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INTRODUCTION TO VIG



HOW TO CHOOSE THE RIGHT SOFTWARE

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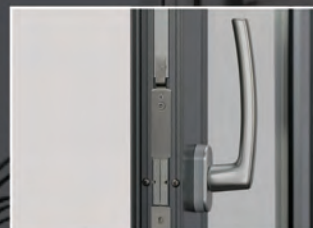
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GLASS MAGAZINE AWARDS JUDGE
JOHN R. STEPHENSON, AIA, SENIOR
ARCHITECT, BRPH.

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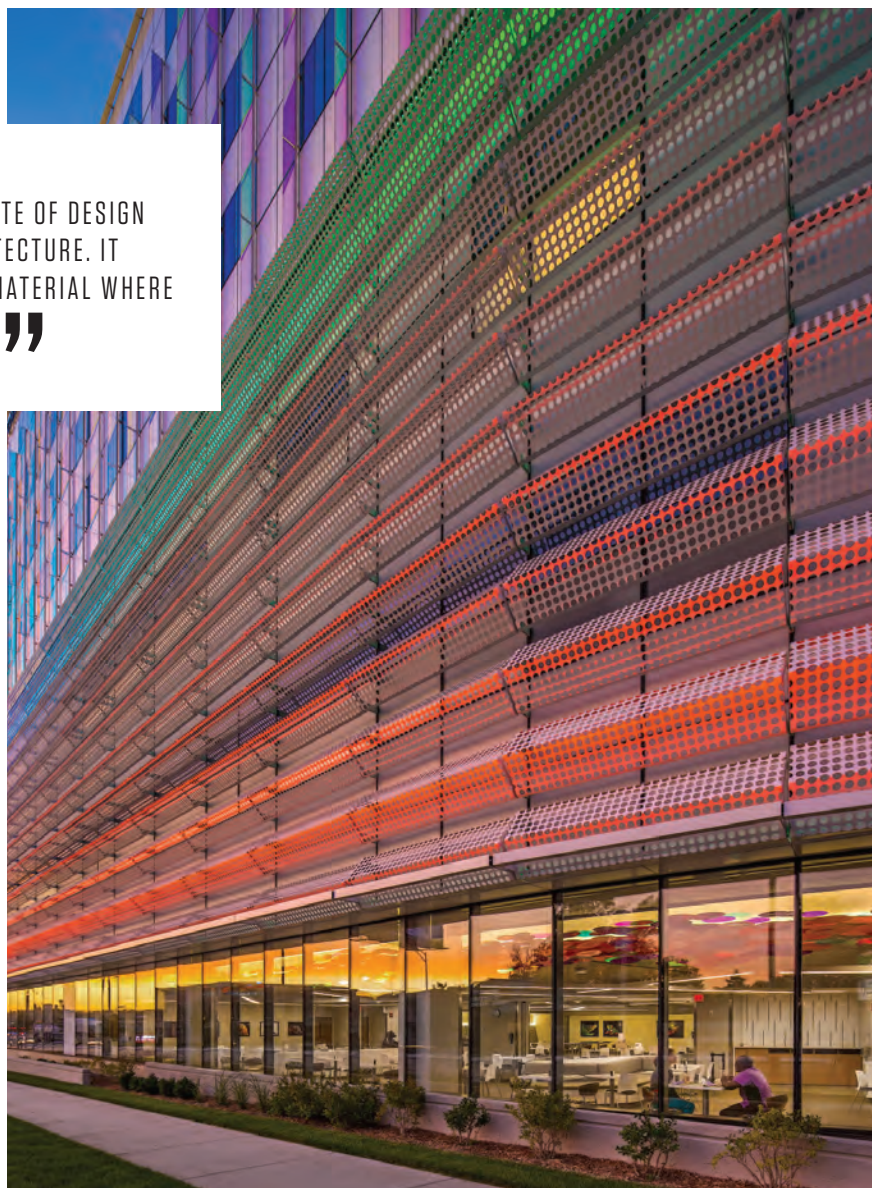
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ON THE COVER

The 2022 Glass Magazine Awards Project of the Year winner is the exhilarating and mind-bending room of glass and mirror situated atop New York City's One Vanderbilt skyscraper. The project, Summit One Vanderbilt, was nominated by glass supplier Cristacurva. Read complete details on page 42. Photo by Alberto Alarcón.

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PERFORMANCE

Deciphering LEED Credits Part 2

By Mary Avery, Tubelite



MATERIAL COSTS

The Other Shoe Dropped

By Max Perilstein, Sole Source Consultants



PEOPLE

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By Norah Dick, Glass Magazine

PROJECT SHOWCASE



Featured in Glass Magazine Weekly and on [GlassMagazine.com](https://www.GlassMagazine.com). To submit projects or case studies, write Norah Dick, ndick@glass.org. Pictured: Supported by tall concrete columns that emerge from a nine-story parking block, Austin's new 34-story 70 Rainey houses 164 condos featuring floor-to-ceiling Solarban R100 glass from Vitro Architectural Glass.

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FULL NEWS AND BLOG
COVERAGE AT
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Grappling with Rising Glass Costs

Summer 2022 has brought high temperatures right alongside higher prices for everything from gas to groceries, and yes, to glass. As of May 2022 (the latest data available at press time), the Producer Price Index for flat glass was up 22 percent over two years. The flat glass PPI should show another jump in its June and July readings following 40 percent price increases on some float glass products announced by two domestic manufacturers in June.

Glass Magazine's top industry blogging voice, Max Perilstein, owner of Sole Source Consultants, covered the announcements—the first from Guardian Glass, and the second, one week later from Vitro Architectural Glass—providing perspective on the initial industry reaction to the increases, along with potential industry-wide impacts.

“The psyche of our industry right now is fragile. The back-to-back blows ... [have] people from companies of all sizes freaked out,” said Perilstein in his June 19 From the Fabricator blog. “These increases and the way they are being implemented are extremely hard on all makes and models. The bigger companies have the most exposure, tons of long-term commitments to work through. The smaller have issues getting materials as is and don't have the deep pockets to ride things out.”

The blogs elicited dozens of responses and questions from industry officials in all sectors. Will the increase lead to less glass on buildings? Are project cancellations coming? Will imports increase? Are the hikes overdue after decades of price stagnation? Will smaller companies have a tougher time getting glass? A few highlight responses:

A tough 2023

“This news is truly unfortunate for so many of us; these substantial increases will have massive ripple effects in the industry. It is very frustrating and will significantly contribute to a very tough 2023 for all, especially the smaller companies,” said Syndi Sim, vice president, marketing and business development, Diamon-Fusion International.

Bad news for the small guys

“It is extremely concerning for us smaller companies who are price locked into projects so far in advance and cannot do anything to [alleviate] the increases quickly. Just as we are trying to bring more manufacturing back to our plant, this will 100 percent push companies to imports, as we all have to do what we must to survive,” said Kevin Roth, CEO and founder of Privacy Glass Solutions, powered by Vistamatic.

Continuous production problem

“Float glass producers have struggled forever in the down economic periods. The continuous production of float glass makes it tough in down cycles and a lot of money is lost (running full pull, building big inventories to keep cost down, then selling at a loss to keep the warehouses from bursting at the seams). It is hard to recover when the economy improves,” said Gus Trupiano, national sales manager, specialty products, GGI.

More value engineering

“Unfortunately, you will certainly see the use of glass shrink in scope on projects. Hello number one [value engineering] option,” says Brad Holt, vice president at Element13 Facades.

A resilient industry

I'll close out with an excerpt from Perilstein's blog on June 26, looking at how glaziers and fabricators reacted in the weeks following the increases. “People sat down and worked through it. Battled. ... We did see intelligent and creative work from so many to work through this the best way they could,” he wrote. “We can't just hide under the covers. We have to figure it out and deal with this hand. Kudos to every sales manager or estimating head who had to make those phone calls, re-work quotes, and deal with the confusion and turmoil. There was a ton, and you dealt/are dealing with it. Good on all of you.”

Read Perilstein's blogs in full at GlassMagazine.com. ■



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NEED-TO-KNOW INFORMATION
FROM THE NGA

NGA HIGHLIGHTS GLASS INDUSTRY INNOVATION AND EDUCATION AT AIA'22

NGA brought the glass industry to the forefront at the American Institute of Architects' AIA Conference on Architecture last week in Chicago, presenting the Blueprint for Collaboration panel discussion and networking event at the Willis Tower SkyDeck.

The event drew 160 registrants, including architects and students from throughout North America, and featured speakers from all segments of the industry discussing glass and glazing products as solutions to building challenges. Panelists included Keith Boswell, director at Skidmore Owings & Merrill LLP; Tara Brummet, chief of staff, Vitrum Glass Group; Paul Daniels of Frameless Hardware Company LLC; Alan Kinder, regional architectural manager, East Coast, Guardian Industries; and Peter Koukos, director of strategic process for Harmon.

"The exceptional panel of stakeholders that NGA curated was top-notch, giving attendees an exclusive peek behind the curtain and access to the top minds of the entire supply chain in our industry," says Andrew Haring, vice president of business development at NGA, who moderated the panel. "The interactions that took place on that stage was something I've never witnessed firsthand, and I believe the audience walked away with new perspectives that they haven't previously been privy to." ■

NGA REPRESENTS GLAZING INDUSTRY AT ABC TRADES NIGHT

Trades Night, recently held in Spokane, Washington, for parents and students interested in a career in the trades, attracted over 1,000 people. NGA staff was in attendance, and NGA member company AllStar Glass Company represented the glazing trade with an impressively easy-to-transport-and-assemble glass installation display, allowing attendees to try different aspects of the craft, like lifting and setting a pane of glass, and installing gaskets.

The event, hosted by the Associated Builders and Contractors Inland Pacific Chapter, introduces high school students and their parents to various trades through hands-on activities and discussions with general contractors and subcontractors from around the region. ■

NGA'S TOM CULP APPOINTED TO RGBS CONSENSUS COMMITTEE

The National Green Building Standard appointed Tom Culp, owner of Birch Point Consulting LLC and NGA Energy Code Consultant, to the 2024 ICC 700 Residential Green Building Standard Consensus Committee. Culp previously served on the 2020 NGBS Consensus Committee and will now participate in the 2024 update of the standard.

The NGBS is the only green building rating system for homes and apartments approved by the American National Standards Institute, as an American National Standard. The NGBS provides a blueprint for builders to follow for the design and construction of new and renovated single-family homes and multifamily apartment buildings. ■

EVENT UPDATE

NGA ANNOUNCES DATES FOR BEC CONFERENCE AND GPAD 2024

After a successful combination in 2022, NGA has announced it will again co-locate the Building Envelope Contractors Conference and Glass Processing Automation Days, taking place March 3-5 and March 5-6, 2024, respectively, at the Omni Hotel in downtown Nashville, Tennessee.

In the meantime, the BEC Conference will celebrate its 25th anniversary in 2023, with the event taking place at Caesars Palace in Las Vegas, March 5-7, 2023. Stay up to date at glass.org. ■

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GLASS INFORMATIONAL BULLETIN

Introduction to Hybrid VIG Fabrication

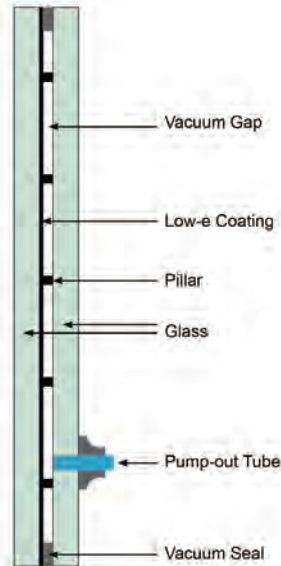
With tightening energy codes and a push toward energy-efficient and sustainable design, fabricators may want to adopt vacuum insulating glazing into their production mix. This bulletin highlights areas within the fabrication process that may differ from standard IGU production when incorporating fully fabricated VIGs into an existing line to create hybrid VIGs, also known as HVIG.

This document assumes all the appropriate design considerations were given and the VIG was ordered per the architectural design. It is recommended that a proper thermal stress analysis is performed on any annealed glass in an HVIG assembly and that a wind load analysis is performed on the entire HVIG assembly. Refer to Glass Technical Paper FB66-20 Introduction to Vacuum Insulating Glazing for more information on VIG construction, performance and design considerations.

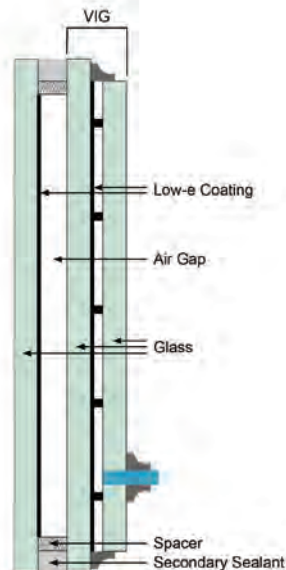
Incoming inspection

It is recommended that fabricators and the VIG manufacturer establish a product specification or quality agreement for the incoming VIGs and that the HVIG fabricator develop an inspection plan. Generally, a VIG will contain the following components, which make it unique compared to a standard IGU:

- A non-organic edge seal such as solder glass or metal weld.
- A pump-out tube, also called an evacuation port or vacuum port, with a protective covering or cap on one of the exterior glass surfaces.
- Support pillars, also called



Asymmetric VIG unit



Hybrid VIG unit

GLASS INFORMATIONAL BULLETIN—INTRODUCTION TO HYBRID VIG FABRICATION

microspacers, arrayed within the vacuum cavity. Pillar arrays, dimensions, spacing and material compositions vary across VIG manufacturers.

- Some VIGs may feature a getter contained within the vacuum cavity, which may or may not be visible from the exterior.
- Some VIGs may feature asymmetrical edges to accommodate the edge seal technology. (One lite will be slightly smaller than the mating lite.)

Mate lite matching

In HVIGs, the finished fabricated VIG is paired with a monolithic or laminated mating lite. VIGs must be made to size and cannot be cut or altered post-manufacture. For mate lites, the cut quality of edges is the single most important factor affecting the edge strength of glass. Other factors to take into consideration are length and width, squareness and final glass dimensional specification (indicated in the figure above) which the fabricator may vary slightly to fit specific glazing conditions.

