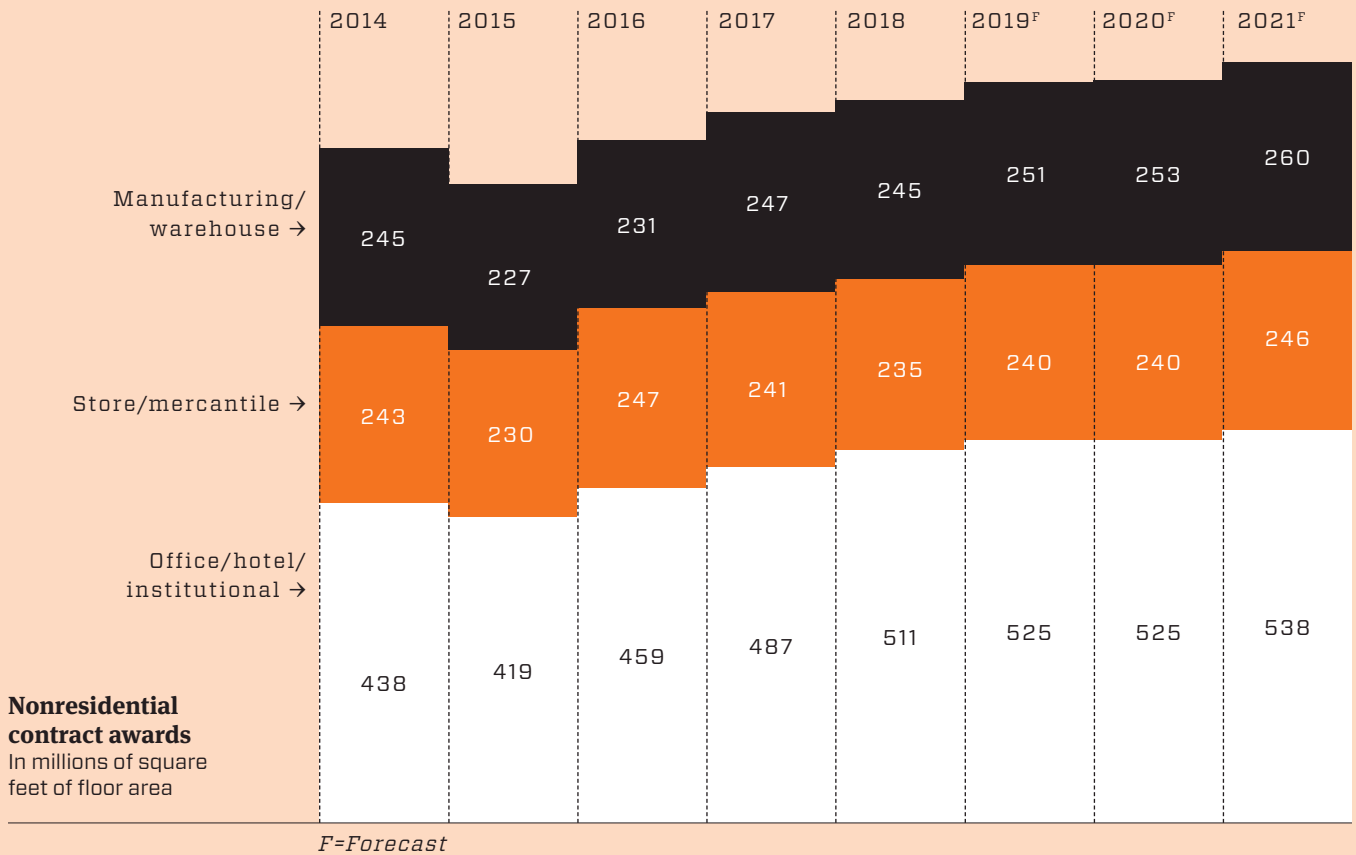


ONLINE

Download the life cycle document by searching for “life cycle” at glass.org/store.

INSIGHTS

- 19. LEGAL
- 21. TRENDHUNTER
- 23. HIGH PERFORMANCE



MARKET INTEL

COMMERCIAL FENESTRATION CONTINUES GROWTH TRAJECTORY

Vision area on the rise along with use of insulating and low-emissivity glass

BY ANGELA DICKSON

Nonresidential construction has grown steadily since emerging from the depths of the Great Recession in 2011. Contract awards for nonresidential floor area have been increasing annually. The trend continued in 2018 with contracts rising 4 percent in 2018 to a total of 991 million square feet, driven by growth in office, hotel and institutional building, according to the AAMA 2018/2019 U.S. Industry Statistical Review and Forecast.

Contract awards are expected to continue to grow in 2019 by 2.5 percent to 1,016 million square feet, nearly half of which is attributable to the Southern region of the United States, according to the report. Nonresidential contract awards are expected to level off slightly in 2020, before reaching a total of 1,043 million square feet in 2021. Again, with nearly 52 percent of the market, the focus is expected to remain on the office, hotel and institutional segment.

Vision area

Based on average ratios, the vision area—separate from opaque wall area and other cladding—can be derived from total wall area. Per the AAMA

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EXPRESS 440S (440lbs)



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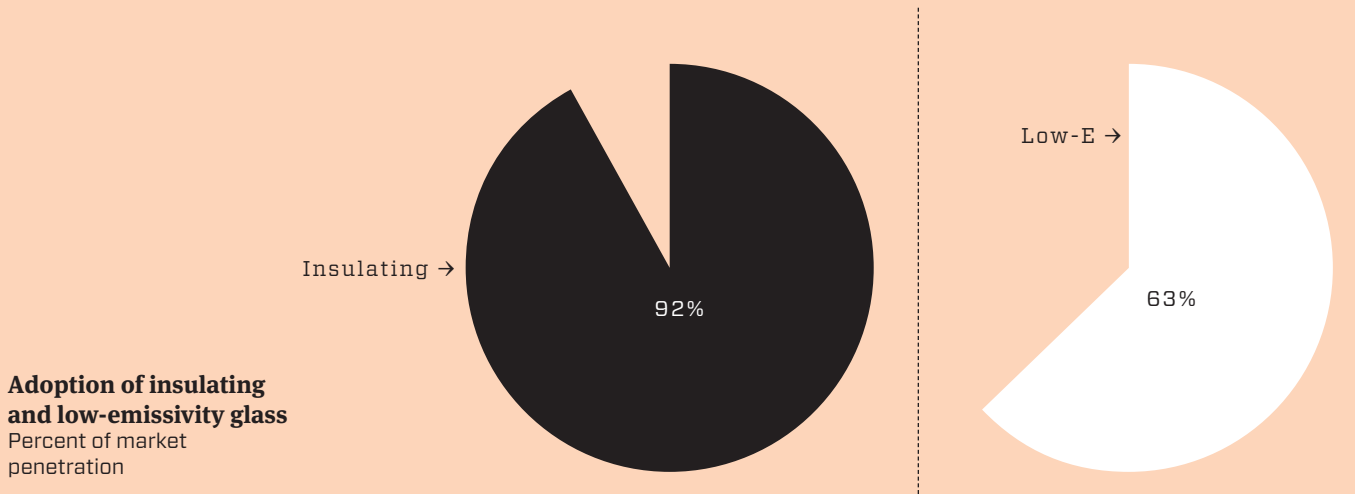
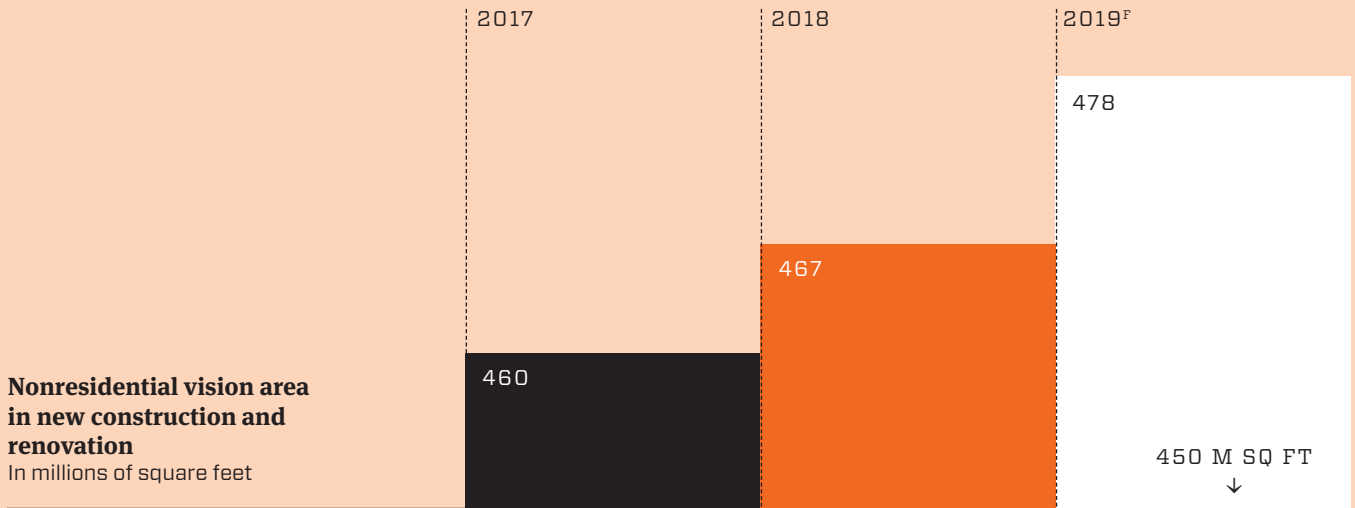


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2018/2019 U.S. Industry Statistical Review and Forecast, the total nonresidential vision area in new construction and major additions was 306 million square feet for 2017. When renovation applications are included, the overall nonresidential vision area totaled 460 million square feet of vision area in 2017 and 467 million in 2018, with a forecast 478 million for 2019.

Looking at product types, of the projected 2019 total, approximately 22.6 percent is anticipated to be in the form of curtain wall installations, while 27.8 percent is attributable to storefront systems. The remainder is expected to be composed of individual commercial window units.

Glass types

Insulating glass continues to reign supreme in nonresidential fenestration in the United States and is approaching saturation at 92 percent. Exceptions to this are in far Southern and Southwestern states. While use of triple glazing is growing, it remains only a small single-digit share of the market, and while warm-edge spacers are well established in the residential market, the nonresidential market utilizes primarily aluminum spacers.

Most nonresidential fenestration systems are field glazed, with the exception of shop-fabricated windows and some unitized curtain wall. Low-emissivity glass continues to penetrate

the market, representing 63 percent of the nonresidential glass with the highest market share in the shop-fabricated segment.

In 2017, the total market for hurricane impact glazing in nonresidential applications was estimated at 24.3 million square feet, with Florida comprising 91 percent of the demand. ■

Angela Dickson is marketing and communications director for the American Architectural Manufacturers Association, aamanet.org. For more information, see the AAMA 2018/2019 U.S. Industry Statistical Review and Forecast.