WASHING

Most often, VIGs may be machine-washed; however, in some instances they may require hand-cleaning. Consult the VIG manufacturer for recommended washing procedures.

HEAT TREATING

VIGs cannot be heat treated post fabrication. VIGs and mating lites must follow thermal stress, wind load, and code compliance for necessary heat treatment of the lites and meet ASTM C1048 Standard Specification for Heat-Strengthened and Fully Tempered Flat Glass if necessary.



ONLINE

FOR MORE INFORMATION AND TO DOWNLOAD THE FULL NGA GLASS TECHNICAL PAPER ON HYBRID VIG, VISIT GLASS.ORG/STORE AND SEARCH FOR "VIG."

LAMINATING

VIGs with a laminated component as one of the lites may be purchased from some VIG manufacturers. Currently, it is not recommended that fabricators laminate directly onto a finished product VIG, due to risk of breakage or loss of vacuum seal. Technology and processing methodology updates may change this lamination guidance in the future. Note, a laminate may be present as the added component of an HVIG. For example, a laminated component may be added as the outboard or inboard mate lite insulated to the VIG component.

INSULATING

Considerations that should be made during HVIG unit design and fabrication process are as follows:

- It is generally recommended VIG be placed as the interior lite of the HVIG. The pump-out tube could face the interior of the building or be captured within the air gap cavity to prevent weathering or damage to pump-out tube seal. During production, the pump-out tube should not come in contact with line rollers. Care should be

taken while processing on the IGU line to ensure the pump-out tube is not damaged.

- For asymmetric VIGs, mate lite dimensions should be designed with respect to the larger lite of the VIG. Spacer size and placement are dependent on orientation of pump-out tube. Spacer size should be determined by dimension of the lite placed adjacent to monolithic/laminate mate lite. This does not apply to symmetric VIGs as both lites are the same size.
- Due to variations in VIG seal technology, IGU sealant compatibility should be confirmed with the VIG manufacturer. In cases where the pump-out tube is captured in the air gap and spacer is matched to the smaller lite of the asymmetric VIG, secondary sealant should come in contact with and cover the vacuum edge seal. Check with the coated glass manufacturer as this configuration may alter the need for a greater depth of edge deletion.

Thermal stress analysis should be performed for the entire finished HVIG configuration to determine if the mate lite needs to be heat treated and to confirm with the manufacturer that the VIG can withstand thermal buildup that may occur.

Finished HVIGs should be inspected in the same manner as standard IGUs to help ensure proper fabrication.

PACKING AND HANDLING

When stacking or packing VIG/HVIG, ensure separator materials are thick enough to prevent contact with the exposed vacuum port cap to help avoid breakage at cap location. ■



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White House Ramps Up Clean Energy Tech, Requires Updated Codes

President Biden authorized the Defense Production Act to accelerate domestic production of clean energy technologies, including solar panel parts, photovoltaic modules and module components.

Additionally, the U.S. Federal Emergency Management Agency Administrator Deanne Criswell announced a National Initiative to Advance Building Codes, a new government-wide effort to boost national resiliency and reduce energy costs.

Under the initiative U.S. federal departments and agencies will review federal funding and financing of building construction to ensure projects follow updated model codes and provide incentives and support for communities to adopt modern building codes.

Signs of Financial Trouble at View Inc.

In May, smart glass manufacturer View Inc. issued a grim financial statement warning that it risks running out of cash.

According to the release, there is “substantial doubt about the company’s ability to continue as a growing concern, as the company does not currently have adequate financial resources to fund its forecasted operating costs and meeting its obligations for at least 12 months from the expected issuance date of its 2021 financial statements.”

The release notes that View will look to raise funds, but “there can be no assurance that the necessary financing will be available or will be available on terms acceptable to the company.”

Vitro Glass Announces Partnership to Advance the Interactivity of Glass

Vitro Glass is joining VueReal, a leader in micro printing technology, to advance the interactivity and functionality of glass.

Canada-based VueReal intends to turn the potential of microLED technology into reality by enabling the true-life displays needed by the next generation of smartphones, TVs, laptops, virtual/augmented reality systems and displays. MicroLED is an emerging flat panel display technology that uses arrays of microscopic LEDs to form individual pixel elements.

NSG Group Installs New Solar Array at U.S. Plant, Expands Plant in Poland

NSG Group completed installation of a 1.4-megawatt photovoltaic solar array at its Rossford, Ohio, facility; the array is now fully operational and will supply about 2.5 million kilowatt hours of renewable energy annually.

The new array, owned and operated by AEP OnSite Partners, a subsidiary of American Electric Power, will provide energy to the facility for the next 20-plus years under a power purchase agreement.

Additionally, Pilkington’s float plant in Ostrołęka, Poland, has been completed. The works opened in 2020, and the expansion was aimed at doubling the plant’s production capacity, and represents an over \$9-million investment.

AGC Sets Reduction Target for Scope 3 GHG Emissions

AGC, parent company of AGC Glass, set a new target for reducing Scope 3 greenhouse gas emissions in its value chain. AGC aims to achieve a 30 percent reduction in Scope 3 GHG emissions in 2030. AGC has also applied for SBT certification by the international climate change initiative, Science Based Targets initiative.

To achieve a sustainable global environment, AGC has set interim targets of a 30 percent reduction in GHG emissions and a 50 percent reduction in GHG emissions per unit of sales in Scope 1 and Scope 2 for 2030 as milestones toward its goal of achieving net zero carbon emissions in 2050.

Saint-Gobain to Install Photovoltaic Park at Romanian Glass Plant, Cancels 8.9 Million Shares

Saint-Gobain Romania and ENGIE Romania, a natural gas company, will partner to construct the largest photovoltaic parks in Romania, say officials, located at Saint-Gobain’s glass factory. The photovoltaic panels will have an installed capacity of 8.6 megawatt peaks, and will produce renewable energy for the industrial site in Călărași.

In addition, Saint-Gobain cancelled 8,871,654 treasury shares acquired on the market, according to a release on the company’s website.

Tvitec and Cricursa Partner to Provide Flat and Curved Glass Solutions

Tvitec and Cricursa, both Spain-based glass fabricators, are launching

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NEWS TO KNOW

a comprehensive line of high-performance flat and curved construction glass solutions. Tvitec acquired Cricursa earlier this year.

The companies' alliance will result in a new venture, say officials, that will have an increased international focus.

Eastman Chemical Co. Repurchases \$500 Million of Common Stock

Eastman Chemical Co. entered into an accelerated share repurchase agreement with Wells Fargo, NA and Mizuho Markets Americas LLC to repurchase \$500 million of Eastman's common stock. With the execution of the ASR,

Eastman will have made significant progress toward its target of repurchasing greater than \$1 billion of shares in 2022, with approximately \$750 million completed in the second quarter.



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PEOPLE NEWS



Hall

Vitro Architectural Glass appointed **Trevor Hall** national architectural manager for Southern California, Las Vegas, Arizona, New Mexico and Hawaii.

In this role, Hall will focus on delivering product, technology and service solutions to architects, specification writers, glazing contractors, façade consultants and Vitro Certified fabricators for the commercial construction market in his territory.



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Crowl

Ron Crowl was named managing director of **Compusoft + 2020 Doors, Windows and Glass Vertical Group**.

Crowl was one of the founding partners of FeneTech in 1996, becoming its president and CEO in 1999.



Schmidt

Viprotron GmbH introduced Ric Schmidt as the new president of Viprotron North America. With over 10 years' experience in

the glass industry, Schmidt is looking forward to continue developing Viprotron's customer base in North and South America.



Knisely

Forel North America appointed Scott Knisely to vice president sales and service of the branch. Knisely has

many years of relevant glass industry experience and has held various roles including business development and technical assistance.



Dirmeyer



Besman

American Insulated Glass promoted

Dan Dirmeyer, who previously served as general manager for AIG Michigan, to director of operations for the Mid-Atlantic and Mid-West operations. Vitaliy Besman will assume Dirmeyer's role as general manager,

having previously served as plant manager, where he played an essential role during the Detroit expansion.

GED Integrated Solutions announced the passing of William "Bill" Briese, former GED research and development engineering manager. The company



Briese

issued the following statement:

"William Alan Briese, age 55, beloved husband of wife

Jennifer, loving father

of Stephanie and Emily, and dear friend of many passed away after a 10-month battle with cancer. Bill celebrated his 25th anniversary with GED in May. He was a successful innovator with many patents and was always looking to improve our customers' products and systems. Bill was known in the industry for his contributions with IGMA and most recently serving on the FGIA board of directors. Bill will be missed by the GED family, not only for his contributions to the business, but most of all for his friendship." ■

**From May 23 to press time July 4. Read these stories, and others, in their entirety at GlassMagazine.com.*

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THE INDUSTRY IS EMERGING INTO A CHANGED MARKETPLACE AND THOUGHTS ARE AGAIN TURNING TO SHAPING THE FUTURE. ... THE SHAPE OF THAT FUTURE, OF COURSE, DEPENDS, AS IT ALWAYS HAS, ON INNOVATION.

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INNOVATION

6 STEPS TO DEFINE AN INNOVATION PROCESS

BY JANICE YGLESIAS



Now that the two-year COVID-19 shutdown and daily case statistics are receding from the front page, the industry is emerging into a changed marketplace and thoughts are again turning to shaping the future as opposed to just hanging on. The shape of that future, of course, depends, as it always has, on innovation.

Departing from established comfort zones—whether traditional or recently acquired—requires executives to consider new ways of forming the future and taking more risk. It’s a challenge, but also an opportunity.

Ray Garries, president of Global Fenestration Advisors and founding chair of the Fenestration

and Glazing Industry Alliance Innovation Task Group, moderated a roundtable discussion at the 2022 Fenestration and Glazing Industry Alliance Hybrid Annual Conference in Amelia Island, Florida, about the latest innovations in the industry and the process followed to develop them.

Define an innovation process

Without a fully developed innovation system, many organizations are unlikely to innovate successfully, regardless of how promising the ideas are.

Panelist Tim McGlinchy, executive vice president of engineering, research and development, GED Integrated Solutions, shared the company's new product development process of evaluate, prioritize, develop, launch and measure. Key elements include:

- Monitor competitors and the market to uncover and address customers' wishes and problems. Remember, a problem is an opportunity.
- Create a cross-functional innovation project team. Consider the up- and downstream implications in the current environment—supply chain issues, labor shortages, marketing channels, distribution issues and installation. Panelists agreed that innovation does not have to just be for engineers or technical people. Everybody has great ideas.
- Provide an open/free atmosphere of inquiry with few boundaries; avoid micromanagement. Create some boundary conditions to maintain focus, but don't pre-judge emergent ideas.
- Provide resources of time and funding within reason. Don't be afraid to take risks. Innovation is inherently risky, but the key is to manage risk rather than eliminate it. "Talk doesn't do enough," Garries observed. "You have to act. Action changes the future."
- Allow failure. Discovery is

iterative. The best approach to getting good ideas is to collect lots of ideas and throw away bad ones. Garries recommends that, in addition to commitment and having the right focus, a certain tolerance for failure must exist. "You have to fail a lot to get the right thing," he said.

- Recognize and reward success.

In essence, prioritize how to get products out the door and keep the development process disciplined. One way to do this is to characterize the options by impact—degree of change involved and level of technological risk. For example, product redesign would have a relatively low degree of change and risk, while at the other end of the spectrum, a new manufacturing system would have a high change and risk score.

Critical actions include justification like market need and financial return on investment, customer involvement to validate the value proposition, and continual communication.



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The three panelists each shared some of their companies wide variety of innovative ideas.

McGlinchy noted GED's new series of glass processing machinery for cutting and edge deletion, which McGlinchy said can increase throughput, reduce glass waste and improve scoring and deletion quality. Also reported by GED was a more accurate product tracking system that solved the challenge of misplaced windows, saving time and money.

Miles Barr, chief technology officer from Ubiquitous Energy, reported ongoing work on transparent solar windows that feature completely transparent solar panels with a low-E coating that can generate solar electricity. The energy can be fed into a grid to power various devices, basically turning buildings into vertical solar farms.

“

WITHOUT A FULLY DEVELOPED INNOVATION SYSTEM, MANY ORGANIZATIONS ARE UNLIKELY TO INNOVATE SUCCESSFULLY, REGARDLESS OF HOW PROMISING THE IDEAS ARE.

”

On the residential side, Chad Swier, product manager - balances and sliding windows at AmesburyTruth, pointed to the new Pinnacle Balance that revolutionizes how a balance locks when the sash is tilted or removed and can also aid in increased window-load ratings. Development took about two and a half years, Swier said.

Whether it is simple or groundbreaking, Garries put the importance of carefully targeted innovation succinctly: “Innovation is turning ideas into invoices.” The key is to have an effective system to channel creativity from all sources. ■

Janice Yglesias is the executive director of the Fenestration and Glazing Industry Alliance, overseeing the full organization. She can be reached at jyglesias@FGIAonline.org.



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TIPS FOR NAVIGATING THE CURRENT ECONOMIC
ENVIRONMENT

BY MARCO TERRY



Companies in the construction industry are facing one of the most complex business environments in the past two decades. Successfully negotiating these challenges requires a combination of skill and careful planning.

This article discusses five important economic issues we face as business owners in the construction industry. It also provides actionable suggestions to help you emerge from these challenges as a stronger business.

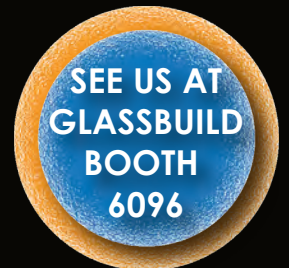
CHALLENGE 01— HIRING AND RETENTION PROBLEMS

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EXAMINE YOUR EMPLOYEE ROSTER AND DETERMINE IF ANY EMPLOYEE IS SO CRITICAL THAT YOUR BUSINESS DEPENDS ON THEM. THIS SITUATION CREATES A SERIOUS RISK TO THE COMPANY. EVERY EMPLOYEE SHOULD HAVE A BACKUP COLLEAGUE WHO CAN JUMP IN IF THE PRIMARY EMPLOYEE IS UNAVAILABLE.

”

The best course of action is to ensure employees are well-compensated, get decent benefits and feel appreciated. This type of environment creates a sense of loyalty. It's also the right thing to do. Smaller and less financially stable companies are at a disadvantage here. They may not be able to match the compensation packages that larger companies offer and risk losing valuable talent.

Fortunately, smaller companies have some alternatives. While money is an obvious motivator for employees, it is not the only one. Employees are also motivated by recognition, appreciation and a sense of belonging. Small companies can usually do much better in these areas than larger companies. Working on these non-tangible elements helps you increase retention and employee satisfaction without adding substantial costs.

However, business owners must face the reality that some employees may leave. As a responsible manager, be prepared. Examine your employee roster

and determine if any employee is so critical that your business depends on them. This situation creates a serious risk to the company. Every employee should have a backup colleague who can jump in if the primary employee is unavailable.

CHALLENGE 02— RISING INFLATION AND INTEREST RATES

Interest rates have increased and will likely keep increasing in the near term. The effects of these increases will be widespread as general costs and financing rates rise for businesses and consumers. Ultimately, these higher costs can have a chilling effect on consumers and the economy.

Meanwhile, inflation is at a 25-year high. It affects every part of a business and creates a two-fold problem. Costs increase. However, as prices rise, demand for products and services will likely decrease. Companies that don't respond adequately to this situation will probably get into trouble.

Suggestions to ensure your construction business keeps up with inflation and interest rates:

- **Review and adjust prices regularly.** Inflation affects every component of a pricing model. Consequently, review and adjust your pricing sheet regularly to ensure your profit margins stay on target. Otherwise, profits will suffer.
- **Update your sales forecast.** Inflation affects demand for construction products and services, which affects your sales forecast. Companies that rely on sales forecasts for future purchases and investments must adjust their sales forecasts as market conditions evolve. Otherwise, your team could make investment decisions based on outdated information.
- **Adjust your cash reserve.** Every business should have an emergency cash reserve. The current recommendation is to keep enough funds in reserve to cover expenses for three to six months. However, inflation has probably changed all the expense assumptions that went into building the reserve. Consequently, your reserve account must be adjusted for inflation to ensure it is still adequate. Additionally, consider increasing the reserve amount to prepare for possible economic headwinds.
- **Prepare for higher financing costs.** Getting business financing will be harder, more expensive and will take longer. Financing rates will rise for new credit lines and lines of credit that are tied to the prime rate. Additionally, existing lines of credit will likely see an increase when their term renews. Lenders will also be more careful during their underwriting process, asking for more detailed information and taking longer to issue a line of credit.

CHALLENGE 03— CONTINUING SUPPLY CHAIN PROBLEMS

We have lived with ongoing supply chain problems for the past few years. Unfortunately, some local and foreign suppliers have been unable to adapt and are still having problems running their factories. This problem is aggravated by the high costs of moving freight between countries. Most experts suggest that we can expect supply chain problems to continue for the foreseeable future.

Handling supply chain disruptions is notoriously difficult. The recommendations I made in my previous article, “Managing Supply Chain Problems” in the May/June edition of Glass Magazine, can help you better cope with this problem. Key suggestions:

- **Diversify suppliers.** Consider working with more suppliers and ensure you have a backup

supplier for every essential product. The main drawback of this strategy is that it reduces your purchase volume for each supplier, resulting in lost volume discounts. However, you gain the advantage of having an alternative source if a supplier does not have the inventory you need.

- **Adjust inventory levels.** Most companies use a “just in time,” or JIT, inventory process. This approach allows them to keep the lowest possible inventory levels that allow for smooth operations and can provide savings and improve cash flow—when it works. Unfortunately, JIT inventory is fragile and leaves you vulnerable to supply chain problems. A safer approach is a “just in case,” JIC, inventory process. The main difference between JIT and JIC is that JIC builds an inventory cushion into the forecasts. This

cushion reduces your chances of running into problems if your suppliers have product shortages. The drawback is that holding inventory is expensive and reduces your available cash flow.

CHALLENGE 04— HEALTH AND GEOPOLITICAL INSTABILITY

The broad market is also facing headwinds from the ongoing health pandemic and the developing conflict in eastern Europe. Both events are inherently unpredictable and difficult to manage.

Consider tracking how these situations affect your suppliers. Unfortunately, these issues feed into a vicious cycle with the supply chain and cost inflation. The supply chain could be further affected by closures, freight delays, fuel shortages and cost increases.



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CHALLENGE 05— POSSIBLE RECESSION

The economy is facing pressures from several directions. The unfortunate consequence of this situation is that we could experience a recession. As I write this article, there are several news stories with public company executives warning their investors about a possible downturn and preparing accordingly. You may want to consider doing the same by implementing some of the strategies we discussed earlier.

While no one ever wants a recession, it can provide growth opportunities for companies that are well-prepared. Periods of turmoil enable savvy business owners to grow their market share and emerge stronger. Consider these two strategies:

- **Grow your client base.** Well-prepared companies can use a recession to build their market share strategically. While

competition increases during recessions, fewer companies can deliver the level of service clients expect. They may not have adequate staffing, inventory or financial resources to deliver. A well-prepared company is also positioned to win these opportunities. This is your opportunity to differentiate your company. Furthermore, these customers will likely remain with you once the economy improves. This expanded client base leads to new opportunities.

- **Grow through acquisitions.**

Recessions also offer the possibility to grow through business acquisitions. Turbulent markets can present a great opportunity to seek and acquire value companies that are attractively priced.

We face an interesting opportunity. Small company valuations are usually

based on a multiple of the Seller's Discretionary Earnings, among other factors. Sellers, buyers and lenders determine this figure by evaluating the last three years of financial statements. However, the last three years have been difficult and have pushed revenues down. Consequently, some valuations are also down. This scenario can be an opportunity to buy out an owner who is ready to retire or make a change.

Keep in mind this strategy can be a double-edged sword. Well-executed acquisitions can help you grow your client and talent bases. However, they are hard to pull off. On the other hand, poorly executed acquisitions can easily get your company into serious trouble. ■

Marco Terry is managing director of Commercial Capital LLC, a factoring company and provider of invoice financing to companies in the glass industry. He can be reached at 877/300-3258.



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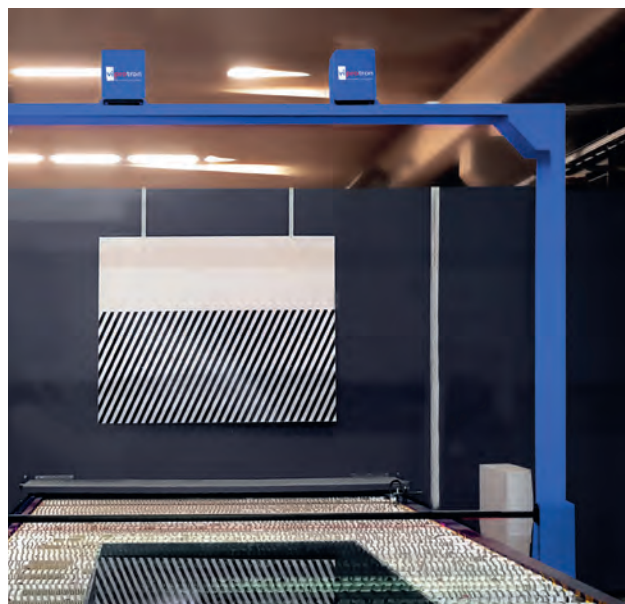
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The cut pattern for the current glass sheet on the table at Value Windows and Doors' facility in Moreno Valley, California.

HOW TO CHOOSE THE RIGHT SOFTWARE SYSTEM FOR YOUR COMPANY

BY CHRIS KAMMER



Choosing software for your business can be daunting with overwhelming choices. Researching options and making an informed decision takes time, as does implementation and training employees. This article offers guidance in choosing a new software system for your company. Just remember, no system fits every person or company. These steps are only suggestions because, depending on your business, parts of steps could move or merge.

STEP 01— KNOW YOUR OBJECTIVES AND CREATE A TEAM

Start your search by defining your criteria. Outline what the software needs to accomplish and know your pain points (problems the new software solves). Understand the solution's value by quantifying it in terms of time, money or benefits to the organization.

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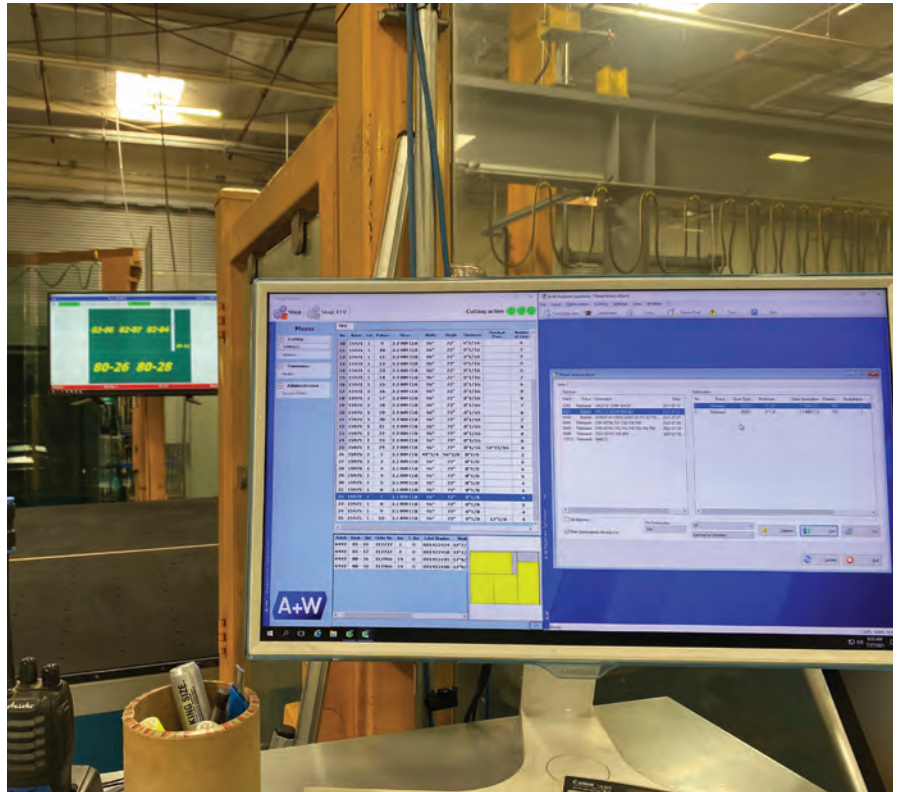
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Right: A+W Realtime Optimizer in the fore screen, while the screen in the back shows the shapes being cut currently, at Value Windows & Doors facility in Moreno Valley, California.

Involve your team early on because they use the current software system (if one exists), know its failures, deal with the pain points, and must learn the new system. Change can be intimidating for people. To help your team transition, involve them in the decision-making process and add their needs to the list of requirements. Also, involve them in testing the new system, when possible and appropriate, to ensure it functions better than the current solution.

STEP 02— PRIORITIZE YOUR NEEDS

No software solution fits all employees



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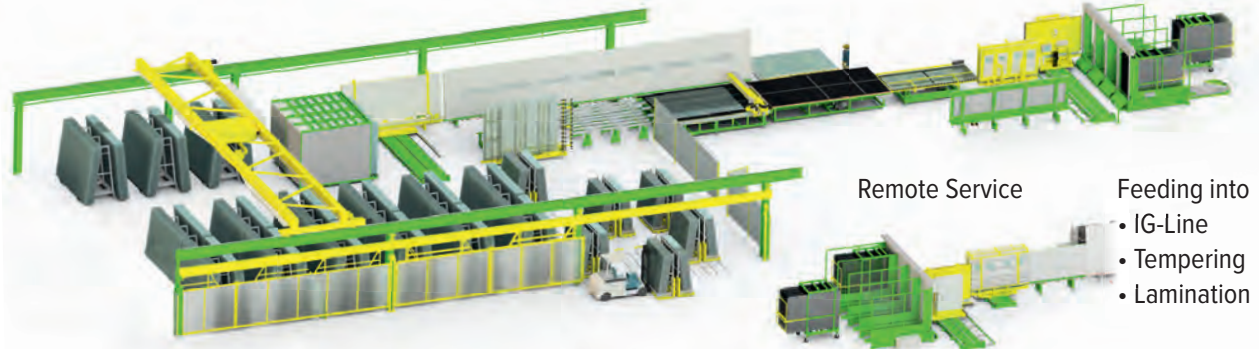
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or companies. In some cases, multiple solutions are required to meet a company's needs. Here, you might want to make sure these systems can interface with each other, which can sometimes be a simple add-on. If it is more complicated, work with the software supplier.

Prioritize the needs of your company by determining the most relevant features as either essential, conditional or nice-to-have. Be careful not to throw everything into the "essential" bucket.

Some questions to consider when prioritizing needs: what should software do? How easy is the software to use? What's your budget? What reports do you need? How scalable is the software? Do you want a cloud-based or on-premises system?

STEP 03— CREATE A SOFTWARE VENDOR SHORT LIST

Make a list of software systems that

service the industry, including industry-specific and more general companies. Ways to find software suppliers include Google searches, industry-specific magazines/websites/tradeshows, competitors, consulting firms and suppliers.

Keep in mind your company's hardware needs. You need to have a firm understanding of the technical components of your hardware, internet speed into your building and connection to other buildings (if you have any), the manufacturing machines you are interfacing into, on-premises or cloud servers and their specs, networking and more.

STEP 04— VALIDATE YOUR SHORT LIST

Next, whittle out unsuitable entries. Depending on your company, you will have different criteria to determine serious versus unsuitable software solutions. A good starting point is

technological preference, budget and connection.

Based on these three criteria, you can narrow your search quickly. These criteria can also help open your eyes to flaws in your own search methodology. It is important to be open to feedback from outsiders, including customers, suppliers and software suppliers. Making a connection with team members on the software supplier side is undervalued but highly important throughout the process. Having an advocate on your side within the software supplier can be invaluable in your search and future partnership.

STEP 05— EVALUATE YOUR CHOICES

When you pinpoint two or three final competitors, you can compare, filter, gauge and evaluate features more easily. Take virtual or in-person demonstrations, watching for solutions that address

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functions relevant to your facility, which the software supplier should know and willingly highlight.