BEWARE OF BOILERPLATES

A real-world court case demonstrates the trouble with generic contract terms **BY MATT JOHNSON**



THE BOTTOM LINE

Boilerplate terms can lead to uncertain commitment that, if left unaddressed, results in gaps where liability can arise, or contractual rights are limited. Addressing these gaps at the time of contracting is essential.



A recent court decision from the Court of Appeals for Indiana, *A House Mechanics, Inc. v. Michael Massey*, shows what happens when generic contract terms collide with a complete breakdown of relationships. That opinion also offers a couple of useful learning opportunities for contract disputes in general.

The case concerned a roof replacement project on a few buildings in Indianapolis. The owner and trade entered into a contract that included a scope of work specific to the project and some “boilerplate” terms. The general obligations included a term by which the trade agreed to “comply with all applicable building codes.” Down payments were made and the work began.

By the court’s account, things did not go smoothly. The owner reported multiple concerns with the work. The trade denied any problems existed and assured the owner that there would be no problems once the work was complete. But the disagreements continued to grow. Demands and threats were exchanged. The police intervened at one point. Ultimately, the trade was kicked off the job.

City officials inspected the work. They found multiple code violations and issued an Order to

Stop Work. The owner demanded that the trade return the down payment because of what the city discovered. In response, the trade sent an invoice for the materials still at the site and recoded a mechanic’s lien on the property. The trade then escalated matters again by filing a lawsuit against the owner for breach of contract and seeking to foreclose on the mechanic’s lien. The owner filed a counterclaim. The parties were off to the courts.

After two years of undoubtedly expensive litigation the owner asked for summary judgment in its favor. The judge considered evidence from both sides and decided that the trade’s code violations were a material breach of contract that prevented it from pursuing contractual or lien rights against the owner.

The trade appealed. Revisiting the evidence, the Court of Appeals agreed that the trade’s work was “rife with building code violations” and that such were material breaches of the contract. The Court of Appeals also agreed that the trade’s conduct did not add any value to the job and the mechanic’s lien was properly invalidated. It upheld the judgment in full, along with an award of fees and damages against the trade.

What can we learn?

It is likely that this is not the end of the legal road between that owner and trade. Even so, the facts in the Court of Appeals decision provide us two real-world learning points. One is technical; the other, more practical.

First, the technical point: All contract terms matter.

It should seem clear that the written words by which one party agrees to pay for the materials and labor of another are important. But the truth is many contract terms are viewed as “boilerplate” or simply included as an appendix or addendum without careful review or consideration for their actual scope.

Look at the example above. It is not unforeseeable that very little, if any, attention was paid to the requirement that “all applicable building codes” be met. But when that general commitment is viewed critically, several highly specific, embedded requirements appear:

What codes apply? Who is responsible for determining what codes apply? Who measures compliance? When is compliance measured?

Boilerplate terms can lead to uncertain commitment that, if left unaddressed, results in gaps where liability can arise, or contractual rights are limited. Addressing these gaps at the time of contracting is essential, as court challenges to boilerplate terms are problematic.

The trade in our example argued it could not be responsible for violations of code because the contract did not specify when compliance was measured, and so it could not be in breach because it was thrown off the job. The court dismissed these arguments by finding that the trade’s suggestions would result in an absurdity that cannot overcome its agreement. Hindsight may be 20/20, but trying to convince a court of contractual limits after the agreement is signed

remains a very difficult proposition.

The second, more practical, takeaway: cooler heads prevail.

Among the reasons cited by the court in support for its breach of contract finding was the trade’s rebuffing of the owner’s concerns, abusive behavior and ultimate escalation of the dispute in a way that left the owner no avenue other than legal proceedings. Disagreements and personality disputes are bound to happen. But, when making the decision to proceed with legal or formal actions, a carefully measured assessment of one’s own conduct can help identify strengths and weaknesses. So too might some good, independent counsel. ■

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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A unitized glass curtain wall system with vertical aluminum fins being installed on a commercial office building in Rockville, Maryland.



Pivoting a façade business from one that stick-builds to one that prefabricates offers financial and strategic advantages that could benefit any size company. While moving to a prefabricated or unitized model requires up-front investment, it offers the long-term benefits of lowering project cost, risk, installation time and schedule duration.

Façade contractors can prepare for the future of construction by implementing technologies that drive prefabrication, developing the ability to work with diverse façade materials, and becoming integrated players in the design process.

Technology

A key starting point for façade contractors looking to move into curtain wall prefabrication is understanding the technologies that drive offsite construction. Whether it is BIM Modeling for design and coordination, 3D printing for mockups and testing, thermal imaging for energy performance, or robotics and CNC systems for fabrication, there are many technologies companies can consider as they develop their strategies. Companies that effectively implement these and other technologies into their supply chains will be best positioned to win large projects.

Glazing-in everything

The industry has entered an era of integrated façade systems, with many different elements pre-glazed into curtain wall assemblies. Everything from metal panels

GO UNITIZED

Top considerations for curtain wall prefabrication

BY DAVID BEN-ISRAEL



to stone, precast, terra cotta, wood, exterior shades, or even exterior lights, are being designed as integrated parts of unitized curtain wall systems. Because of this trend, it is critical that manufacturers take the time to understand how these different elements impact material interactions, thermal properties, and building waterproofing, and develop standards to attach them to their glazing systems. By developing the ability to work with a diverse range of materials, façade fabricators can position themselves as industry leaders.

Pre-designing the process

As building envelope design responsibility continues to shift toward manufacturers through delegated design packages, it is going to become more critical to have the capability to prefabricate curtain wall systems. The more façade elements that are glazed into a curtain wall, the more important

“

BY DEVELOPING THE ABILITY TO WORK WITH A DIVERSE RANGE OF MATERIALS, FAÇADE FABRICATORS CAN POSITION THEMSELVES AS INDUSTRY LEADERS.

”



it is for the manufacturer to be brought onto a project early, especially when the owner wants to award the façade to a single source of responsibility. By fostering in-house engineering and design capabilities, façade contractors

can prepare to be brought in as early partners during the design, giving them the opportunity to leverage prefabrication to positively impact a project.

Creating future success

Getting a building envelope completed and weather-tight is one of the most critical paths on a project. Façade contractors with the capability to prefabricate their systems will increasingly give themselves the opportunity to achieve that goal faster and have a competitive advantage in the industry. By adopting cutting-edge prefabrication technologies, developing the skills to work with diverse materials offsite, and preparing to partner in the design process, façade contractors can position themselves for future success. ■

David Ben-Israel is senior cost consultant, MGAC, mgac.com. He can be reached at dbenisrael@mgac.com.

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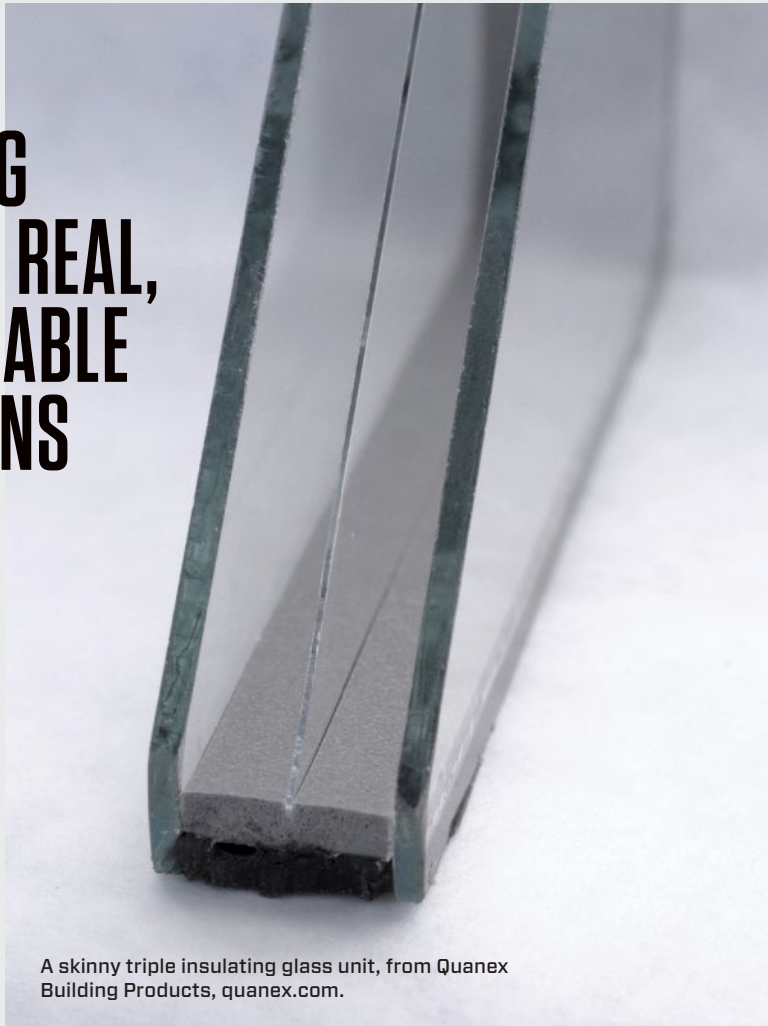
Guardian SunGuard Select™ Fabricator





WORKING TOWARD REAL, SUSTAINABLE SOLUTIONS

BY JOE ERB



A skinny triple insulating glass unit, from Quanex Building Products, quanex.com.



THE BOTTOM LINE

In today's industry, sustainability isn't just about energy efficiency and performance. It's about delivering solutions that meet those needs, but also stand the test of time.



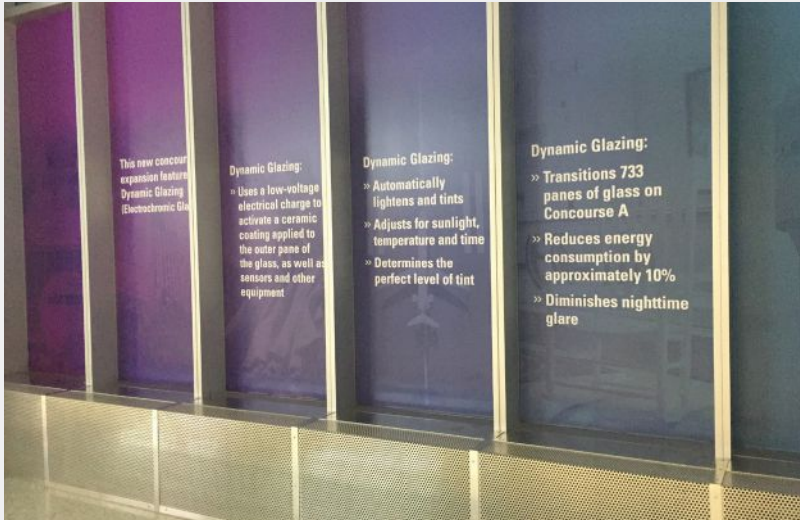
Any commercial construction project is a major investment of resources. And as codes, thermal efficiency demands, and more holistic sustainability imperatives gain traction throughout much of the commercial construction space, those investments must be made more deliberately than ever before.