After the demonstration, ask software suppliers for customer references and to tour at least one facility. Tour a similar company, so you can ask questions and watch the process in action.

Bring all decision-makers to all demonstrations or tours. Additional sets of eyes allow you to better screen software suppliers and make notes at the end. The purpose of each demonstration or tour is to make the best decision for your company.

In this stage, focus on product usability. How easy is it to learn the software? What options are available for training? How efficiently can employees perform tasks essential to your business, such as order entry? How easy is it to remember how to perform tasks? How thorough is the software solution in detecting and avoiding errors?

Before finalizing your decision, make sure you think about the hardware and computer needed to run the winning software solution. This vital component ensures your new software functions optimally. When thinking about hardware needs, take into consideration all software (new and existing) tied into the hardware, such as your email, telephone and more. Consulting a third-party IT company may be of value.

STEP 06— MAKE THE DECISION AND NEGOTIATE

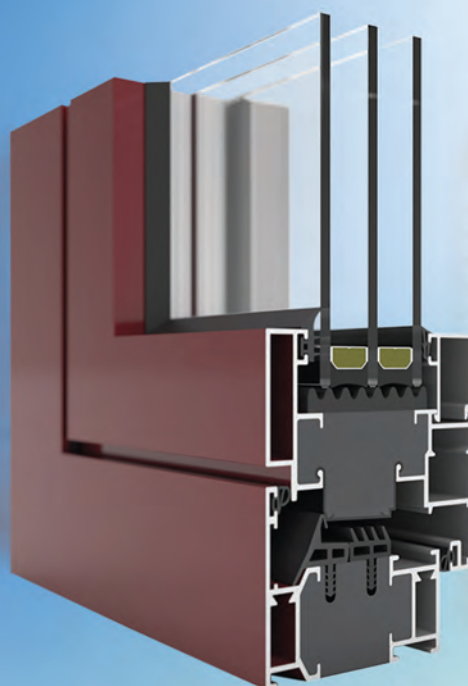
By now, you're probably confident who the winning software provider is, and it's time to ask some final questions. Is the winning software solution sold through a partner, reseller or original developer? Ask about some of the finer details, so you aren't shocked when you begin negotiations, such as the implementation timeline, number of licenses, payment terms and structure, company's reputation, maintenance, upgrades, additional modules to efficiently/effectively run your new software solution, and support availability/access.

In closing, choosing the right software solution for your company is no guarantee of success. Your chosen software solution will be most successful when you and your team put in the time and effort to learn, implement and manage the installation based on the needs of your company.

By playing an active role in the software's implementation, you can learn its nuances, which enables you

to troubleshoot problems (which will always come up) and tailor the solution to your company's needs. When you integrate new software into your company, training is vital to your success, as is ongoing monitoring, maintenance and appropriate upgrades. Remember, no software solution is perfect for every company. Every software solution must be tailored to your company in some form or fashion. ■

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GLASSFAB'S MIKE GOLDFARB REFLECTS ON FOUR DECADES IN THE INDUSTRY



BY KATY DEVLIN
ASSOCIATE
PUBLISHER,
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Glassfab Tempering Services Inc. opened its doors in 2006 with eight people working to produce high-quality heavy fabricated tempered glass for the burgeoning shower door and glass partition business. Today, just 16 years later, Glassfab, based in Tracy, California, now operates four manufacturing facilities and employs nearly 300 people. Glassfab has diversified its product portfolio and become a leader in glass tempering, insulating, laminating, digital printing, jumbo sizes, hardware, Solarfab and more.

In June, I sat down with Mike Goldfarb, one of Glassfab's original managing partners and vice president of sales for the company. Goldfarb is retiring from Glassfab at the end of the year, after 42 years in the industry, and is dedicated to ensuring Glassfab's legacy of quality and service continues on to the next generation of leaders. Goldfarb and I discussed his history in the industry, the impressive growth of Glassfab, and how to build a culture of quality and service that lasts.

How long have you been in the glass industry?

In 1980, I joined a family-owned wholesale glass distributor in the [San Francisco] Bay Area. I was in outside sales covering Northern California for the company until 1985, when I moved into the office as product manager. In 1989, I was promoted to sales manager for Northern California, where I developed sales and marketing programs for architectural products. Then in 2006, I had the opportunity of a lifetime to become one of the original managing partners that started Glassfab Tempering Services in Tracy, California.

What made it the right time and place to start a new glass business?

The market itself was going through transition. We saw a unique opportunity to develop a company for fabricated tempered glass. Additionally, Tracy is centrally located. We were able to easily serve the Bay Area, Sacramento and Fresno from a central location. The central location and the market need for a reliable fabricator positioned us well for the growth you see today.

Can you tell me about Glassfab's product diversification over the years?

In 2006, we started with fabricated tempered. Customers began asking us to help with their insulated projects, so we made that investment in 2007, then added laminating in 2013 for the same reason. To complement our expanding business, we then added digital printing, heat soaking and oversized product capabilities. As time went

on, these investments required more space. We started in 30,000 square feet of a 60,000-square-foot building. In 2008 we expanded to the full 60,000 square feet. We then acquired a separate 80,000-square-foot building in 2012 for commercial products. In 2019, we purchased a 36-acre campus and began construction on existing buildings. We currently operate four locations in Tracy and Reno, with a total of six tempering lines.

What sets Glassfab apart?

As a company, our durable competitive edge is commitment to excellence, whether it's customer service, quality or lead times. For me, as a partner, my role has been to help build long-lasting relationships. I've been involved with amazing people, capturing opportunities while maximizing results, always with integrity and honesty.

What does high-quality customer service look like in action?

It can be as simple as always answering the telephone. I tell my reps to let a smile come through the phone when you're talking to someone. We need to always be a resource for information. We are always responding and getting back to customers on a timely basis. We want to be a resource for customers—that has been key to our growth. We're a resource for codes, specifications—all things related to the glass and glazing products. Bottom line, it's always meeting the commitments you have made with your customer. Always do what you say you're going to do. That's high-quality customer service in action.

How do you ensure high-quality products?

It starts from order entry. We're making sure everything is correct from sketches to production. We do quality control at each station—cutting, fabricating, tempering. It's our daily best practices to ensure the quality stays consistent. We also have strong partnerships with industry organizations such as the [National Glass Association], [Insulating Glass Certification Council] and [Safety Glazing Certification Council]. Those organizations' resources as well as our vendors' experts working with our internal quality resources help us consistently maintain a high level of quality.

How have you ensured that those tenets of company culture remain consistent, particularly as the workforce has grown?

Really it starts at the top with Brian [Frea], Ruby [Singh], Usha [Mhay] and myself. We take the time to engage with our employees starting at the interviewing process, and we stay engaged with them to make sure they are supported in everything they do. We are a large independent fabricator that has been able to keep our family values at the core of what we do regardless of how we have grown or will grow in the future. We also invest in our employees with our training and product knowledge and customer service. I tell our employees to learn something new every day and pass that knowledge on. Keep an open mind externally and internally.

How has Glassfab been preparing for a new generation of leadership?

We have invested a large amount of time in our next generation of leaders,

who have shown a desire and aptitude to tackle challenges head-on and who understand all aspects of our business. The next generation leaders are ready to carry our culture forward and I'm excited and proud to see where they are today versus when they started. They are situated well to grab the torch and take Glassfab into the next stage of growth. My son, Aaron, has been with the company for 10 years in architectural sales. They are ready to support our customers and to help them grow their businesses.

Looking back at your 42 years in glass, what stands out to you about how the industry has changed?

Every product used in our industry has evolved. We see new technologies, improved performance, aesthetics. Components for value-added glass are more sophisticated and require state-of-the-art equipment. When I started in glass there were a handful of choices; now there are thousands of glass combinations that require specialty handling in a quick, ever-changing environment. With the addition of products like Solarfab, we will see the industry continue to change quickly, driving to more environmental sustainability and security glass applications while maintaining visible light and thermal performance. Technology will change our industry quickly, but I'm excited to see the direction we are going as an industry. ■



GLASS
MAGAZINE
AWARDS
2022

—

ON
THE
FOREFRONT

GLASS MAGAZINE'S AWARDS FEATURE FROM 2019 SPORTED THE TAGLINE "AT THE CUTTING EDGE." NOW, WELL INTO A PANDEMIC AND SUPPLY CHAIN CRISIS, THAT SENTIMENT REMAINS TRUE FOR THE INDUSTRY'S BEST. GLASS INDUSTRY COMPANIES CONTINUE TO PUSH THE ENVELOPE, MATERIALLY AND FIGURATIVELY, INNOVATING HIGH-PERFORMANCE PRODUCTS FOR TOMORROW'S BUILT ENVIRONMENT.

"I feel that nothing speaks to the state of design more than the use of glass in architecture," says Glass Magazine Awards Judge John R. Stephenson, AIA, senior architect, BRPH. "It provides a versatile and evocative material where the possibilities are just beginning."

This year's Project of the Year winner, the exhilarating and mind-bending room of glass and mirror situated atop New York City's One Vanderbilt skyscraper, makes glass as a building material visible, and something to be celebrated. It's also a reminder that architectural glass helps put projects, and cities, on the map. At

the project's ribbon-cutting, local officials noted the importance of the project in returning tourism to New York. "As New York mounts its comeback, it is important that we recognize and celebrate projects like this that remind us, and the world, about the resiliency and energy of our city," said then-Democratic Mayoral nominee Eric Adams, according to New York YIMBY magazine.

This competition's seven project award winners and six product award winners also meet head-on many of society's most pressing concerns. Winners provided systems and solutions that address climate change and a need for building resiliency, the supply chain crisis that constantly upends the availability of building materials, and a skilled labor force shortage that requires easier-than-ever-to-install products and systems.

The 2022 competition was again impressive, with over 60 nominations from leading companies. A panel of 21 industry judges selected the project competition winners; product competition winners were selected through public voting.

For questions about the program or for information about the 2022 awards, contact Associate Editor Norah Dick, ndick@glass.org.

BY NORAH DICK



THE PROJECT JUDGES

THE GLASS MAGAZINE EDITORIAL STAFF WOULD LIKE TO THANK THIS YEAR'S JUDGES FOR GIVING THEIR TIME AND EXPERTISE IN REVIEWING AND SELECTING THIS YEAR'S PROJECT WINNERS. THEIR EXPERTISE RANGES FROM DESIGN, TO INSTALLATION, TO MATERIAL SUPPLY.



Mary Avery

VICE PRESIDENT OF
MARKETING, TUBELITE



Sara Barchak

MARKETING MANAGER, EFCO
CORP.



Martin Bracamonte

VICE PRESIDENT OF
MARKETING AND INNOVATION,
VITRO ARCHITECTURAL GLASS



Tara Brummet

CHIEF OF STAFF, VITRUM
GLASS, APEX ALUMINUM &
LORVAL DEVELOPMENTS



Peter de Gorter

VICE PRESIDENT,
DEGORTER INC.



Alice Dickerson

FOUNDER AND MANAGING
DIRECTOR, DIVISION 08
MARKETING



Ricardo Dominguez

PRESIDENT, JORDON GLASS
MACHINERY



William Green

MARKET TEAM MEMBER,
TECHNOFORM



Jacob Kasbrick

GUARDIAN GLASS COMMERCIAL
SEGMENT AND TECHNICAL
SERVICES MANAGER,
GUARDIAN INDUSTRIES



Bill Lingnell

ENGINEERING CONSULTANT,
LINGNELL CONSULTING
SERVICES



Nataline A. Lomedico

CEO AND PRESIDENT, GIRoux
GLASS INC.



Kayla Natividad

ARCHITECTURAL TECHNICAL
SERVICES ENGINEER, NSG
PILKINGTON



Tom O'Malley

FOUNDING PARTNER,
DIRECTOR OF SALES, CLOVER
ARCHITECTURAL PRODUCTS



Jessie Robertson

MARKETING MANAGER, STEEL
ENCOUNTERS



Diana San Diego

VICE PRESIDENT OF
MARKETING, SAFTI FIRST



Julie Schimmelpenningh

GLOBAL APPLICATIONS
MANAGER, EASTMAN
CHEMICAL CO.



Tammy Schroeder

DIRECTOR OF MARKETING,
LINETEC



Stephen Selkowitz

AFFILIATE, LAWRENCE
BERKELEY NATIONAL
LABORATORY



Syndi Sim

VICE PRESIDENT, MARKETING
AND BUSINESS DEVELOPMENT,
DIAMON-FUSION
INTERNATIONAL



John R. Stephenson

SENIOR ARCHITECT, BRPH



Karen Wegert

ASSOCIATE DIRECTOR OF
ADVOCACY & TECHNICAL
SERVICES, NATIONAL GLASS
ASSOCIATION



**Architectural Design
Team**

VIRACON

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THE PROJECTS





SUMMIT ONE VANDERBILT

NOMINATING COMPANY: CRISTACURVA

Winning Team

BUILDING ARCHITECT
Kohn Pedersen Fox

PROJECT DESIGNER
Snøhetta

GALLERY ART DESIGNER
Kenzo Digital

CONTRACT GLAZIER
Mistral Architectural
Metal + Glass

GLASS FABRICATOR
Cristacurva

INTERLAYER SUPPLIER
Kuraray

PHOTOGRAPHY
Alberto Alarcón

Appropriate for its superlative status, this year's Project of the Year winner is located at the peak of a skyscraper. Transcendence I, which also won the Glass Magazine Award for Best Glass Interior, is one of the rooms that make up the experiential suite of immersive rooms which is Summit One Vanderbilt. The project combines otherworldly glass and mirror, fabricated by Cristacurva, with outstanding views of Midtown New York City.

Transcendence is part of a suite of permanent art installations and experiences, called "Air," designed by Kenzo Digital. Cristacurva fabricated 25,300 square feet of the room's glass flooring. "We are very proud to be a part of such an iconic piece of New York City," says Patrisia Yanez, architectural technical support specialist, Cristacurva.

"This is clearly one of the most impressive projects of the entire year across every category," says Glass Magazine Awards Judge Martin Bracamonte, vice president of marketing and innovation, Vitro Architectural Glass. "It is a visual delight and maximizes the mesmerizing, captivating quality of glass and mirror in a unique way, fusing the sky with the ground and the walls."

The complex project required precision and alignment when fabricating the glass, says Yanez. The company fabricated systems with a top lite of 1/4-inch

"THIS PROJECT BROUGHT TO LIFE A WORLD OF MIRROR THAT FEELS LIKE ANOTHER DIMENSION."

low-iron glass, laminated with SentryGlas interlayers, to a 1/2-lite of low-iron mirror. Another makeup required a top lite of 1/4-inch low-iron glass with a subtle acid-etched surface, LuxFine, again laminated with SentryGlas to a low-iron mirror lite.

Fabricating the laminated mirror glass also required the company to create special shapes, forms, cutouts and notches required for the unique installation, she says, including curved glass.

"The architect [KPF] envisioned this project to be an attractive spot to enjoy the skyline of New York City from above," says Yanez. "[The goal was to create] beautiful and long-lasting walkable glass."

Such an eye-catching project of course inspires social media sharing, something that helps elevate appreciation of glass as a building material, says Glass Magazine Awards judge Pete De Gorter, vice president, DeGorter Inc. "This project brought to life a world of mirror that feels like another dimension. In today's digital world where image has so much value, this project 'influences' the globe, showing how unique and valuable glass can be."



RUNNER-UP
PROJECT OF
THE YEAR

BEST FEAT OF
ENGINEERING

EXPEDIA HEADQUARTERS

NOMINATING COMPANY: SENTECH ARCHITECTURAL SYSTEMS



Employees at Expedia's new Headquarters in Seattle can gaze out onto the surrounding Olympic mountains, Seattle skyline and Elliott Bay, thanks to the building's glass cable net walls, designed by Sentech Architectural Systems. As appropriate for the winner of the Glass Magazine Award for "Best Feat of Engineering"—and also the first runner-up for Project of the Year—the project provided a unique, glass-intensive solution to aesthetic and structural demands.

Biophilic design, which emphasizes a connection to nature, guided the aesthetics of the project, designed by ZGF Architects. The complex principle considers a visual connection with nature, say Sentech officials, but also thermal comfort, airflow, natural light and more. These variables, ultimately, led the design team to glass.

The unique façade, which uses Sentech's 148 by 48-foot VetraNet series system, provided not only an aesthetically pleasing solution, but a resilient one as well through use of insulating glass. "A critical aspect of the façade design was the use of insulating glass units with a pre-tensioned cable-supported structural glass wall system," say officials.

Glass Magazine Awards Judge Jacob Kasbrick, Guardian Glass Commercial Segment and Technical Services Manager, praised the project's ingenuity



Winning Team

ARCHITECT
ZGF Architects

**DESIGN, ENGINEERING
& MATERIAL SUPPLY
OF CABLE NET WALLS,
STRUCTURAL GLASS
VESTIBULE AND
STRUCTURAL GLASS
CANOPY**
Sentech
Architectural
Systems

CONTRACT GLAZIER
Benson Industries

GENERAL CONTRACTOR
GLY Construction

OWNER
Expedia Group

PHOTOGRAPHY
Benjamin
Benschneider

in both engineering and energy performance. “Typically, a design like this would sacrifice performance for aesthetics. Being able to use a laminated IGU for the façade to meet [solar heat gain coefficient] and U-value in a cable net structured system is very impressive when you factor in all the load forces on the façade.”

Engineering the right system for all the performance requirements was indeed a feat, say Sentech officials. “It was critical to balance the high

amount of movement and flexibility inherent in pre-tensioned cable systems with the required deformation limits of the façade in order to maintain seals in the insulating glass. To address this, unique flexible edge conditions were designed and required to minimize panel warping, in order to ensure the IGU seals were not overstressed.” Accomplishing all of this demanded creativity and collaboration among Sentech’s internal teams, as well as external

collaborators Benson, GLY and ZGF to install systems.

“This entry takes a complex structural glazing and incorporates it in such a way to express the lobby connector element as a crisp simple expression,” says Glass Magazine Awards Judge John R. Stephenson, AIA, senior architect, BRPH. “The connector element appears to be all glass and visually no structure. The detailing is direct and supports the minimalist nature of the installation.”



Winning Team

ARCHITECT
HNTB

**GLASS CANOPY
FABRICATOR**
Glasswerks

**CUSTOM LAMINATED
ART GLASS
FABRICATOR**
GlasPro

GLAZIER
Giroux Glass Inc.

**POINT SUPPORT
SUPPLIER, GLASS
CANOPY**
Sadev USA

FILM APPLICATION
Tint Matters

ARTISTS/DESIGNERS
Erwin Redl
("Inside Out
– Outside In –
Inside Out")
Mara Lonner
("Leimert Park
Landscape")
Ingrid Calame
("Talking
Drums")

GENERAL CONTRACTOR
Walsh/Shea Joint
Venture

and forms of West Angeles Cathedral.

"A design which reacts to changing light during the day/night/season, across multiple panels, and multiple artists to reflect individ-

ual neighborhoods is an award-winning project," says Glass Magazine Awards Judge Pete De Gorter, vice president, DeGorter Inc.

Giroux furnished and installed the 1/16-inch clear laminated glass with printed artwork on the interlayer and interior glass panels; printed glass panels were supplied by GlasPro, with point supports for the glass canopy supplied by Sadev USA. Given its exposure to the public, the glass has anti-graffiti film on both exterior surfaces.

Giroux faced a range of aesthetic and technical challenges. They collaborated with the project team in multiple meetings to help the artists "bring their vision from paper to glass," says John Cox, lead project manager, Giroux Glass. The field team then had to ensure each panel lined up with the next in the field, all while completing work in busy traffic thoroughfares.

BEST
DECORATIVE
GLASS
APPLICATION

METRO CRENSHAW/ LAX TRANSIT

NOMINATING COMPANY:
GIROUX GLASS

Members of the general public in Los Angeles using three of LAX Transit's new transit stations will be able to appreciate glass art installations at each location, installed by Giroux Glass Inc. The installations, which captured the prize for "Best Decorative Glass Application," tell the story of the surrounding area.

Each installation was designed by a different artist. "Erwin Redl's dynamic artwork 'Inside Out' takes advantage of the changing position of the sun to reflect an array of colors onto surrounding surfaces by day, and transforms the glazed pavilion into an illuminated jewel box by night," according to the Los Angeles County Metropolitan Transportation Authority. The radiating, colored patterns enhancing the pavilion glass are inspired, in part, by the vibrant colors

Giroux Glass is honored to receive the 2022 Glass Magazine's Award **"Best Decorative Glass Application"** for the Metro Crenshaw/LAX Transit project.



The Metro Crenshaw/LAX Transit Project is part of a reimagined Los Angeles International Airport (LAX). Our heart-felt appreciation is well-earned by our trustworthy vendors, whose amazing collaboration and products make this project shine.

Giroux Glass furnished and installed an integrated glass panel windscreen glazing system with artwork at each new stop. The scope included clear laminated glass with printed artwork on the interlayer and interior glass panels. GlasPro fabricated all of the multi-color laminated glass for the project. We used stainless steel fittings (supplied by Sadev) to attach the glass to the steel structures. The glass has anti-graffiti film (applied by Tint Matters) on the exterior sides.



GIROUX GLASS™
INCORPORATED

For more details, go to: girouglass.com/project/metro-crenshaw-lax-transit/

Established in 1946, Giroux Glass is a specialty glazing and architectural metal subcontractor, handling the most complex projects in commercial, service, T.I., and high-end residential markets.

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girouglass.com



Winning Team

WINDOW MANUFACTURER
Alpen High Performance Products

PROJECT LEADER
Northwest Energy Efficiency Alliance

INFORMATIONAL RESOURCE
Better Bricks

PROJECT SPONSORS
Clark Public, Bonneville Power Administration

ENGINEERING CONSULTANT
Energy 350

PROPERTY MANAGEMENT GROUP
Hurley Development

BEST GREEN PROJECT

915 BROADWAY STREET

NOMINATING COMPANY: ALPEN HIGH PERFORMANCE PRODUCTS

The owner of this year's "Best Green Project" winner, 915

Broadway Street, found themselves faced with a challenge: the 4-story multi-tenant commercial office building, constructed in 1979, featured 6,000 square feet of single-pane windows which

offered little insulation from exterior temperatures. Those temperatures, in Vancouver, Washington, could reach 90 degrees in some rooms during hot days. They needed a solution that would be cost-effective and prioritize occupant comfort; enter Alpen High Performance Products.

Alpen performed a modified retrofit on the building using secondary windows, its WinSert Plus product, dramatically improving the project's thermal performance and occupant comfort. WinSert incorporates super-insulating, high-performance and lightweight fiberglass frames and uses "thin" glass laminated with high-performance films to improve existing single-glazed or lower-performing double-pane windows by up to five times the existing performance levels, says Craig Maierhofer, vice president of business development for Alpen.



The benefits were measurable. After the retrofit, the building experienced a 13.4 percent reduction in building energy use, improving occupant comfort throughout the building. "On a record-breaking 115-degree day, the entire fourth floor measured within one degree of setpoint at 72 degrees, where it would typically reach as high as 90 degrees on a 95- to 100-degree day," says David Berg, vice president of property management.

"Alpen's WinSert is an innovative solution to update existing building performance," says Glass Magazine Judge Kayla Natividad, architectural technical services engineer, NSG Pilkington. "The addition of a secondary insert allows for reuse of existing materials, limits waste, results in less embodied carbon than full replacements, and improves operational performance."



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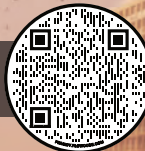
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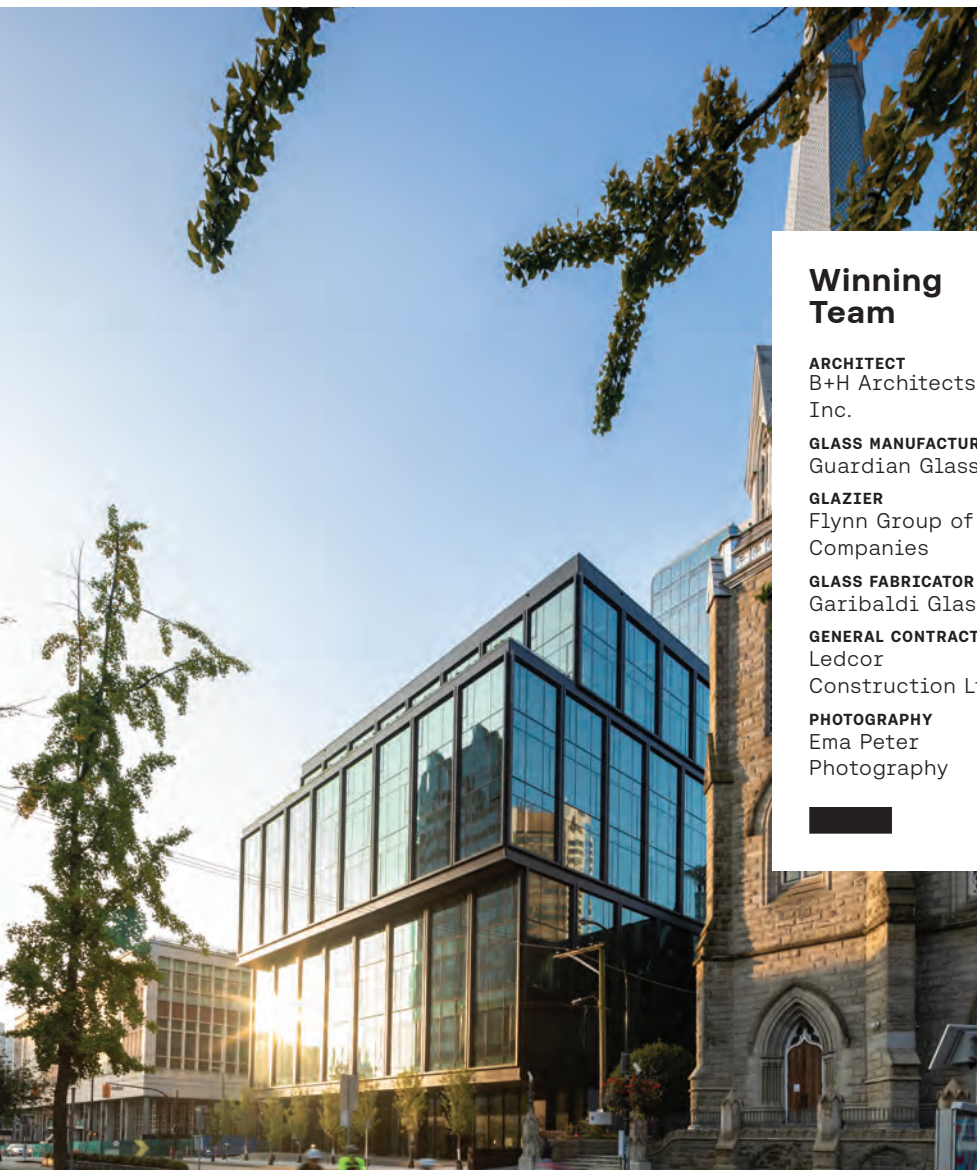
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EASTMAN



Winning Team

ARCHITECT
B+H Architects
Inc.

GLASS MANUFACTURER
Guardian Glass

GLAZIER
Flynn Group of
Companies

GLASS FABRICATOR
Garibaldi Glass

GENERAL CONTRACTOR
Ledcor
Construction Ltd.

PHOTOGRAPHY
Ema Peter
Photography



a lot of care and attention that went into ensuring the final product was going to wow the end user,” say officials.

Moving the larger glass was itself a challenge to overcome. “Due to the size and weight of each lite, we also required a safety plan for moving and handling the glass throughout our facility which included engineering, production and safety teams,” say Garibaldi team members. The in-house teams also had to coordinate the logistics of receiving the glass from Guardian and working with glazier Flynn Group of Companies to install the units, all while meeting project deadlines.

In addition to the glass units’ size, the team also engineered toward a clean and understated look. “This project is twofold—not only did we do jumbo, but we also included four-sided offsets to fit directly into the frame-work, to ensure a clean, flush finish on the exterior of the building,” officials say.