Think about some of the developments we've seen this year. New York City Mayor Bill de Blasio stirred the pot by stating his intent to introduce legislation to ban new "glass and steel" skyscrapers from the city skyline (importantly to note, there's no actual ban happening here—but energy code requirements will tighten significantly). Meanwhile, the California Energy Efficiency Strategic Plan has set its goal of

all new residential construction meeting net zero energy by 2020, with commercial construction to follow in 2030.

The glass industry is a major part of this conversation, and thermal performance has been an important demand for a while now. But new building codes and standards will only grow stricter, and it's important that we're fulfilling our end of the bargain with products and solutions that do more than contribute to thermal performance in the short term. True, long-term sustainability depends on products, components and construction strategies that contribute to longevity and performance for years and decades to come.

So, how can commercial glass professionals



Quanex commercial systems with electrochromic glass, featured at the Charlotte Douglas International Airport.

marry performance and resiliency, along with economic affordability, aesthetics and more?

Find the right product combinations

Depending on the specific application, there are a lot of different product combinations that glass and glazing professionals can deploy to hit needed thermal targets and contribute to more sustainable structures.

Insulating glass is obviously key here, but it can't do the job on its own. Framing is becoming an important part of the conversation. Metallic options are the traditional choice for commercial applications, chosen for their strength and, indeed, their resiliency. But metal framing is inherently thermally conductive and requires some sort of thermal break to meet today's standards. New framing technologies like vinyl, fiberglass and composites could be increasingly utilized to hit new thermal performance targets, especially for punched-opening applications in a variety of new commercial construction.

Choice in spacer system is another important consideration—not just in terms of performance in the final application, but how well it can be integrated into operations for efficient production. Then there are low-emissivity coatings and

other technologies that can be applied to further enhance overall performance.

Finding the right economic balance among these options is critical, for both the fabricator who needs to put it all together, and for the developer weighing options in the final application. Sustainable solutions must be economically attainable, after all. Introducing required thermal breaks in metallic materials can become complex and sometimes costlier in an application where an alternative vinyl or composite material could deliver the performance more elegantly.

As the industry seeks solutions for a more sustainable future, performance must be weighed with longevity, reliability and proven field performance. A unit failure in the field means more resources devoted to replacement and, of course, damage to a company's reputation. As new solutions continue to present themselves, it's important to choose suppliers and products with a track record of proven success, along with the proper balance of performance and economic characteristics that make sense for the project at hand.

Enable new technologies

In the U.S. fenestration market, triple-paned insulating glass units are slowly but surely becoming part of the conversation. In some ways, this has

always been inevitable. Certain codes and standards have begun to demand performance that only triples are thought to be able to provide, the net zero energy considerations slowly going into effect in California being one of the most prominent examples.

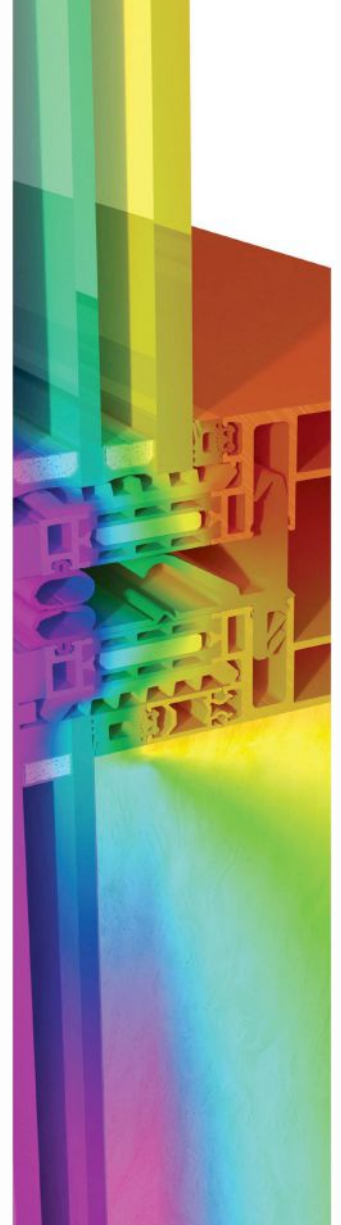
Triples are common in Europe and Canada, but in the United States, we've been able to deliver performance that the market demands through a combination of double-paned IGUs, low-E coatings and framing solutions. Triples, after all, are more complex to manufacture and require different architectural considerations to handle their weight. One emerging technology to consider is "skinny" or "thin" triples—triple-paned insulating glass units containing a thin, nonstructural center lite that are essentially the same thickness and weight as a traditional double-paned unit.

There are other emerging technologies out there as well. Dynamic glass continues to grow and dynamic windows featuring automatic shading are another technology being researched by Berkeley Lab in pursuit of net zero energy goals, with their ability to optimize solar heat gain.

Deploying these kinds of emerging technologies requires thoughtful consideration about the entirety of the glass system, including high-performance componentry like spacers and framing that can help push those performance figures even further, as well as ensure reliable, long-term performance in the field.

As an industry, it's important that we think holistically about how we can contribute to higher performance and greater sustainability goals with high-performance glass and glazing. Because it's not just about performance. It's about value, feasibility and longevity. True sustainable structures for our future must be designed and built purposefully to last a lifetime. ■

Joe Erb is the commercial sales specialist for Quanex Building Products, quanex.com.



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T O P

M E T A L

PROJECT
SPOTLIGHT



KAWNEER CO.

ProMedica Health and Wellness
Center, Sylvan, Ohio

INNOVATION: The design team behind the 230,000-square-foot ProMedica Health and Wellness Center, HKS Architects, hksinc.com, tasked Kawneer, kawneer.com, with supplying a high-performing façade that would also increase natural light and views of the outdoors, thus contributing to occupant comfort, says Karen Zipfel, director of marketing, Kawneer. Kawneer collaborated with Toledo Mirror & Glass, toledomirror.com, to create a high-performing façade for the project.



INVESTING IN THE FUTURE

—
BY NORAH DICK

The Top Metal Companies annual report, now in its eighth year, showcases the leading architectural glass and metal companies. Surveyed companies include those that manufacture, fabricate and sell curtain wall, storefront and entrance systems, commercial interior and exterior railings, aluminum composite panels and exterior sun-control products to the glass and glazing industry. The following report includes a ranking of companies based on annual sales, a closer look at market growth and product trends, standout projects and more.

28 LIST

2019 Top Metal Companies ranked by annual sales

34 GROWTH

Companies invest and expand amid sales gains

40 PRODUCTS

Prefabricated and high-performance products lead market

44 CHALLENGES


Lead times, labor and tariffs strain industry

METAL & GLASS: The project features a range of framing systems, including Kawneer's 1600UT system 1 curtain wall, 1600UT system 2 curtain wall, 190 narrow stile standard entrance, 350 medium stile standard entrance, Versoleil Sunshade with custom outrigger and blades, and Trifab 450 door headers. The glass is Solarban 72 and Starphire Ultra-Clear with triple silver, from Vitro Architectural Glass, vitroglazings.com.



2019 TOP
METAL
COMPANIES
RANKED
BY ANNUAL
SALES

THE LIST



➔ **THE FOLLOWING RANKING** represents the only architectural metal ranking in the glass industry. Companies are ranked based on reported sales volume and listed alphabetically within each sales category. In the instances that companies decline to provide information, we use independent sources to determine the most accurate ranking.

If your company belongs on the list, or you would like to update its information, please contact us. It is only with the cooperation of individual companies that Glass Magazine's Top Metal Companies report can be as accurate as possible. Questions or comments about this year's rankings, and requests to be included next year, can be sent to Norah Dick at ndick@glass.org.

COMPANY	NA LOCATIONS	EMPLOYEES	PRODUCT TYPES	OTHER
MORE THAN \$1.5 BILLION				
Oldcastle BuildingEnvelope[†] obe.com, Dallas	91	7,000+	CW SE	SKYLIGHTS, WINDOW WALL, WINDOWS, DOORS, INTERIORS
\$500-750 MILLION				
C.R. Laurence Co. crlaurence.com, Los Angeles	41	1,800	CW SE R AL SC	DEMOUNTABLE OFFICE PARTITIONS, FRAMELESS SHOWER ENCLOSURES, SPIDER FITTINGS, WINDOWS
Kawneer Co. kawneer.com, Norcross, Ga.	27	3000 globally	CW SE SC	WINDOWS
YKK AP America Inc. ykkap.com, Austell, Ga.	13	750	CW SE SC	
\$400-500 MILLION				
Trulite Glass & Aluminum Solutions* trulite.com, Peachtree City, Ga.	34	2,500	CW SE	
\$200-400 MILLION				
AMICO* amico-online.com, Birmingham, Ala.	09	900	CW SE R SC	
EFCO Corp. efcocorp.com, Monett, Mo.	09	1,300	CW SE SC	ALUMINUM WINDOWS
Tecnoglass tecnoglass.com, Barranquilla, Atlántico, Colombia	01	5,713	CW SE R AL SC	
\$100-200 MILLION				
Arcadia Inc.* arcadiainc.com, Vernon, Calif.	14	400	CW SE R SC	STEEL WINDOWS AND DOORS
Pac-Clad Petersen pac-clad.com, Elk Grove Village, Ill.	06	180	CW SE AL	STANDING SEAM METAL ROOFS, WALL CLADDING
Tubelite tubeliteinc.com, Walker, Mich.	04	400	CW SE SC	
Wausau Window and Wall Systems* wausauwindow.com, Wausau, Wis.	02	490	CW SE SC	WINDOWS, PATIO DOORS
\$50-100 MILLION				
Aldora Aluminum and Glass Products Inc. aldoraglass.com, Coral Springs, Fla.	06	450	CW SE R	

- CW Curtain wall
- SE Storefronts and entrances
- R Commercial interior and/or exterior railings
- AL Aluminum composite panels
- SC Sun control products such as sunshades, grilles or louvers

*ANNUAL SALES VOLUME IS AN ESTIMATE, NOT CONFIRMED BY THE COMPANY

[†]OLDCASTLE BUILDINGENVELOPE, A CRH COMPANY, IS THE LEADING SUPPLIER OF VALUE-ADDED, GLAZING-FOCUSED PRODUCTS AND SERVICES SPECIFIED TO CLOSE IN A STRUCTURE; PROVIDE ACCESS, SECURITY AND SAFETY TO THE STRUCTURE; AND FINISH OUT THE INTERIOR. REVENUE, EMPLOYEE AND LOCATION NUMBERS LISTED ABOVE ARE INCLUSIVE AND REFLECT OLDCASTLE BUILDINGENVELOPE, C.R. LAURENCE, CDRAL INDUSTRIES INC., SIGCO LLC., AND HOLDFORM.

THE LIST

COMPANY	NA LOCATIONS	EMPLOYEES	PRODUCT TYPES	OTHER
\$50-100 MILLION				
Alumicor* alumicor.com, Toronto	05	300	CW SE	WINDOWS
Coral Industries Inc., coralind.com, Tuscaloosa, Ala.	03	430	CW SE SC	SHOWER DOORS
Graham Architectural Products* grahamwindows.com, York, Pa.	02	500	CW SE SC	WINDOWS
MG McGrath Inc., mgmcgrath.com, Maplewood, Minn.	01	300	CW SE R AL SC	
Ohio Gratings ohiogratings.com, Canton, Ohio	04	323	SC	
Sigco LLC *† sigcoinc.com, Westbrook, Maine	02	235	CW SE R AL SC	
Sotawall Ltd.*‡ sotawall.com, Brampton, Ontario, Canada	03	20	CW	
Trex Commercial Products trexcommercial.com, Minneapolis	01	150	R	
\$35-50 MILLION				
Accurate Perforating Co.* accurateperforating.com, Chicago	02	100	AL SC	GRAPHIC PERFORATED METAL
Hendrick Architectural* hendrickcorp.com, Carbondale, Pa.	02	09	AL SC	METAL CLADDING
MillerClapperton millerclapperton.com, Austell, Ga.	02	176	AL	
Northern Architectural Systems Inc.* northernarchitecturalsystems.com, Teterboro, N.J.	03	194	CW SE	
Southern Aluminum Finishing Co. saf.com, Atlanta	05	230	AL SC	COLUMN COVERS AND WALL PANELS
Wagner Companies* wagnercompanies.com, Milwaukee	01	150	R	
\$20-35 MILLION				
Americlad/Quality Metalcrafts LLC americlad.com, Rogers, Minn.	02	75	AL SC	ALUMINUM PLATE PANELS, COLUMN COVERS, BRAKEMETAL, LOUVERS
Greco Aluminum Railings U.S.A. Inc. grecoalrillings.com, Toronto, Ontario, Canada	03	150	R SC	

- CW Curtain wall
- SE Storefronts and entrances
- R Commercial interior and/or exterior railings
- AL Aluminum composite panels
- SC Sun control products such as sunshades, grilles or louvers

*ANNUAL SALES VOLUME IS AN ESTIMATE, NOT CONFIRMED BY THE COMPANY

†SOTAWALL IS A SUBSIDIARY OF APOGEE ENTERPRISES. SALES INFORMATION IS DERIVED FROM APOGEE'S 2018 FISCAL REPORT.

‡SIGCO IS A SUBSIDIARY OF OLDCASTLE BUILDINGENVELOPE.

COMPANY	NA LOCATIONS	EMPLOYEES	PRODUCT TYPES	OTHER
Solar Innovations Architectural Glazing Systems solarinnovations.com, Pine Grove, Pa.	01	170	CW SE R	SKYLIGHTS, SUNROOMS, CONSERVATORIES, GREENHOUSES, FOLDING GLASS WALLS, DOORS AND WINDOWS
United Architectural Metals unitedarchitectural.com, North Canton, Ohio	01	125	CW	
WinTech Inc. wintechinc.com, Monett, Mo.	03	160	SC	WINDOWS

\$20 MILLION AND UNDER

American Products Inc. americanproducts.com, Tampa, Fla.	01	100	CW SE R AL SC	BRAKE METAL, RAILING, ROOF SCREENS, PRIVACY BARRIERS
Apex Facade Systems apexfacades.com, Langley, British Columbia, Canada	01	130	CW SE	VENTS AND DOORS
Architectural Grilles & Sunshades Inc.* agsshade.com, Mokena, Ill.	01	30	SC	
Architectural Metal Polishing amp-metals.com, Union, N.J.	01	39		BRONZE AND STAINLESS STEEL SHEETS, PLATES, BARS, TUBES
Bruce Wall Systems Corp. brucewall.com, Tucker, Ga.	01	55	CW SC	UNITIZED KINETIC PARKING ENCLOSURES
Clover Architectural Products cloverarchitecturalproducts.com, Palos Heights, Ill.	01	11	SE R SC	CANOPIES, FIN TUBES
Cross Aluminum Products crossaluminum.com, Niles, Mich.	01	30	CW SE	ALUMINUM FLUSH DOORS
Cuda Metals cudametal.com, Wixom, Mich.	01	11	R	CUSTOM ARCHITECTURAL STEEL COMPONENTS FOR CANOPIES, STRUCTURE WALLS, AND ENTRANCES
Ellison Bronze Inc. ellisonbronze.com, Falconer, N.Y.	01	60		BALANCED DOOR ENTRANCES
Gamco Corp. gamcocorp.com, Flushing, N.Y.	01	61	CW SE R SC	STRUCTURAL SKYLIGHTS, CANOPIES, BI-FOLD DOOR/WALL SYSTEMS, METAL CLADDINGS AND COVERS
Industrial Louvers Inc. industriallouvers.com, Delano, Minn.	01	86	SC	EQUIPMENT SCREENS, DECORATIVE GRILLES, LOUVERED VENTS
Livers Bronze Co. liversbronze.com, Kansas City, Mo.	01	80	R	
MK Architectural Metal Inc.* mkarchmtl.com, North Canton, Ohio	01	49	CW SC	
RPM Rollformed Metal Products rpmsteel.com, Concord, Ontario, Canada	03	100	CW SE	CLADDING, STEEL REINFORCEMENTS
Morse Industries morseindustries.com, Kent, Wa.	04	30	R	SHOWER HARDWARE, ALUMINUM EXTRUSIONS
Stylmark Inc. stylmark.com, Fridley, Minn.	01	120	SE SC	ARCHITECTURAL TRIM AND MOLDING EXTRUSION



MILLERCLAPPERTON

United Therapeutics Unisphere
Silver Spring, Maryland



INNOVATION: Metal is used prominently throughout the Unisphere, a net-zero-designed six-story building from EwingCole, ewingcole.com. To meet sustainability and performance goals, the building features 3,000 photovoltaic panels, a high-performance curtain wall with electrochromic glazing, an automated natural ventilation system, daylight harvesting and more. MillerClapperton, millerclapperton.com, provided metal composite and perforated metal panels for the high-performance building façade, including a metal wall that curves around the face of the building. Zeke Miller, president of MillerClapperton, says it was difficult for the company to fabricate perforated panels that were consistently rolled to the same radius. “We use templates to ensure every panel is correct, in addition to double-checking to see if adjacent pieces line up properly with each other before they leave our facility and are delivered to the jobsite,” he says.

METAL & GLASS: The project features 108,000 square feet of 4-millimeter metal composite material panels with a fire-retardant core and 16,500 square feet of perforated metal panels from MillerClapperton. Frener & Reifer America Inc., frener-reifer.com, supplied the curtain wall systems—an inclined unitized façade at the atrium and exterior and multiple stick system façades. Sage Electrochromics Inc., sageglass.com, supplied its electrochromic glass for the project.

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➔ **2018 PROVED ANOTHER YEAR OF GROWTH,**

according to the companies on the Top Metal Companies industry ranking. Eighty-four percent of responding companies reported higher sales than in 2017, up 5 percent from last year's report. By region, companies again reported the most growth in the Northeast, with the West as a distant second.

Companies reported future capital investment and expansion plans that paralleled last year's numbers. Ninety-four percent of reporting companies made capital acquisitions in the past year. Some of that investment includes major plant upgrades and additions.

"[Tecnoglass], tecnoglass.com, is carrying out enhancements at its glass and aluminum facilities

GROWTH

COMPANIES
INVEST AND
EXPAND
AMID SALES
GAINS

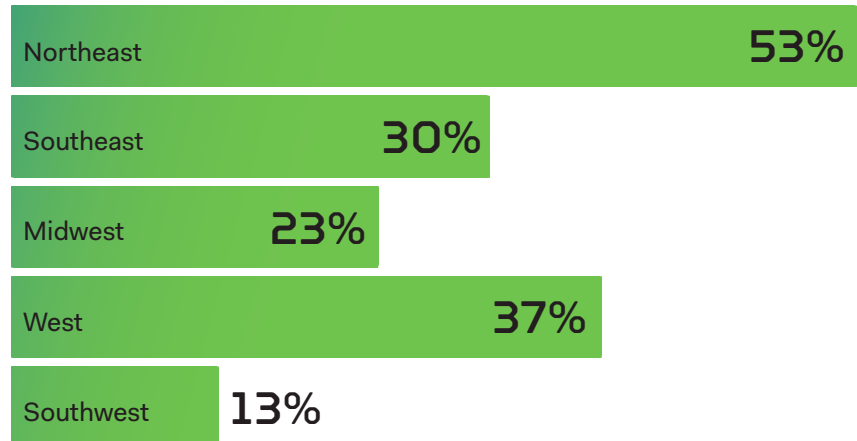
to increase production capacity and automate operations," says Carlos Amin, vice president of sales for Tecnoglass. "The company expects to improve efficiency in its glass production by automating certain processes to increase capacity on the transformed glass tempering lines by approximately 2.5 times, while reducing material waste and overall lead times."

EFCO Corp., efcocorp.com, also opened a 150,000-square-foot distribution center, an expansion of its Monett, Missouri, facility, planning for future growth. "The expansion will serve primarily as warehousing, packaging, sequencing and shipping," says Josh Wignall, director of marketing, EFCO Corp. "However, the movement of those activities into this new area will free up space in our main plant to improve productivity, and to execute EFCO's long-term growth strategy including the introduction of new products into the marketplace."

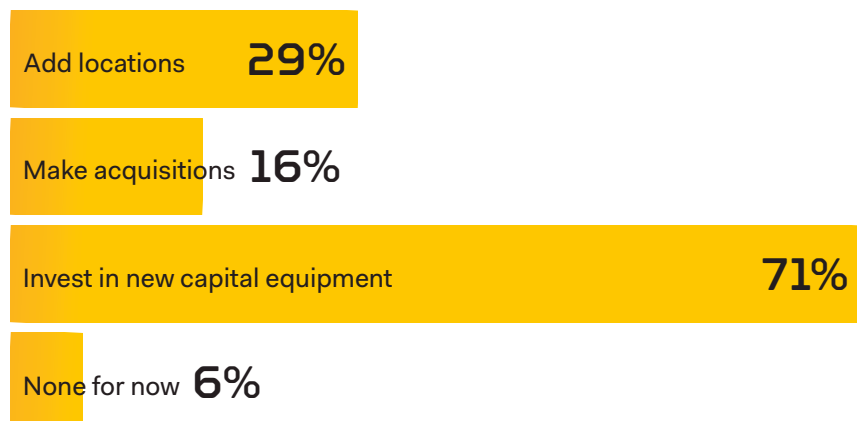
HOW DID SALES IN 2019 COMPARE TO 2018?