“The large units make the exterior really stand out and make the building appear inviting,” says Glass Magazine Awards Judge Tom O’Malley, founding partner and director of sales, Clover Architectural Products. “I like how [the units] were used in a more vertical application and it makes the lower level seem so much bigger.”

BEST JUMBO
GLASS PROJECT

402 DUNSMUIR

NOMINATING COMPANY:
GARIBALDI GLASS



The cool, modern exterior of 402 Dunsmuir, located in Vancouver, British Columbia, Canada, was designed with its future occupants in mind; the nine-story, 152,000-square-foot glass building was built with an aesthetic to attract North America’s top tech and entrepreneurial talent. Garibaldi Glass brought the clean and future-forward look to life with its high-performance jumbo glass, garnering the project this year’s “Best Jumbo Glass Project” winner.

The project marks the first time the fabricator supplied its jumbo low-emissivity glass. Garibaldi Glass set up a special assembly station in its insulating glass department for oversized units to be cleaned, inspected and constructed manually. “Due to the units being triple-glazed, there was



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BEST
PROJECT
TEAM

HUBBARD CENTER FOR CHILDREN

NOMINATING COMPANY: ARCHITECTURAL WALL SYSTEMS



The cheerful rainbow exterior of the new addition to the Hubbard Center for Children is visually splendid; but there's even more to it than meets the eye, says Chad Heiden, regional vice president, Architectural Wall Systems, the glazier on the project. When the glazier and other stakeholders were first approached to construct the new patient tower, this year's winner of "Best Project Team," "the design and construction teams

quickly identified that the complexities of this project required a design-assist, integrated project delivery method," he says.

AWS worked alongside the IPD team to refine the enclosure details, working directly in the building enclosure model via BIM360. This model eventually replaced the content developed during schematic design, says Heiden, saving 12 weeks compared to the typical shop drawing and approval process. AWS' modeling also included coordination with other trades, identifying

solutions for structural steel layout and tie-ins to the existing hospital building.

"Expansions of working buildings are never an easy task to start with; then to integrate a project which blends with the current building creates new challenges," says Pete De Gorter, vice president, DeGorter Inc. "This project flawlessly integrated pieces from a range of building products, producing a dynamic façade worthy of any building. ...This project hit the nail on the head."

The first three floors of the 460,000-square-foot facility span the entire campus block and feature perforated metal panels that bend in and out. These panels are backlit with full-spectrum LED lighting, allowing an array of lights to dance across the exterior. The six floors of the patient tower utilize dichroic glass fins, situated perpendicular to the rest of the system.

"To be able to incorporate the LED lighting shown on this project into a large-scale façade is very complicated, from the design through the installation," says Glass Magazine Awards Judge Martin Bracamonte, vice president of marketing and innovation, Vitro Architectural Glass. "As a more complex project, it required a superior team effort and understanding, and it's evident that this project team was able to succeed in their endeavor."

Winning Team

METAL SYSTEMS AND CURTAIN WALL MANUFACTURER

Baker Metal Products

GLAZIER/ENVELOPE PARTNER

Architectural Wall Systems

GLASS FABRICATORS

Cristacurva, CSG

FAÇADE ENGINEERING PARTNER

Curtainwall Design Consulting

ARCHITECT

HDR Inc.

GENERAL CONTRACTOR

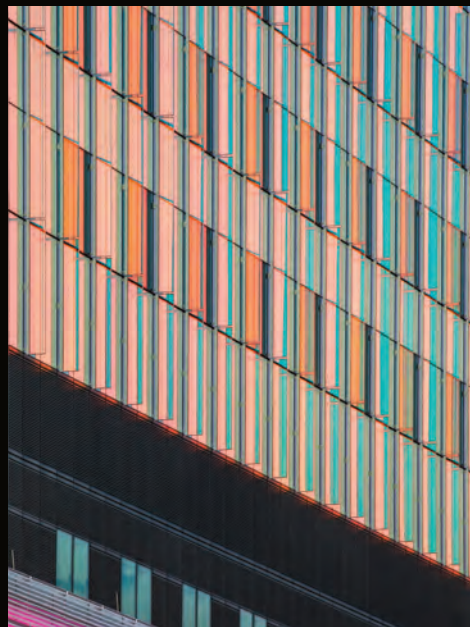
Kiewit Building Group

PHOTOGRAPHY

Tom Kessler



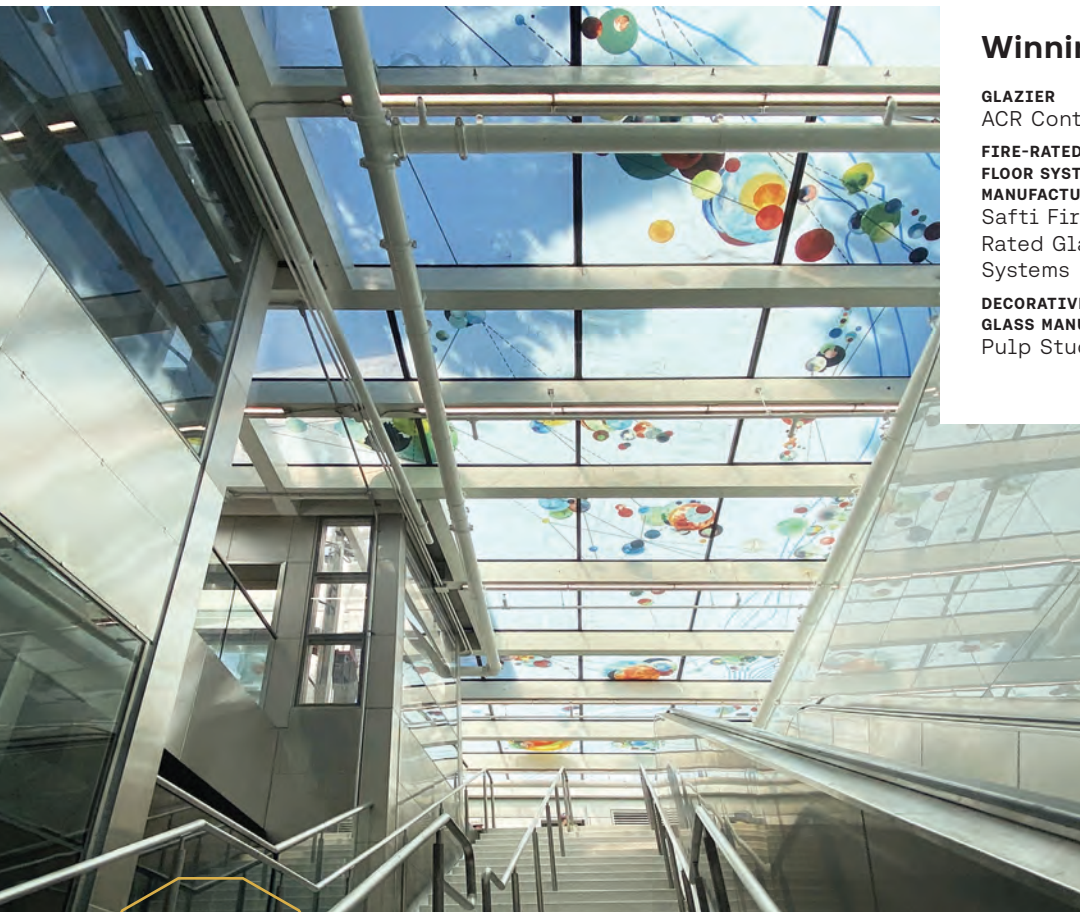
2022 GLASS MAGAZINE AWARD WINNER: BEST PROJECT TEAM
HUBBARD CENTER FOR CHILDREN
OMAHA, NE



PARTNERS
HDR, INC
KIEWIT BUILDING GROUP
BAKER METAL PRODUCTS
CRISTACURVA
CSG
CURTAINWALL DESIGN CONSULTING

PHOTOS
TOM KESSLER PHOTOGRAPHY

AWS
ARCHITECTURAL WALL SYSTEMS



BEST
PROTECTIVE
GLAZING
PROJECT

UNION SQUARE STATION

NOMINATING COMPANY: SAFTI FIRST

Winning Team

GLAZIER
ACR Contracting

**FIRE-RATED GLASS
FLOOR SYSTEM
MANUFACTURER**
Safti First Fire
Rated Glazing
Systems

**DECORATIVE SURFACE
GLASS MANUFACTURER**
Pulp Studio

GLASS ARTISTS
Hughen/
Starkweather

ARCHITECT
Robin Chiang
and Company

GENERAL CONTRACTOR
Tutor Perini

Safti First supplied 1,300 square feet of fire-resistive glass. The assembly meets ASTM E-119/UL 263 up to 2 hours and delivers the light and openness desired while providing maximum protection against smoke, flames and radiant heat required by code, says Diana San Diego, vice president of marketing, Safti First.

The artwork incorporated into the fire-rated glass floor was a commission to Hughen/Starkweather, a collaborative team comprised of San Francisco artists Jennifer Starkweather and Amanda Hughen. The team worked with glass fabricator Pulp Studio to produce the top, decorative walking surface, incorporated into Safti First's fire-resistive system.

In addition to the 2-hour glass floor, Safti First also provided the fire-rated glazing and framing for the 2-hour glass elevator enclosures. Each level is connected by Safti First's clear decorative fire-rated glazing to continue an open, artistic feeling, with light flowing down through each floor.

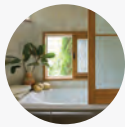
When it opens later this year, San Francisco's busy Union Square Station will feature a decorative glass walkable floor/roof system that welcomes commuters into the hub. Sporting a playful design, the glass surface, walkable aboveground, and acting as skylight to station visitors below, also provides 2-hour, fire-resistive glass courtesy of Safti First Fire Rated Glazing Systems.

Glass Magazine Judge Tara Brummet, chief of staff, Vitrum Glass Group, Apex Aluminum & Lorval Developments, praises the project's ability to tick all design boxes. "This project really has it all," she says. "It's a beautiful art piece, provides a safe walking surface aboveground, and also a safe space below that allows in so much light you could forget you are underground. Safety, beauty, and daylighting benefits."

Pulp Studio was founded in 1996 by Lynda and Bernard Lax out of necessity.

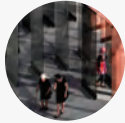
They couldn't find a glass fabricator to create custom glass for their new home, so they developed a way to embed decorative paper into glass for their dining room, kitchen, and powder room. Their background in the textile industry and their business acumen and creativity fueled the success of Pulp Studio. Over the years, Lynda and Bernard pioneered decorative glass for commercial applications and grew their company into a leader and innovator in the glass industry.

Today, Pulp Studio has more than 150 employees whose capabilities include bending, color coating, glass carving, direct-to glass print imaging, chemical strengthening and more. Every project, whether it's creating glass panels for the Space Needle's observation deck or printing glass installations for community sculptures, is another opportunity for Pulp Studio to further enrich the idea of glass as an artistic endeavor.



1996

In its early days, Pulp Studio works in a 3,500 sq. ft. building with just three employees: Bernard and Lynda Lax, plus Pedro Olmedo, Pulp Studio's current VP of Production.



2010

Pulp Studio introduces Chromavision™ that utilizes high precision fabrics as a substrate for its unique metallic coating and Ombra™, which achieves a solar heat gain coefficient superior to that of other insulated glass units.



2016

Pulp Studio opens a new, 150,000 sq. ft. state-of-the-art facility that enables the team to print, bend, and temper glass all under one roof. The \$3.5 million dollar investment includes state-of-the-art machinery that no other U.S. glass fabricating company had in one facility.



2020

Already a leader in recycling, Pulp Studio installs a \$3 million solar panel and battery storage system taking more of their operations off the grid. The move wins an award for sustainability. Pulp Studio also launches Precision Edge® Technology, Vetrite, and doubles daily output capacity of their 150,000 square foot facility.

Pulp Studio introduces SwitchLite™ Privacy Glass.

SWITCH LITE
Privacy Glass

Pulp Studio adds Artwerks division to assist designers in artistic development of their projects and introduces PINTURA™, the first color sheet glass product on the market with a water-based coating system

PINTURA
Glass + Organic Color

Pulp Studio buys California Glass Bending as a subsidiary to combine specialty glass and bending under the same roof. The team moves into a 30,000 sq. ft. facility.

CGB

Five years after its purchase, Pulp Studio fully integrates California Glass Bending

Pulp Studio introduces an innovative ultra-thin product called DermaGlass™, which weighs considerably less than the industry standard and provides unparalleled durability.

DermaGlass™

The Pulp team loses one of its beloved leaders, Bernard Lax, but celebrates its 25th anniversary with plans to maintain continuity, cutting edge products, unprecedented quality and the highest levels of service, exactly as Bernard would have wanted.



With over 125 years of glass experience, the Pulp team is here and ready to serve. Although a challenging year, since we lost Bernard, he and Lynda put the wheels in motion long ago. We look forward to building upon the legacy created, as we move forward with high expectations, just as Bernard would have expected of all.



Lynda Nishimoto Lax
President



Kirk Johnson
Chief Operating Officer



Pedro Olmedo
Executive Vice President,
Production



John Wright
Technical Director



Jaime Caballeros
Creative Director

25 **PULPSTUDIO**
YEARS OF
INNOVATIONS IN GLASS



BEST FRAMING
SYSTEM OR
COMPONENT

CRL 8010 SERIES SINGLE BLADE SUNSHADE SYSTEM

BY C.R. LAURENCE

THE PRODUCTS

The 8010 series single blade sunshade system by C.R. Laurence delivers two key qualities for the façade; controlling solar exposure, and allowing design flexibility. With blade angles that can be adjusted from 0 degrees to -35 degrees, in 5-degree intervals, the adjustable solution allows designers to tailor configurations to the building's specific geographic location.

A flexible solution was needed to achieve energy performance requirements, says Barbara Haaksma, senior vice president

of marketing for CRL. "No two projects are the same when it comes to energy-efficient design. With resiliency and sustainability playing a significant role in building design, the CRL 8010 Series Single Blade Sunshade System offers a versatile and effective solution for reducing solar heat gain. Doing so alleviates interior cooling loads, thus improving energy efficiency."

The company's R&D process focused on experimenting with profile blades; the team found that both the rectangular blade and oval/airfoil blade gave the most flexibility in adjusting the blade angle. CRL partnered with a structural engineering company to provide internal testing and certifications.