IN WHICH REGION(S) HAVE YOU SEEN THE MOST GROWTH IN 2019?



WHAT ARE YOUR COMPANY'S FUTURE EXPANSION PLANS?



PROJECT SPOTLIGHT

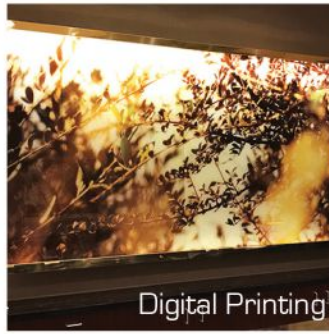


CUDA METALS

William Eckhardt Research Center,
University of Chicago
Chicago

INNOVATION: Meshing the various components for the innovative glass and metal entrance to WERC Building in Chicago while maintaining the aesthetic intent was not a simple task, says Andy Russo, vice president of Cuda Metals, glassandmetalcraft.com/cuda-metals. Cuda used the assistance of its sister company, Glass + Mirror Craft, glassandmetalcraft.com, to provide a complete engineered system including all glass, structure, doors and trim. Providing a seamless transition from the exterior required a complex design to seal the entrance without interrupting the continuity of the vertical glazing, says Russo. To accomplish this, the structure was designed and fabricated to be freestanding and to accept all necessary loading independent of its surroundings. US Architectural Glass, usaglassandmetal.com, was the glazier.

METAL & GLASS: Cuda Metals fabricated all metal components for the entrance, from the substructure under the stainless grating to the stainless trim on the columns. Designed by Fulcrum Architectural Design Assist, glassandmetalcraft.com/fulcrum-design-assist, the project features Cuda's custom stainless portals, door systems and an acid-etched glass vestibule with hidden electrical chase-ways.



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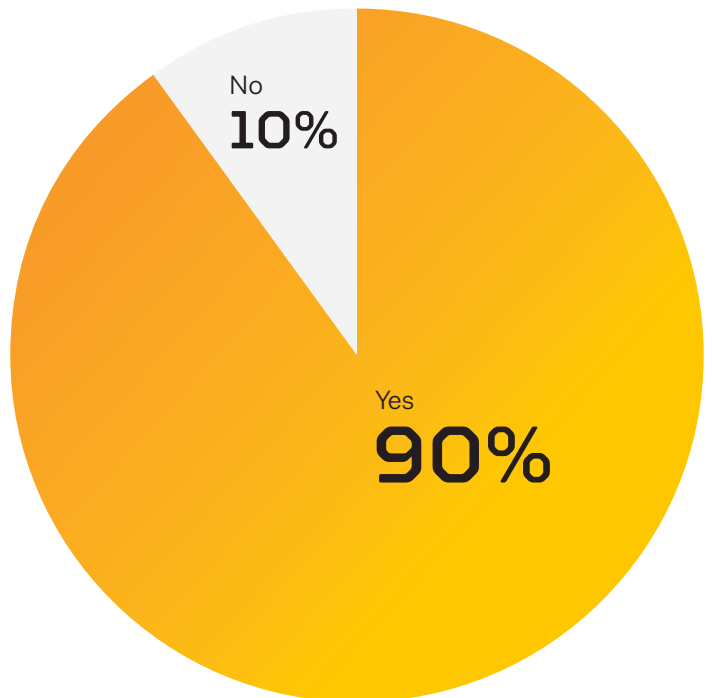
PREFABRICATED
AND HIGH-
PERFORMANCE
PRODUCTS LEAD
MARKET

PRODUCTS

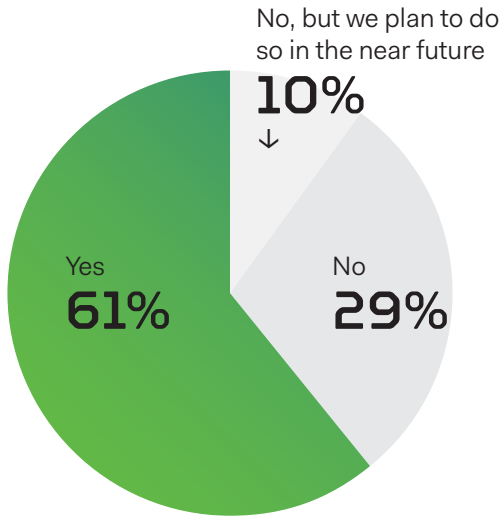
➔ **THE TREND TOWARD PREFABRICATED** and high-performance systems continues. A majority of surveyed companies, 61 percent, offer unitized and/or prefabricated systems, with another 10 percent reporting plans to do so in future. About half, 46 percent, reported introducing high-performance systems in the last 18 months. Many of the new systems on the market fell into the categories of curtain wall and thermal products, according to survey responses.

Given the product release trends in the past year, it's unsurprising that a plurality of respondents identified unitized and prefabricated systems, as well as thermally broken systems, as the product area most likely to see future growth. Product innovation appears to continue strong, as 90 percent of surveyed companies reported plans to add new product lines in the next year.

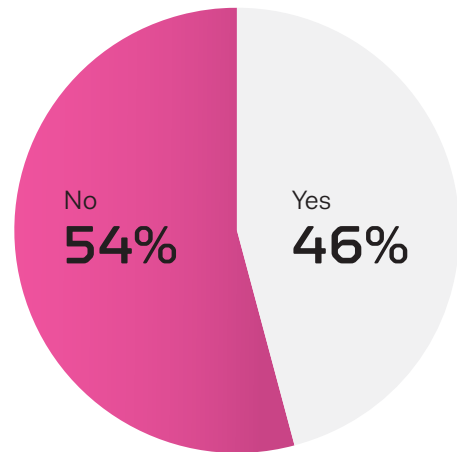
DO YOU HAVE
IMMEDIATE PLANS TO
ADD PRODUCT LINES?



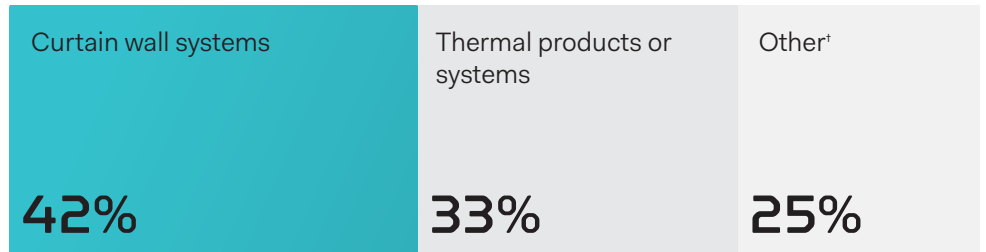
DO YOU SUPPLY UNITIZED/ PRE-FABRICATED SYSTEMS?



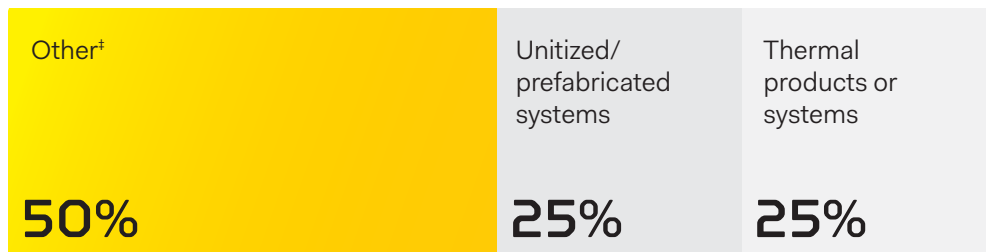
HAVE YOU INTRODUCED A HIGH-PERFORMANCE SYSTEM IN THE LAST 18 MONTHS?



WHAT TYPE OF HIGH-PERFORMANCE SYSTEM?



WHAT PRODUCT AREAS OFFER THE MOST POTENTIAL FOR GROWTH?



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‡INCLUDING RIBBON WINDOW, WALL CLADDING, RAILING SYSTEMS, SLOPED GLAZING SYSTEMS, FOLDING GLASS WALLS, GLAZE IN INSULATED PANELS, STRUCTURAL SKYLIGHTS, SUN CONTROL PRODUCTS, ENTRANCES, CANOPIES

PROJECT SPOTLIGHT



GAMCO 
Private residence
New York City
-

INNOVATION: For this waterfront private residence in New York City, the main challenge for architect Gerald Caliendo, caliendearchitects.com, was delivering expansive views and modern architectural design while ensuring the project fit in with the surrounding white-sided and stucco residential homes, and low-rise brown brick apartment buildings, says Davidson Chen, sales manager of Gamco, gamcocorp.com, the curtain wall supplier. Close coordination among all the project team members was required to arrive at a design involving custom brown metal curtain wall framing, spandrel panels, column cladding and fascia covers, says Chen. The residence also features wood siding elements and extensive glass railings to achieve an optimum aesthetic balance. Systems were installed by Mike the Glazier, miketheglazier.com.

METAL & GLASS: Gamco supplied its CW250 curtain wall system; curtain wall custom metal spandrel panels; 25002 metal end cap system; and a custom vertical column, balcony fascia, and large roof overhang fascia metal covers. All systems were finished in custom RAL 8014 sepia brown paint. Crystal Windows, crystalwindows.com, supplied its Series 1240 aluminum sliding doors, Series 2100 aluminum fixed and Series 2300 aluminum slider windows. The tempered and insulating glass is Solarban 70XL from Vitro Architectural Glass, vitroglazings.com. Oldcastle BuildingEnvelope, obe.com, and Tempco Glass Fabrication, tempcoglass.com, fabricated glass for the project.

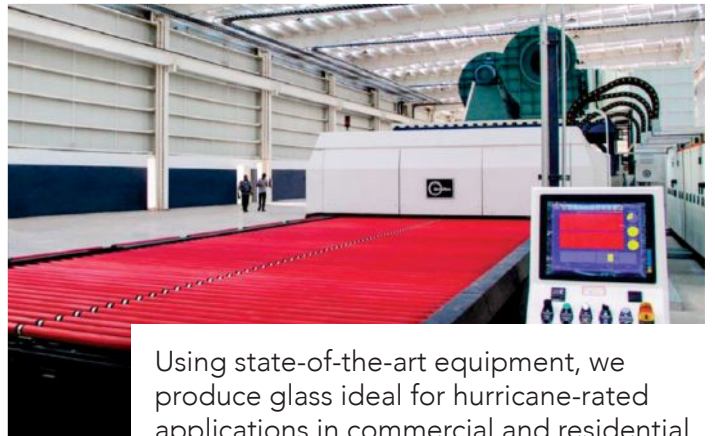
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WHAT HAS BEEN YOUR COMPANY'S MOST MAJOR CHALLENGE IN 2019?

57%

Labor/
training

17%

Lead times

7%

Capacity

13%

Material
costs

THE CHALLENGE

LEAD TIMES,
LABOR AND
TARIFFS STRAIN
INDUSTRY

WHILE THE BENEFITS OF A BUSY MARKET

seem to remain the same, so do the challenges for many Top Metal Companies. Market growth continues to stress the entire supply chain. "It seems like everyone is busy which is great," says Tom O'Malley, partner and director of sales, Clover Architectural Products, cloverarchitectural-products.com. "With the increased workload we have seen our suppliers are not always able to be as flexible as they usually are for us."