The New Look of Sun Control

CRL's **8010 Series Single Blade Sunshade** offers flexibility in managing solar exposure and aesthetics using low-profile 12" blades that are easy to adjust and install.

- Blade angle adjustment in 5° increments
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“ARCHITECTS WERE INVITED THROUGHOUT THE PRODUCT DEVELOPMENT PROCESS TO REVIEW SAMPLES OF SNR 50 AND SNR 35, AND THEIR RESPONSES WERE VERY FAVORABLE. EVEN WITH EARLY SAMPLES, THE COMPANY WAS AWARDED SEVERAL LARGE PROJECTS.”

A RENDERING OF SNR 50.

BEST GLASS
OR GLASS
COMPONENT

GUARDIAN SUNGUARD SNR 50 COATED GLASS

BY GUARDIAN GLASS



Guardian's SunGuard SNR 50 offers architects attractive exteriors, while also creating bright and comfortable interiors, says Suresh Devisetti, director of product management, Guardian Glass. The coated glass accomplishes this through a neutral silver appearance and reflectivity, with 48 percent visible light transmission and 0.25 solar heat gain coefficient.

Designed to be used on the No. 2 surface of a standard insulating glass unit, SunGuard SNR 50 can be paired with a variety of substrates at the following thicknesses: 5 millimeters to 12 mm, clear and UltraClear low-iron; and 6-mm to 10-mm, green, CrystalGray and CrystalBlue.

“The process of product development and launch was very collaborative,” says Devisetti. “Architects were invited throughout the product development process to review samples of SNR 50 and SNR 35, and their responses were very favorable. Even with early samples, the company was awarded several large projects.”

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It's our year and it's our time to show the world how architectural glass is adaptable, sustainable, energy-efficient, strong, beautiful, and safe—in a word, *essential*.





BEST
HARDWARE
PRODUCT OR
SYSTEM



FHC STEINCRAFT ML100 MAGNALINK ELECTROMAGNETIC EGRESS HANDLES

BY FRAMELESS HARDWARE CO.



Security is on everyone's minds, and Frameless

Hardware Co.'s line of high-security handles, Steincraft ML100 Magnalink Electromagnetic Egress Handles, aims to address those concerns while still maintaining aesthetics.

The high-performance handle's operation is magnetically coupled to a header-mounted actuator, creating an invisible connection that eliminates the need for electrical current in the door handle. The Magnalink also doesn't have wire loops to conceal wiring.

Officials say FHC developed the product with installers in mind, finding need to innovate since they found so many electronic devices are overly complicated for field workers to install, including routing the electrical wiring. "Eliminating electrical current being passed to the door handle accomplished this goal, while at the same time improving the appearance of the door by eliminating the wire loop commonly used to bridge the connection from the header to door handle," they say.

Experimentation was key to developing this hardware. "Creating the magnetic connection between the handle and the header mounted actuator was the greatest challenge," say officials. Ultimately, the team had to perfect a balancing act to make the magnetic process work. The Magnalink collection is available with ADA-compliant keyed cylinder configurations, NFPA 101-compliant height configurations, and can accommodate entrances up to 10 feet tall in accordance with NGA-GANA guidelines.

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FOR
INSTALLERS



“WITH THE AGS QUICK SHIP SUNSHADE, THE MATERIAL IS ON HAND AND THE PRICE IS SET AT THE TIME OF ORDER. NO SURPRISES, NO DELAYS.”

AGS QUICK SHIP SUNSHADES

BY ARCHITECTURAL GRILLES & SUNSHADES

With costs and lead times both upended by continuing supply chain issues, Architectural Grilles & Sunshades are trying to provide some measure of certainty with their product, AGS Quick Ship Sunshades. The company offers three models of its most popular sunshades—the Kilkenny, Hercules,

and Wexford series—kept in stock, with only a 4- to 5-week lead time.

Sunshades are available in clear anodized and mill finish with two bracket options: 6-inch surface mount ‘T’ bracket, or storefront/curtain wall bracket.

“With the current shortages in the aluminum market there are significant delays and unknown costs, says Nathan Seaman, national sales manager, Architectural Grilles & Sunshades. “With the AGS quick ship sunshade, the material is on hand and the price is set at the time of order. No surprises, no delays.”

Offering a fully-assembled and engineered product reduces field labor, allows for standardized pricing and speeds up building turnover, he says.

Seaman says the team came together to choose three different designs that would best suit the widest range of project designs for basic sunshade systems. The quick ship series is ideal for standard curtain wall, tilt-up wall panel, and surface mounted projects. Quick ship series-specific specifications, drawings, and engineering calculations are available for download at the agsshade.com website.



Fully Fabricated Sunshades

Shipped In Under Five Weeks



Kilkenny



Hercules



Wexford

Architectural Grilles and Sunshades now offers our 3 most popular sunshade models as a quick ship series. These sunshade components are in stock and ready for fabrication and assembly.



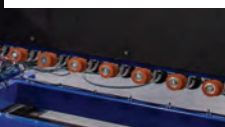
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agsshade.com/quick-ship-sunshades | 708.479.9458





"THE ENTIRE INDUSTRY IS STRUGGLING WITH LABOR AND THIS PRODUCT CAN REDUCE THE HEAD COUNT ON A HORIZONTAL INSULATING GLASS LINE BY 2-3 PEOPLE ON AVERAGE."



BEST
INNOVATION
FOR THE
FACTORY

AUTORACK 1

BY INTEGRATED
AUTOMATION SYSTEMS

Integrated Automation Systems' AutoRack 1 speaks to the industry's need for machinery that reduces the need for labor, while still providing quality and speed. The system can receive insulating glass units from horizontal fabrication lines, verify size, generate and apply a label, and then slot the unit into the correct slot on the harp rack, all in less than 10 seconds.

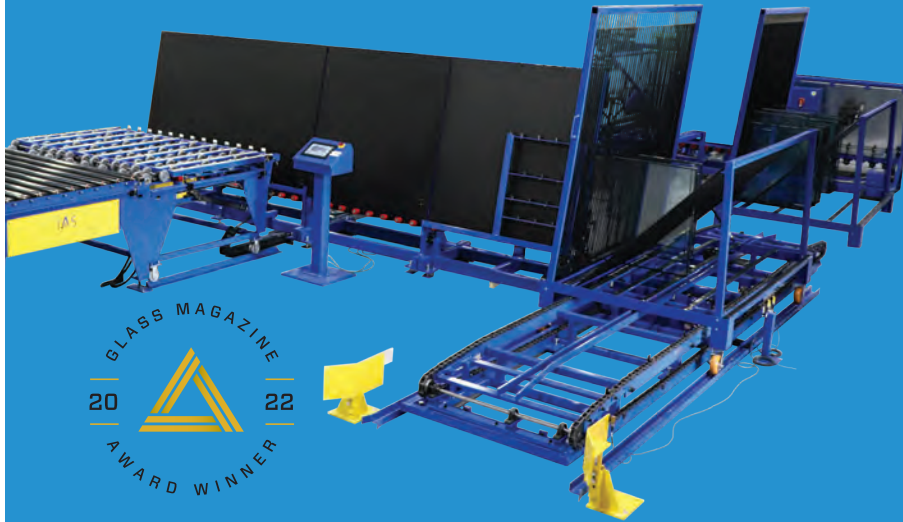
"The entire industry is struggling with labor and

this product can reduce the head count on a horizontal insulating glass line by 2-3 people on average, while also improving the quality of the product and reducing labeling and racking errors," says IAS President Ryan McHugh, errors such as edge chips and scratches, which are common with manual rack handling.

In development for about three years, McHugh says the major challenge was fine-tuning the software. Specifically, the team needed to solve the challenge of labeling units

before they reached the AutoRack, so they could be identified. "We needed to know that the correct units were running so that we slotted them correctly, but if a unit was skipped or broken, we had no way of knowing," he says. The IAS team worked through this problem by collaborating with a customer who designed a way to laser-mark spacers with a QR code upstream, so that units could be read and sorted on the AutoRack.

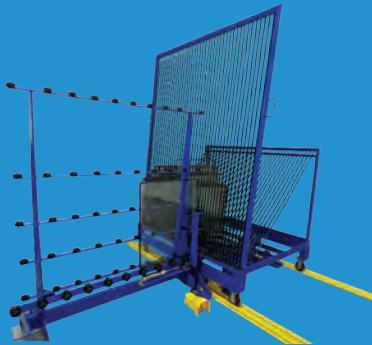
Reduce Labor *and* Damage



Fully-Automated AutoRack1™

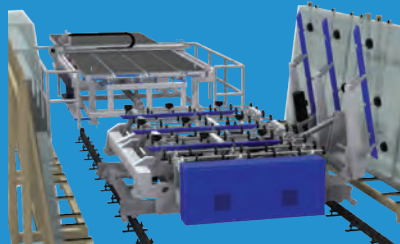
reduces the labor to rack and unrank monolithic and insulated glass, eliminates damage *and* improves safety. For residential, commercial and architectural glass off vertical and horizontal production lines.

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iasmachinery.com

GlassBuild Booth 4152

Contact Ryan McHugh at 330.954.3070 or ryan@iasmachinery.com.



R&D
AWARD

FENEX OVERSIZED FLOOD WINDOW

BY FENEX

As weather becomes more extreme, building materials like glass and fenestration are being asked to do more. Fenex's new Oversized Flood Window, a flood-resistant and floating debris impact-resistant product, was designed to meet that challenge.

Juan Posada, vice president of engineering for Fenex, says the company

saw the need for a product that was impact-resistant against more than wind-borne debris. "Under the current world situation with global warming and sea levels rising, some of the most important cities in the world are facing new challenges for their building envelopes, and immense heads of water are flooding their streets due to hurricanes and tropical storms," he says. "The

loads faced by these building envelopes are larger than anything seen before, surpassing loads from wind, and incorporating larger impacts from floating debris like cars, wood logs and more."

Posada says in the extensive research and development phase, the team worked backward, reverse engineering from the design criteria collected from projects as diverse as

hospitals and the expansion at the World Trade Center. The development was a major investment, as Fenex built its own testing facility to bring third parties in to witness the testing of the system.

Fenex collaborated with a range of companies like FM Global, Thornton Tomasetti, Arcadis, Kuraray, Tremco, DOP Engineering, and Floodproofing.com throughout the process.



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“After more than four years, glasstec will finally open its doors again. And the anticipation of the entire glass industry is clearly noticeable.”

—Petra Cullmann, executive director trade fairs, Messe Düsseldorf



glasstec returns

THE INTERNATIONAL GLASS PRODUCTS, MANUFACTURING AND TECHNOLOGY SHOW RUNS SEPT. 20-23 **BY KATY DEVLIN**

GLASSTEC, THE INTERNATIONAL TRADE FAIR for glass production, processing and products, returns Sept. 20-23 to Messe Düsseldorf in Düsseldorf, Germany. The biennial event is a leading international industry exhibition that draws companies across the glass industry, from machinery, equipment, software and tool suppliers, to glass fabricators and manufacturers, to architects and façade engineers, and more. The most recent in-person glasstec took place in 2018; the 2020 event was cancelled due to the pandemic. The upcoming show focuses on the future of the global glass industry, with an emphasis on emerging glass technologies, and on innovations for glass fabrication and manufacturing. This article offers a look at six reasons for North American industry representatives to attend the show. Find out more at glasstec-online.com.

1 Prepare for the future
Organizers of glasstec 2022 look to address five key topics at the conference and expo to help companies prepare for the challenges of tomorrow. They include:

- **Climate.** Innovative solutions to protect the climate.
- **Urbanization.** Building sustainable cities with glass.
- **Value.** Finding sustainable and stable value generation.
- **Resources.** Fostering sustainable solutions for glass production and addressing the skilled labor shortage.
- **Well-being.** Contributions of glass products to improving people's quality of life in terms of safety, comfort, daylight and well-being.

"Our five trend topics will serve as a guideline to discuss current and future challenges as well as solutions for the glass industry," says Petra Cullmann, executive director trade fairs, Messe Düsseldorf. "The effects of the energy crisis, the pandemic, the conflict in the Ukraine, supply chain problems and other challenges will be addressed as well by the experts and decision-makers of the industry."

2 Walk nine halls of glass products and equipment exhibits

The glasstec show floor stretches over nine halls in the Messe Düsseldorf fairgrounds. "The entire value chain of the glass industry presents itself at glasstec with its latest technologies and innovations," says Cullmann. At press time, nearly 900 exhibiting companies have signed on to appear at the show. Get the most up-to-date exhibitor list and see the interactive floor plan at glasstec-online.com.

3 See the latest in glass fabricating

A major focus of glasstec is equipment, machinery, and related tools and technology for glass fabricators. At press time, about 100 exhibitors indicate they will be showing glass processing and finishing technologies at the show. On offer are

At-a-glance

Dates: Sept. 20-23, 2022

Location: Düsseldorf Fairground, Düsseldorf, Germany

Hours: 9 a.m. to 6 p.m. daily

Scope: The previous edition of glasstec, held in 2018, drew 1,276 exhibitors from 50 countries, and 42,603 visitors from 126 countries.

Organizer: Messe Düsseldorf

Admission: Passes are available online at glasstec-online.com.

Health and safety: Organizers have instituted numerous policies and added protections to create a safer environment during the ongoing COVID pandemic. Protections include: spacious exhibition areas, entrances and aisles for social distancing; high-performance air handling and air filtration; sanitizer stations; and more. Visit glasstec-online.com for more information.



Visit glassmagazine.com for access to:

Exclusive interview. Learn more from Petra Cullmann, executive director trade fairs, Messe Düsseldorf

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Videos from glass technology live: Sneak peek of innovations set for display

technologies for glass cutting, drilling, edging and finishing, forming and bending, laser technologies, coatings, insulating, safety glass, cleaning and recycling.

4 Make international connections

The glass industry is global, and glasstec helps connect North American companies with new and existing international suppliers and customers. "Finally... another chance to see valued friends and partners," Kris Vockler, managing director, ICD High Performance Coatings, told organizers. "Aside from seeing what's new in the industry, glasstec is where we meet with our friends from all over the world."