O'Malley recommends clear communication with suppliers as a solution for stretched lead times. "We need to make sure we are planning and communicating with our customers, so

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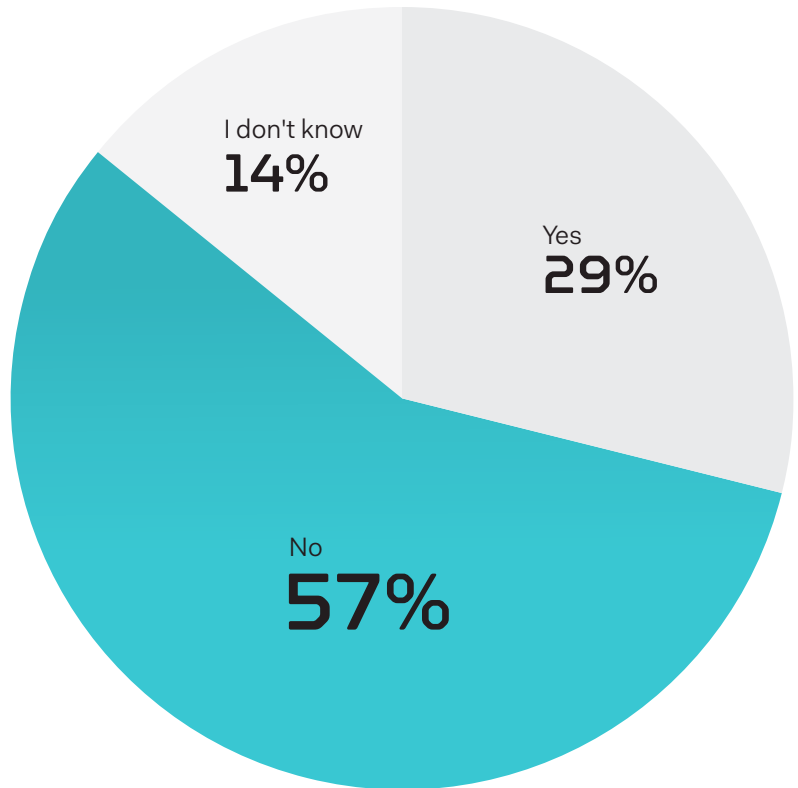
3%

Tariffs



3%

Other



HAVE METAL TARIFFS REDUCED YOUR GROSS SALES FOR 2019?

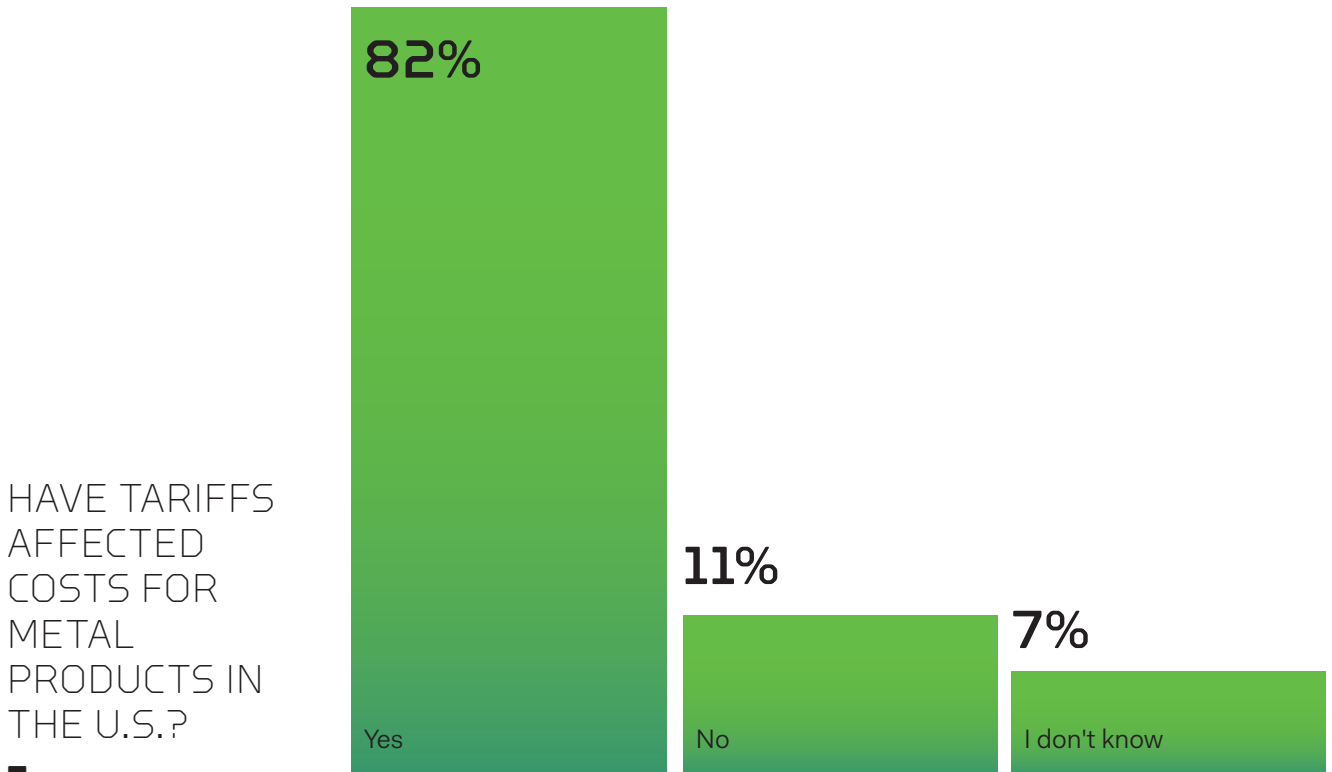
we are all on the same page. We are lucky our suppliers will always try and do everything they can when we present them with an aggressive schedule, but they only have so much capacity.”

Tracy L. Hultin, vice president of sales and marketing for Ellison Bronze, ellisonbronze.com, says the company is dealing with strained production capacity by investing in workers and equipment. “We added extensive overtime to our current labor force,” she says. “We also added new equipment to expedite the production process.”

Industrial Louvers, industriallouvers.com, has focused on maximizing productivity by

eliminating waste. “We have increased our focus on continuous improvements to eliminate waste in our processes. The changes help reduce our overall lead times,” says Lisa Britton, director, sales and marketing, Industrial Louvers.

Yousif Abachi, vice president, RPM Roll-formed Metal Products, rpmroll.com, says the company has also focused on upping efficiency and reducing waste in response to the increase in material costs resulting from tariffs. “The fluctuation in the metals market was a global issue. We tried to find efficiencies in the way we fabricate our products. In April 2019 we launched a quality assurance process to track waste of



material and time. ... Our mandate is to reduce waste by 50 percent by September 2019, and implement a traceability and process improvements system."

A significant majority of surveyed companies, 82 percent, said that tariffs affected costs for metal products in the United States. Still, a minority of companies, less than 30 percent, said that tariffs reduced gross sales for 2018, and a negligible number of companies identified tariffs as their most major challenge for the previous year.

That dubious honor, again, rests with labor and training issues. A majority of companies, 57 percent, selected labor as the number one challenge of 2019, and responses reflect the intractability of the issue. "Hiring and training has been an endless and costly undertaking," says

Michael Leets, vice president of sales for Cross Aluminum Products, crossaluminum.com. "On average, it takes five hires before you get one [employee] that will at least stick around and show up to work on time."

Company solutions again include offering higher wages and providing more efficient training. YKK AP, ykkap.com, also focused on increasing the comfort of the workplace environment. "Over the past year, YKK AP responded to employees' need for a comfortable workplace environment by investing in physical workplace improvements, including a new HVAC system, scanners for product packaging, and updated employee offices and break rooms at its Dublin commercial manufacturing facility," says Steve Schohan, marketing and communications manager, YKK AP. ■

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GLASS COMPANIES TACKLE LABOR, PERFORMANCE AND ECONOMIC CHALLENGES

FROM
GLASSBUILD
AMERICA
2019

M

ore than 8,200 glass and glazing professionals gathered Sept. 17-19 in Atlanta for GlassBuild America: The Glass, Window & Door Expo, glassbuildamerica.com, where the industry's innovation, advancement and growth took center stage.

The North American glass industry has been on a growth trajectory ever since emerging from the Great Recession, and companies have used the strong market as an opportunity to invest in their companies, develop new products, engage new markets and more, according to exhibitors and attendees. In the face of vibrant conditions, however, notable headwinds emerged—labor top among them, followed by the increasing demand for high-performance products and the overall uncertainty of the construction economy.

“Juxtaposed with growing and wanting new products, there does seem to be an economic slowdown coming. Staffing is still a huge concern. Fabricators are working hard to get their house in order,” says Melissa Blank, consultant, HHH Tempering Resources, hhhtempering.com.

EXHIBITORS

420

SPACE

187,000^{FT²}

INDUSTRY

BY KATY DEVLIN | CONTRIBUTIONS FROM NORAH DICK AND BETHANY STOUGH

CHALLENGE: LABOR

SOLUTION: ENGAGEMENT & AUTOMATION

The ongoing skilled labor shortage in the construction and manufacturing industries continues to be the top challenge for all segments, say glass industry companies. Firms struggle to find workers, and once they have them, they struggle to train and retain them. The problem has only been exacerbated by rising demand.

“Your people problem is not going away,” says Connor Lokar, program economist at ITR Economics, itreconomics.com, who offered a market forecast during the 2019 Glazing Executives Forum at GlassBuild America. “We don’t have a silver bullet for labor issues. We’re not

going to see layoffs that will create labor slack. It is still going to be a dogfight for talent to retain your workers.”

Glass companies can best address their labor concerns with a two-pronged approach: improve worker engagement and implement automated solutions, according to speakers, exhibitors and attendees.

Speakers Mack and Ria Story of Top Story Leadership, topstoryleadership.com, provided insights on the importance of employee engagement during the Glazing Executives Forum. “Daily, little interactions lead to engagement and growth and improved culture. ... Get people to start loving you and what you’re trying to do,” they say.

Training is also a key component

to engaging and retaining employees. “When you invest in training for employees and show them a career path within your company, you build loyalty,” says Jenni Chase, director of content, education & training for the National Glass Association, glass.org. “You show people that you care about their future.”

During GlassBuild America, the NGA announced several new education and training initiatives, including a partnership with the Friese Foundation toward the support of the NGA’s online training platform, MyGlassClass.com. Through a donation from the Friese Foundation, individuals interested in training will have access to scholarships and discounted rates.