5 Get a sneak peek of emerging and next-generation innovations

The glass technology live area at glasstec offers a look at emerging technologies and next-generation innovations across all segments of the glass and glazing industry. "This year's title, Next in Glass, underlines the focus on future glass application, creative experiments and visionary ideas," says Cullmann. Glass technology live is organized by the university network of the four Technical Universities of Darmstadt, Delft, Dortmund and Dresden. "The presentation of current research results in combination with the demonstration of impressive exhibits will ... give you a glimpse of future glass applications," she adds.

6 Hear from the experts

The event also includes four days of education at the glasstec conference. The glasstec conference harnesses industry know-how from theory and practice in the context of the five trend themes. Every day, glasstec 2022 visitors can find out about the current developments and trends in the sessions on glass production, processing technology and products.

The morning sessions of the glasstec conference agenda at a glance:

- **Sept. 20.** Glass processing and finishing: new processing options and technologies
- **Sept. 21.** Glass production I: decarbonization, new energy systems and transition to renewable energy sources
- **Sept. 22.** Glass products and applications: new glass products and recyclability of glass
- **Sept. 23.** Glass production II: Alternative resources and recycling of container and flat glass.

Each afternoon features additional lectures in the glasstec conference area. These will be offered by universities, scientific institutions and European associations on the topics of façade and metal construction, machine communication, and energy efficiency and natural daylight. ■



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Skudo Glass Advanced is the perfect solution for all construction projects requiring temporary window and glass protection from start to finish.

Skudo Glass Advanced protects surfaces from jobsite spills and splatter, including cement, mortar, paint and stucco. For added protection, Glass Advanced can be applied at the manufacturer for protection during transport. It is also fire/flame retardant to withstand welding and grinding sparks, helping keep site workers safe.

How to use

Skudo Glass Advanced is applied as a liquid coating using a roller or sprayer, which then dries into a protective, peelable film. There is no need to worry about flimsy plastic and paper products that quickly come loose and need to be reapplied, and Glass Advanced will stay in place despite inclement weather and harsh construction environments. At the end of the project, Glass Advanced easily peels off, leaving behind a clean and damage-free surface.

In the field

Skudo Glass Advanced can be used on glass, windows, frames, storefronts,

cladding, curtain walls, panels, fiberglass and balustrades for up to twelve months. It can also be applied to metals like stainless steel and aluminum.

Top construction firms have used Skudo Glass Advanced on various construction projects ranging from small residential projects, K-12 schools, colleges/universities, retail establishments, medical facilities, hospitals, stadiums, mixed-use buildings, and high-rise residential and corporate buildings. Some notable

projects include the Dallas Cowboys Headquarters, the Hoxton Hotel in Los Angeles, the University of Houston, Children's Medical Center in Plano, Texas, and Marin General Hospital in Marin County, California.

Learn more

Contact Skudo USA today to learn more about how Skudo Glass Advanced can protect your next project. Visit SkudoUSA.com or call 888/SKUDO-11 (888/758-3611).

KEY FEATURES

PROTECTS GLASS AND METAL FROM JOBSITE SPILLS AND SPLATTER

FIRE/FLAME RETARDANT TO WITHSTAND WELDING AND GRINDING SPARKS

SIMPLE APPLICATION WITH SPRAY OR ROLLER AND EASY PEEL-OFF REMOVAL

STATIONARY; STAYS IN PLACE UNTIL READY TO BE REMOVED



01



02



03



04

01. Bird-friendly glass

Eastman, in partnership with SEEN AG, introduced a new polyvinyl butyral interlayer for laminated glass: Saflex FlySafe 3D, to avoid bird collisions without compromising on the view or beauty of glass façades. The interlayer features three-dimensional, reflective sequins between two layers of glass and can be combined with selective coatings and other Saflex products to enhance the glass further. The sequin pattern covers less than one percent of the glass area.

423/229-2000 | SAFLEX.COM

02. Hurricane-resistant terrace door

Winco's new NC 82 STH Thermal Terrace Door is hurricane-rated in all coastal states except Florida. Features include rain screen principal EPDM gaskets, adjustable heavy-duty hinges, multipoint locking hardware, polyamide thermal barrier and mitered corners reinforced with heavy duty corner keys. Designed for aesthetics and performance, the door is available in single and double French type doors, inward and outward opening, with or without sidelights, in a range of AAMA certified finishes and colors. 314/725-8088 | WINCOWINDOW.COM

03. French door system

Deceuninck's Revolution XL French Door is a high-performance door system that excels in thermal capability and water resistance. The door allows for clear opening on jamb sides and is used in a variety of applications, including commercial, light commercial and residential construction. Available in Euro and North American frame options, the system comes with a new, flatter, ADA-compliant sill to allow for easier ingress and egress. The impact-rated system offers a flexible design and a range of colors and finishes.

513/539-5505 | DECEUNINCKNA.COM

04. Entrance system

The United States Patent and Trademark Office has officially awarded U.S. Patent Number 11,299,928 to the FHC Aspire Thermally Broken Insulated Glass Entrance Door and "VDS" Vertical Door Stile Systems by Frameless Hardware Co. Designed, engineered and manufactured in the U.S. at the company's Southern California facility, these new products bring next level industry standards to air, water infiltration management, and thermal performance, meeting the nation's ever-evolving energy and building energy codes. 888/295-4531 | FHC-USA.COM



01



02



03



04

01. Windscreen system

Trex Commercial introduced Ocula, its newest glass windscreen system. Ocula offers optimal versatility with its innovative post-free, clamp-supported design. Ocula is an ultra-streamlined windscreen system designed to divert wind while elevating architectural aesthetics. At guardrail height, 43 inches, the system can withstand winds loads up to 86psf—8 times the amount of a standard windscreen. 877/215-7245 | TREXCOMMERCIAL.COM

02. Door latch

Available in any trim, lever or finish, the new commercially rated ISM7000 Smart Lock from INOX provides an intuitive access control system with the potential to span multiple properties. The cloud-based smartphone application manages all aspects of the control system with multi-level user roles and permissions. The ability to install and manage the locking system from a single app saves time by eliminating complicated setup. 916/388-1888 | UNISONHARDWARE.COM

03. Digital platform

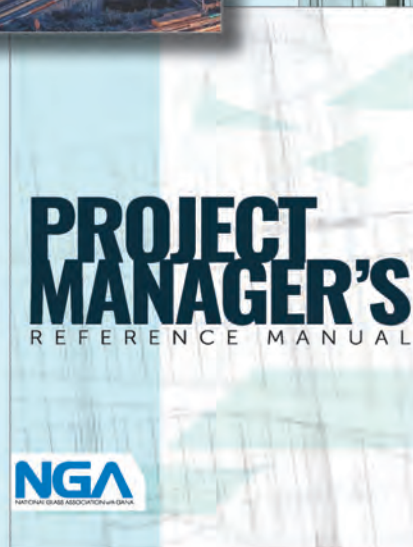
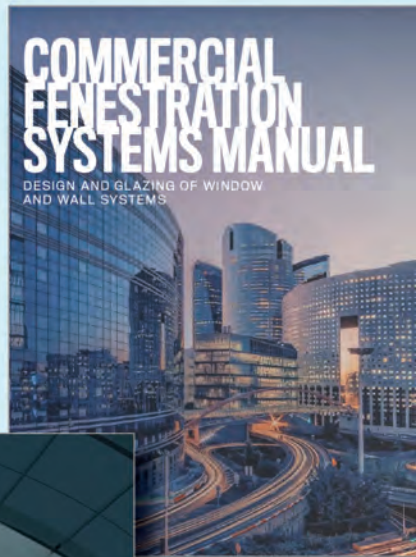
Faro Technologies Inc. launched a data capture and collaboration platform. The platform provides efficient cloud-based workflow combining three innovative new solutions: the Faro Sphere, a digital ecosystem for the effective exchange of data; the Faro Focus Premium Laser Scanner for fast, accurate and complete field capture; and the Faro Stream mobile app for real-time data verification. 800/736-0234 | FARO.COM

04. Safety gloves

Brass Knuckle SmartCut BKCR404 gloves for glass handling and other applications combine ANSI cut level A3 protection and a smooth-grip polyurethane coating. Available from Safety Today, SmartCut 404 has cut and slip resistance, plus a coating that won't mar product surfaces. The gloves are available in five sizes with color-coded wrists to simplify sizing and reissuing. 800/837-5900 | SAFETYTODAY.COM

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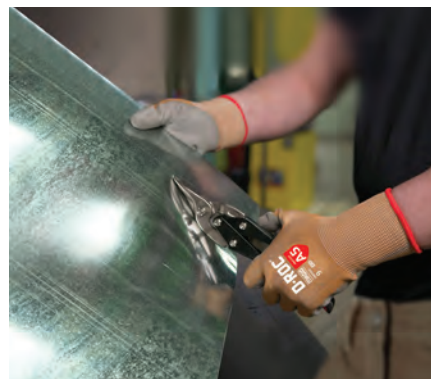
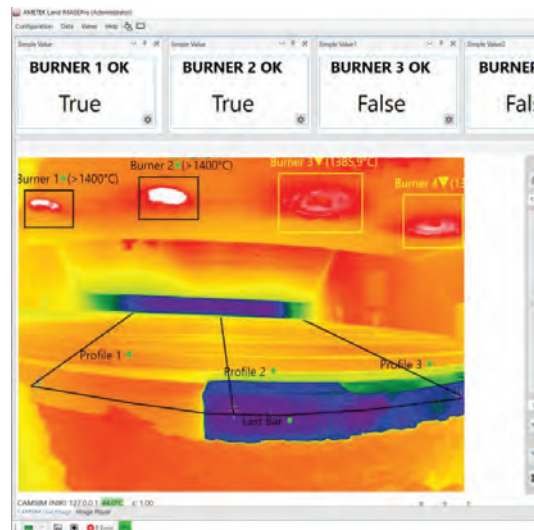
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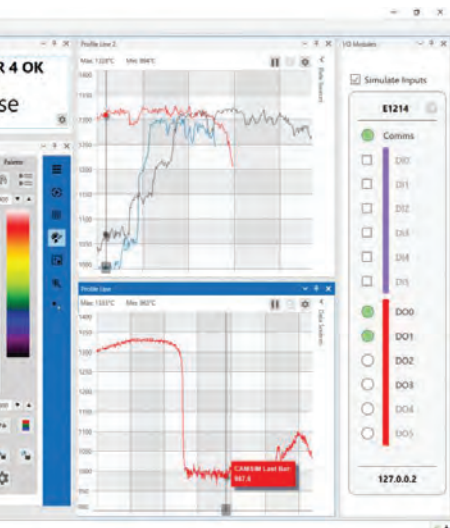
02

01. Imaging software

Ametek Land released an update of its thermal imaging processing software for the monitoring, analysis, and capture of imager data and control of thermal processes. The new version of IMAGEPro has improved accuracy, efficiency, speed and reliability, according to the company, and reduces the CPU load, even in extensive thermal imaging installations. Added features include intelligent time functions and calculations performed online on the live readings of the thermal imagers.

+(44) 0124-6417-691 |

AMETEK-LAND.COM



01



03

02. Safety gloves

Magid released two new safety gloves that feature DX+ Technology: the DXPG52 (ANSI Cut Level A5) and DXPG62 (ANSI Cut Level A6). Both include a polyurethane palm coating. The gloves are 30 percent lighter than traditional gloves of the same cut level, according to officials. They provide cut protection without a fiberglass or steel core and are cool to the touch for improved comfort.

800/867-1083 | MAGIDGLOVE.COM

03. Design tool

Vitro Architectural Glass launched VitroSphere Digital Glass Simulator, a new virtual tool for visualizing architectural glass, at thevitrosphere.com. Developed for architects, this tool allows users to explore, visualize and compare Vitro's Solarban solar control low-emissivity glass products across a range of building types.

412/820-8500 | VITROGLAZINGS.COM

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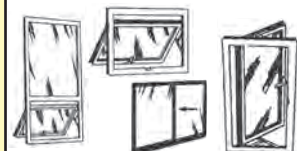
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SHOWING WHAT'S POSSIBLE: MOTHER-DAUGHTER GLAZING TEAM CASEY WEIR AND ANNA WRIGHT

A Q&A WITH
ANDREW HARING

Casey Weir is the second woman glazier to achieve Architectural Glass and Metal Technician Glazier Certification. The first woman glazier to attain AGMT Glazier Certification: Anna Wright, Casey Weir's mom. They entered the industry together, went through the program together, studied together and gave up weekends to run through prep classes together.

Weir, a union glazier for Local 636, is currently purchasing manager and shop foreman for Roundtree Glass, a southern California glazing legacy that's been going strong for 52 years. She started out as the low woman on the totem pole in the shop, loading trucks, cutting glass and driving a forklift. She then did a stint driving trucks before moving into the field. She now essentially runs the day-to-day in the shop/office and is going to school for business management. Meanwhile, Wright recently passed her C17 glazing contractor license exam and is working to set up her own shop, Feelin' Caulky Glazing Inc.

Back in March, I had the opportunity to sit down with Weir and Wright to talk about their experiences in the industry, the need to bring more women into glazing, and more.



From left: Casey Weir, Andrew Haring and Anna Wright.

Q What do you love about the glass industry?

Anna Wright: It's a trade with potential and so many opportunities for growth. I want to build and leave something for my family, and I can do that here. I love hearing my 10-year-old granddaughter say, "I want to be a glazier."

Casey Weir: I've come so far and have never been more driven to keep going, and I can in this industry. I also love seeing the finished product and having that "I did that!" moment, knowing you saw a project start from nothing and progress into a beautiful, finished building that everyone will see for years.

Q What advice would you give a woman considering entering the glass industry?

CW: Don't give up; don't get intimidated. Never stop fighting for what you want.

AW: Team up and find a support system. Trust in yourself. If I can do it at 42, you can do it.

Q What can a man do in this industry that a woman can't?

CW: Not a thing. I can lift anything they can, and install anything they can.

Q What can the industry be doing better, or more of, to get more women into this field?

CW: We need more female advocates out there telling their story, showing people what's possible and recruiting at high schools and colleges. Other than with my mom on just one project, I've never been on a jobsite with another girl. ... We need more champions and we need more of us. ■

Andrew Haring is vice president of business development for the National Glass Association. He can be reached at aharing@glass.org.

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