“Nothing is more important than

investing in our industry,” says Don Friese. “Think of the industry as your challenge, and get your team on MyGlassClass.com. It is an opportunity for a lot of people to grow, make some money, become better citizens, and together we will all be successful.”

In addition to engagement, the industry is looking to automation to address labor challenges. “Automation is here. We have it now. It’s not something that’s coming in the future,” says Danielle Blewitt, marketing manager, Billco Manufacturing, billco-mfg.com.

Automation was the central theme on the show floor among machinery and equipment suppliers, as companies look to increase efficiency, safety and quality, all with fewer people. “Labor is a huge issue, but safety issues are massive as well. It’s a major driver of automation,” says Thomas A. Bechill, senior sales manager, Hegla, hegla.com.

“People expect automation. ... They want it for staffing issues, but also timing. They’re now taking it a step further, looking at machinery and adjusting it for a changing workforce (women, part-time, older people),” says HHH’s Blank.

Machinery and equipment suppliers continued to drive development of automated solutions in every step of the process, including ordering, estimating, fabrication, handling and more.

CHALLENGE: PERFORMANCE**SOLUTION: TOOLS AND EDUCATION**

The market continues to push for better-performing, more efficient and sustainable products. According to NGA Code Consultant Tom Culp, president of Birch Point Consulting, the stringency

requirements are increasing for energy codes and standards. Companies should prepare for tougher thermal and solar heat gain performance requirements across the climate zones.

Of greater concern to the industry are the efforts in some jurisdictions to limit glass and glazing use on buildings, based on the misconception among some in the design and building industry that glass is, simply, a bad performer, according to a panel of industry experts who addressed the topic during the Battle for the Wall session at the Glazing Executives Forum.

“The Battle for the Wall name came from an earlier battle in 2010, 2012, when some national model energy codes tried to reduce the amount of allowable glass area on buildings. We as an industry pushed to show that would be counterproductive to high-performance building. The data is out there showing that if you reduce the access to quality daylight and views, you will harm the occupants,” Culp says.

The industry continues to develop the high-performance products necessary to meet high-performance requirements coming in the codes. Further, the industry has the solutions to ensure glass and glazing can be used optimally in buildings, providing ample daylighting and views for occupant health and comfort, while maintaining high levels of thermal and energy performance. Many of these solutions were on display on the show floor, including vacuum insulating glass, switchable glazing, next-level thermal framing and more.

The primary challenge for the industry is addressing the incorrect assumptions about glass performance, according to panelists. Industry companies should push back, promoting the necessity of glass in high-performance buildings

while demonstrating the solutions the industry can provide, they say.

“The next Battle for the Wall is an opportunity for the industry—an opportunity to bring more and more of the industry’s already-existing high-performance products into buildings,” Culp says.

“We need to undo some of the negative spin that’s been put on this,” adds panelist Paul Bush, vice president, quality and technical services, Vitro Architectural Glass, vitroglazings.com. “This is an opportunity for the industry to make advancements, to bring in thermal glazing packages and increase use of high-performance products.”

CHALLENGE: ECONOMY**SOLUTION: INFORMATION AND PREPARATION**

Glass and glazing companies have enjoyed an ongoing period of expansion, and 2019 continued that trend. Many GlassBuild America exhibitors and attendees expressed optimism in the market.

“The market looks strong, and people are investing in capital equipment. People don’t buy capital equipment if they don’t feel confident,” adds Doug Mangus, machine sales director/owner, for Salem Flat Glass & Mirror, salemdist.com.

However, market indicators, coupled with factors such as tariffs, point to a mild slowdown in growth, says ITR Economics’ Lokar.

“When I spoke here last year, you were at the top of the business cycle, but the warning signs were there. Now we are in a slowing growth trend,” says Lokar. Those in construction can expect to see a softening first half

of 2020 followed by an accelerating second half, he says.

The first step for companies in the face of the uncertain market is understanding the scope of the challenge. “Things are going to get worse before they get better. However, we have a non-recession outlook,” Lokar says. “This is a pause in the business cycle. This is not the Great Recession 2.0.”

“The economy is slowing, and we’re faced with tariff challenges. You have to plan and keep mitigating increased costs,” says Chris Yankowich, CEO, DreamLine, dreamline.com.

Glass companies can 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, Lokar says. “There is an opportunity for you to take that slowdown to address bottlenecks. Reset yourself as we look to 2020 and beyond.”

Many industry companies are already making such moves. “We see customers using economic signs to invest in their businesses and their growth. There are headwinds ahead, but this is a catalyst for future growth in the industry,” says Bob Quast, president and CEO, Lisec America Inc., lisec.com.

Rick Hecklinger, territory manager, Fenzi North America, fenzi-na.com, recommends companies collaborate with their suppliers. “A slowdown is happening. Our customers are already cutting shifts. We want our customers to succeed. So, we partner with them to increase quality, increase staff education. We work with them to improve and grow,” Hecklinger says.

Read more insights from industry representatives on top challenges, and see complete GlassBuild America 2019 coverage, at GlassMagazine.com/November2019. ■



CHECK OUT ADDITIONAL RESOURCES AND COVERAGE FROM GLASSBUILD AMERICA AT GLASSMAGAZINE.COM/ NOVEMBER2019. YOU'LL FIND:

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AN INSIDE LOOK AT THE
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BENZ STADIUM.

EXHIBITOR PRODUCTS ON
DISPLAY.

NEWS AND UPDATES FROM
EDUCATIONAL SESSIONS.

MORE INFORMATION
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AUTOMATED SOLUTIONS.

DETAILS ON HIGH-
PERFORMANCE SOLUTIONS
AVAILABLE FROM
INDUSTRY SUPPLIERS.

PRODUCTS

01



02



03

04

01. Shower enclosure

HMI Cardinal's new Priva-Tech shower enclosures provide an elegant and contemporary approach to in-shower privacy, with custom patterns, shapes and colors printed inside the glass, say officials. Priva-Tech allows shower design professionals and consumers to define the color, opacity, shape and style of the privacy area of any shower glass panel. The glass specialists at Cardinal then turn that design into a finished shower glass panel, using their in-house Satori digital in-glass printing. 800/826-2577 | HMICARDINAL.COM

02. Door lock

Assa Abloy introduced the Securiton M380E EcoMag Magnalock—the next iteration of its EcoMag technology. Intelligent, easy to install, and with a holding force of 600 pounds, this solution offers increased energy efficiency over the previous M380 Series by reducing energy consumption up to 80 percent. The Securiton M380E is designed to sense when a door is propped open and is able to adjust the power the magnet draws. This decreased power draw means a smaller energy footprint, say officials. 800/626-7590 | ASSAABLOYESH.COM

03. Lubrication system

Adelio Lattuada developed a progressive lubrication system for its machinery. In a progressive system the lubricant is pumped into a single input of a “progressive distributor” and is volumetrically divided into a number of points by the progressive movement of the pistons arranged in sequence. The system allows users to have more control over the correct operation of the entire system and individual outlet points, not just the oil level and the correct operation of the pump, say officials. +[39] 0331-8327-13 | ADELIO LATTUADA.COM

04. Safety dolly

Saw Trax updated its yel-Low safety dolly. The original dolly box was 25 by 30 inches, with studs oriented in the 25-inch direction, limiting the carry capability only in the direction of the shorter side. The newly updated product includes a bracket, with the directional wheel mounted, as to allow the dolly to be pushed in the 30-inch direction. This bracket bolts to the stud pattern on the dolly, with four studs in the bracket going 90 degrees to the original stud pattern. 888/729-8729 | SAWTRAX.COM

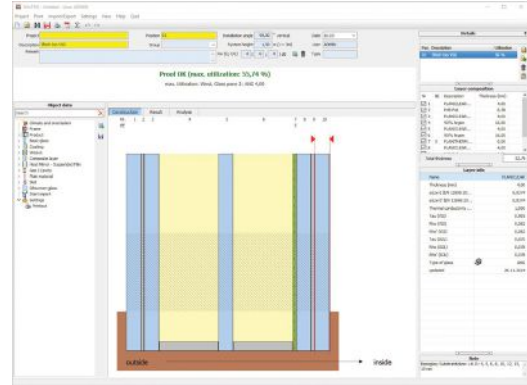
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THE GLASS, WINDOW & DOOR EXPO

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05



06



07



08

05. Finishes brochures

Linetec published five new brochures available for download or, by request, in print. The anodize and painted finishes brochures present benefits, specification criteria, care and cleaning, and describe Linetec's color choices, processes, quality control, material size guidelines and warranties. Brochures include "Anodize Finishes: Beauty made to last," "Paint Finishes: Unlimited choices," "Specialty Finishes: Unique & durable aesthetics," "Wood Grain Finishes: Maintenance-free beauty," as well as its Service Capabilities brochure. 888/717-1472 | LINETEC.COM

06. Performance software

SommerGlobal, the software for glass calculation from Rosenheimer Sommer Informatik GmbH, added WINTHS to its product, an additional program for the calculation of the climate conditions acting on glass panes under consideration of geographical location and historical weather data. The additional module makes it possible to determine thermal stresses occurring on glass surfaces in advance with regard to extreme weather data and thus minimizing the risk of glass breakage. +(49) 8031-2488-1 | SOMMER-INFORMATIK.DE

07. Transport protection

Bromer Inc. introduced a high-quality and durable solution for glass transportation that features an aluminum folding side door option instead of curtain or roll-up tarp. The door is equipped with rust-free heavy-duty stainless fasteners and hardware to suit industrial expectations, allowing the folding side doors to maintain an effective weather seal and helping speed up the delivery process of glass transportation companies. 450/477-6682 | BROMERINC.COM

08. Window system

Graham Architectural Products released its GT6 Window System, a family of casement, projected and fixed windows. The GT6 system uses common frame parts to allow numerous configurations and glazing styles. Each frame depth offers three glazing profile options: beveled, concave and flat. Multiple frame depths are achieved by using different thermal breaks. By increasing the thermal break depth, the GT6 windows can reduce thermal conduction and provide more space for enhanced glazing packages. 800/755-6274 | GRAHAMWINDOWS.COM

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PEOPLE



Johnson

Harmon Inc.

Harmon Inc., harmoninc.com, announced that *Troy Johnson* will assume the position of president effective March 1, 2020,

following the retirement of current president *Brad Austin*.

Austin joined Harmon in 2010 as president. He started his career in 1978 with Viracon.

Johnson joined Harmon in July 2011 and has been a member of the executive leadership team. He has more than two decades of experience in the glass and glazing industry.

Giroux Glass Inc.

Giroux Glass Inc., girouglass.com, added *Steve Cadigan* and *Laurie Dreyer* to its board of directors.

Cadigan, founder of Cadigan Talent Ventures, advises a wide range of companies including Twitter, Google,

GoPro, The Royal Bank of Scotland and the BBC.

Dreyer is currently on the board and the director of development at Taylor Design, an architecture, interiors and design strategies firm.



Alexander

Walker Glass

Charles Alexander will serve as vice president of sales and marketing for Walker Glass, walkerglass.com, upon Ross Christie's retirement, effective Dec. 31. Christie will take on the role of executive vice president at Walker, where he will remain active as a board member and take part in the strategic direction of the company. During his 30-plus years as vice president of sales and marketing, Christie was instrumental in Walker's evolution.



Christie

Alexander has been serving as business development director since 2017. Prior to joining the company, Alexander's experience came from the industrial products and construction/green building industry sectors where he held senior management positions in sales, marketing, business development and operations.

Walker also appointed *Alan Harrison* as its new sales director. Harrison began his career with Walker over 13 years ago as a member of the costing team.



Stipetich

Vitro Architectural Glass

Vitro Architectural Glass, vitroglazings.com, added to its leadership and management teams.

Dan Stipetich, sales director, eastern region, will lead a team of commercial account managers in the Eastern U.S. serving the commercial construction industry.



Hammond

Michael Hammond, manager, technical support, glass quality and technical services team, will provide technical support and direction to members of the Vitro Certified Network program, primarily in the areas of product application and process training.



Randisi

Consolidated Glass Holdings

Consolidated Glass Holding, cghinc.com, added to its management and leadership teams.

Chris Randisi, director of national accounts and architectural specifications, will be responsible for overseeing national accounts for the CGH Architectural Glass division—those served by J.E. Berkowitz, Solar Seal, Columbia



Varevice



Smith

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PEOPLE

Commercial Building Products and Dlubak Specialty Glass.

Peter Varevice, territory sales manager, will work with the CGH Architectural Division—including J.E. Berkowitz, Dlubak Specialty Glass, Columbia Commercial Building Products, and Solar Seal—to grow key accounts in New Jersey and Pennsylvania.

Jim Smith, director of Invisiwall engineered glass systems, will be responsible for expanding the market for Invisiwall engineered glass systems and working with the CGH architectural division.



Klick

Erdman Automation Corp.

Erdman Automation Corp., erdmanautomation.com, welcomed *Josh Klick* as its north central North America sales manager. Klick has spent the last 17 years in fenestration

and building products, most recently managing the pro channel of dealers and distributors throughout Minnesota and the upper Midwest.



Buchanan

FeneTech

FeneTech Inc., fenetech.com, named *Matt Buchanan* to the newly created position of director of software development. FeneTech also created a series of technical leads over which Buchanan will be responsible.

H.B. Fuller

Jason Douglas, former president of Ramapo, joined H.B. Fuller, hbfuller.com, as business director with responsibility for the global insulating glass business, including developing and executing global and regional strategy, business planning and budgeting, R&D, sales, technical service, marketing and pricing.



Hofferber



Murphy



Fischer

Wood's Powr Grip

Wood's Powr Grip, wpg.com, welcomed three new staff members: *Keelan Hofferber* to the sales department, *Barbara Murphy* to the marketing department and *Les Fischer* to the human resources department.

As a technical sales representative, Hofferber will provide customers with products that are best suited for their specific needs, as well as the information

customers need to operate and maintain the products safely and efficiently, say officials.

Murphy joined WPG as marketing communications liaison. Murphy's

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responsibilities include advertising, branding, CRM and digital marketing.

Fischer fills a newly created position at WPG, safety and training specialist. In this role, Fischer will be responsible for education programs that help employees develop their skills and stay safe in the workplace. Fischer worked directly in the construction trades previous to this position.

GGI

GGI, generalglass.com, hired *Gloria Lewis* as the company's sales representative for specialty glass and custom glass fabrication in the Brooklyn and Queens, New York, territory. The company also welcomed *Zachary Carrubba* as a field sales representative for the mid-Atlantic region.

Lewis brings 15 years' experience in the glass industry. Most recently, she worked for NYC Glass Corp.

Carrubba offers 15 years' experience working with glass and glass-related building products, with knowledge in sales, estimating and preparing CAD drawings. Carrubba worked most recently as a sales representative for Maryland Shower Enclosures.



Hickman



Kloss

YKK AP America

YKK AP America Inc., ykkap.com, expanded its Southwest region with the appointment of *Bill Hickman* and *Kim Kloss*, as architectural sales representatives who will support the company's customers in the region and strengthen YKK AP's

local service to the market. Both will be based out of the Dallas branch.

Hickman comes to YKK AP America with a wide range of expertise in

estimating, product knowledge and business development as well as a strong track record of success in driving sales results.

Kloss joins the company with significant experience in the contract glazing industry and a proven ability to build lasting business relationships, resulting in a stronger, more engaged customer base. ■

To submit company personnel news for publication in Glass Magazine, in the e-glass weekly e-newsletter and on GlassMagazine.com, contact Assistant Editor Norah Dick, ndick@glass.org.

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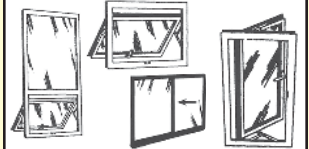
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1 Publication: Glass Magazine™. 2. Publication Number #0747-4261. 3. Filing date: September 27, 2019. 4. Issue frequency: Monthly except February. 5. Number of issues: 11. 6. Annual sub price: \$49.95. 7. Complete mailing address of known office of publication: Glass Magazine™, 1945 Old Gallows Road, Suite 750, Vienna, VA, 22182-3931; Contact Person – JoAnn Binz, Circulation Manager; Telephone-843-388-3808. 8. Complete mailing address of company headquarters: Same as above. 9. Full name and complete mailing address of publisher: National Glass Association, 1945 Old Gallows Road, Suite 750, Vienna, VA, 22182-3931. Publisher: Nicole Harris, Publisher & CEO, National Glass Association, 1945 Old Gallows Road, Suite 750, Vienna, VA 22182-3931. Editor-in-Chief: Katy Devlin, Glass Magazine, 1945 Old Gallows Road, Suite 750, Vienna, VA 22182-3931. 10. Owner: National Glass Association, 1945 Old Gallows Road, Suite 750, Vienna, VA 22182-3931. 11. None. 12. Has not changed during preceding 12 months. 13. Publication Title: Glass Magazine™. 14. Issue Date for Circulation Data Below: Avg. Nov 2018 - Oct 2019; Actual October 2019. 15. Extent and Nature of Circulation. 15a Total Number of Copies: Avg. 35,180; Actual 31,906. 15b.1. Paid/Requested Mail Subscriptions: Avg. 20,943; Actual 19,664. 15b.4. Requested Copies Distributed by Other Mail Classes: Avg. 1,488; Actual 1,300. 15c. Total Paid and/or Requested Circulation: Avg. 22,431; Actual 20,964. 15d.1 Non-requested Copies: Avg. 10,675; Actual 9,888. 15d.4. Non-requested Copies Distributed Outside the Mail: Avg. 522; Actual 191. 15e. Total Non-requested Distribution: Avg. 11,197; Actual 10,079. 15f. Total Distribution: Avg. 33,628; Actual 31,043. 15g. Copies not distributed: Avg. 1,552; Actual 863. 15h. Total: Avg. 35,180; Actual 31,906. 15i. Percent Paid and/or Requested: Avg. 66.7%; Actual 67.5%. 16a. Paid/Requested Electronic Copies: Avg. 3,432; Actual 2,907. 16b. Total Paid/Requested Print + Electronic Copies: Avg. 25,863; Actual 23,871. 16c. Total Print Distribution + Paid Electronic Copies: 37,061; Actual 33,950. 16d. Percent Paid/Request (Print + Electronic Copies): Avg. 69.8%; Actual 70.3%. 17. Publication of Statement of Ownership for a Requester Publication will be printed in the November 2019 issue. 18. Signature and Title of Editor, Publisher, Business Manager: Katy Devlin, Editor-in-Chief. Date - 9/27/2019 - PS Form 3526-R.

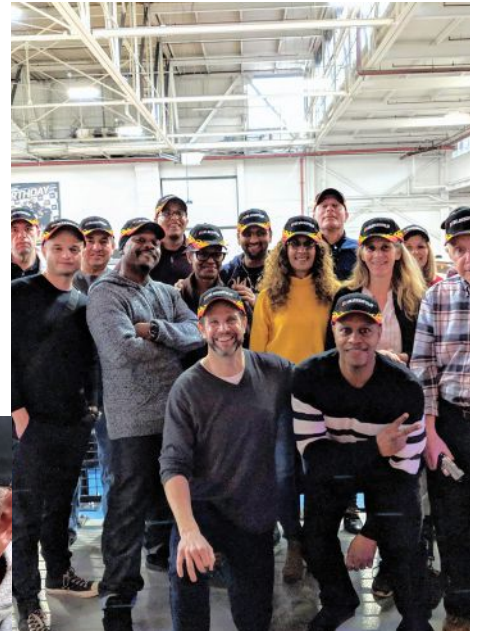
Companies from all parts of the glass and glazing industry have implemented innovative, out-of-the-box ideas to improve business from the ground up. Here's an Idea showcase these sometimes small behind-the-scenes ideas that can make a big impact on a company's bottom line. If you have an idea that you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

GLASSOPOLIS BOOSTS EMPLOYEE ENGAGEMENT WITH BRANDED HATS

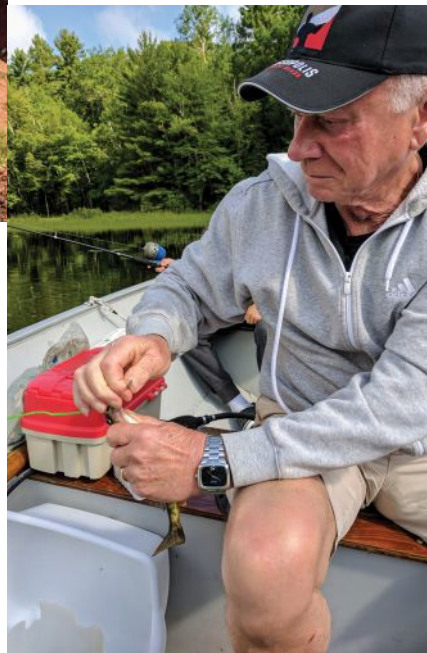
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“One day, Dave Woll, our sales rep in Tampa, sent us a photo of him wearing one of our hats at the Daytona 500,” says Botman. “It looked good, so we shared it around internally. Before you knew it, we started getting other photos of staff, family and friends wearing our hats. Judging by the photos, some of the hats have made it pretty far from home!”



The branded hats are less about marketing per se, and more about swag, says Rob Botman, general manager, Glassopolis. “Glassopolis has done promotional hats from time to time over the last few years. The hats are really just for fun,” he says. “We give them away to customers, staff and visitors of course, but we’ll also give them away to the truck drivers, equipment vendors, or anybody else who comes through our plant and wants one.”



So far, a major benefit of the fun photos has been to encourage teambuilding within the organization.

“We post these photos internally and include them in our staff and sales newsletters. It turns out to be a fun way for everyone to get to know each other a bit better,” says Botman.

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