UP TO THE CHALLENGE

TOP GLASS FABRICATORS FIND OPPORTUNITY IN FACE OF COMPLEXITY, LABOR STRUGGLES, SUPPLY CONCERNS
means shattering the OLD RULES.

Trust us to deliver with
Unparalled Quality & Lead Times
Believe in our commitment to excellence.
Learn why

WE’RE WHO THEY’RE ALL TALKING ABOUT
INTRODUCING COMFORTDRIVE®
AUTOMATED SELF-DRIVING PANEL SYSTEM

- Fully automatic operation at the push of a button
- Exceptional convenience with dynamic opening and closing speeds of up to 30 ft. per minute
- UL® 325 safety-tested and certified
- Patented Smart Control System navigates complex layouts achieving proper set up every time

Contact your local Modernfold, Inc. Distributor today to learn more about movable wall automation and the new ComfortDrive® Self-Driving Panel System by calling 800-869-9685 or visiting www.modernfold.com
FEATURES

26 Building a Booth
Seven tips for trade show success
By Olivia Parker

32 Top Glass Fabricators
Fabricators report sales gains in face of increased complexity, labor struggles and supply concerns
By Katy Devlin and Norah Dick, contributions from Wendy Vardaman
31 Introduction
34 The Market
38 The Projects
46 The List

56 IdeaBook: Glass for Healing
Healthcare facilities and hospitals look to glass for patient recovery, decorative design, security and more
By Katy Devlin

DEPARTMENTS

6 News to Know
10 Closer Look
NGA and GANA Finalize Combination
14 Legal
Manage Risks of Quality-related Data
By Matt Johnson

62 Industry Products
70 People
74 Classifieds
77 Suppliers Guide
89 Reader Response Center
90 Here's an Idea...
Winco Window Thinks Big with Micro-housing

GlassMagazine.com
For online-only content from this issue, visit GlassMagazine.com/March2018.

Follow us on Twitter
@GlassMag

Watch us on YouTube
youtube.com/GlassMagazine

Download the Glass Magazine app free from the Apple and Android app stores, or visit glassmagazine.com.

Sign up to receive the digital edition of Glass Magazine. Visit glassmagazine.com and click the “Subscription Services” tab.

Great Glazing projects
Featured in e-glass weekly. To submit projects, write Bethany Stough at bstough@glass.org.
• Slate (pictured)
  • Museum of the American Revolution
  • Four Seasons Lobby, Houston

On the cover: Digitally printed glass and vertical fins create dynamic waves across the façade of the new 12-story Brooklyn Health Center. Glass Magazine Top Glass Fabricator Viracon, viracon.com, fabricated more than 50,000 square feet of insulating glass for the complex curtain wall, including 22,000 square feet of its DigitalDistinctions decorative glass. Read more about how the team managed demands for precise printing over differently shaped lites on page 38. For the full Top Glass Fabricators report, including a pull-out map of fabrication locations from the nearly 70 2018 Top Glass Fabricators, see page 32. For an interactive, searchable map and downloadable database of the 2018 Top Glass Fabricators, visit WorldofGlassMap.com. Photo © Terry Wieckert, Abstract Photography.

News and resources
• e-glass weekly
• glassblog
• WorldofGlassMap.com
GPX™ ARCHITECTURAL SERIES
60-90 MINUTE ALUMINUM FIRE DOORS
WITH SUPERLITE™ II-XL

SINCE 1980

GPX Architectural Series is code-approved for all jurisdictions with flexible hardware options and multiple finishes.

⚠️ Not all 60-90 minute glazed doors meet code and design requirements.

Visit www.safti.com/dooralert to learn more and avoid costly mistakes.
Most-clicked News Stories on GlassMagazine.com*

**AGC Begins Installation of New Coater**
AGC Glass, agcglass.com, began installation of its new state-of-the-art magnetron sputtered vacuum deposition coater at its Greenland, Tennessee, manufacturing complex, which houses two float glass lines. AGC expects production to begin in December. AGC’s partnerships with the local labor union, Warren County and the state of Tennessee—which were an integral part of site selection—will create more than 200 new jobs and generate opportunities for additional expansion in the future.

**Viracon to Close St. George, Utah, Facility in March**
Viracon Inc., viracon.com, plans to cease operations at its St. George, Utah, facility in March. The plant is the smallest of the company’s three U.S. manufacturing locations, and the closure will affect just under 200 of Viracon’s 2,300 employees. Viracon will discuss relocation opportunities on a case-by-case basis, and work with the Utah Department of Workforce Services to assist its displaced workforce in finding new opportunities as it winds down operations in Utah over the next two to three months.

**Cardinal Glass Contract Carrier Welcomes New Glass Hauler**
Smokey Point Distributing Inc., spdtrucking.com, a flatbed hauler and part of Daseke Inc., daseke.com, welcomed Belmont Enterprises, belmonttrucking.com, to its company. SPD is the contract carrier for Cardinal Glass Industries, cardinalcorp.com. Belmont, headquartered in Olympia, Washington, is a dedicated glass hauler that will complement the existing glass hauling customers of SPD, say company officials.

**Global Private Equity Firm Riverside Invests in HMI Cardinal**
Riverside Co., riversidecompany.com, a global private equity firm, invested in HMI Cardinal, hmicardinal.com. Cardinal operates a manufacturing facility in Louisville, Kentucky, seven distribution centers and nine delivery warehouses nationwide to meet the needs of roughly 5,000 customers across the U.S. and Canada. Riverside has completed more than 100 investments in the industry. The firm will invest to support additional growth at Cardinal.
THERMAL DOORS, REDEFINED

MINIMAL SIGHTLINES, MAXIMUM PERFORMANCE

For the first time, all-glass aesthetics and full-frame thermal performance in one entrance system. Entice® meets stringent energy codes and looks great doing it.

- Ultra-Narrow 1-1/8” Vertical Stiles
- Thermally Broken with U-Factors as Low as 0.33
- NFRC Rated and Satisfies ASHRAE 90.1-2016 Air Infiltration Criteria

“Entice solves the requirement for thermal performance and weather protection while maintaining an upscale look.”
— Maria A. Gomez, Principal, GFF Architects

“Best Product for Retail”
— Architectural Products Product Innovation Awards

“Best in Category - Openings”
— Architecture Record Product of the Year Awards

“The cleanliness in lines is equaled by the sophistication of the hardware and performance.”
— Product Innovation Awards Judge
Allegion Acquires TGP
Allegion PLC, allegion.com, a global security products and solutions provider, acquired Technical Glass Products, fireglass.com, through one of its subsidiaries. TGP is expected to operate within the Americas region. Current TGP President Jeff Razwick will continue to lead the business. Read an interview with Razwick on page 18.

Bohle Group Acquires Portals
Luxury Hardware
Portals Luxury Hardware, portalshardware.com, a shower and bath accessory manufacturer, joined the Bohle, bohle-america.com, group of companies. Located in Kansas City, Missouri, and founded in 2001, Portals has a popular and extensive line of products for the shower and bath space, the company reports. The Portals location in Missouri will also become a distribution point for many Bohle America products.

Quality Enclosures Adds Diamon-Fusion Coating to Shower Glass Line
Officials from Quality Enclosures, qualityenclosures.com, announced the company began applying Diamon-Fusion International Inc.’s, dfisolutions.com, coating to its shower glass using FuseCube, a chemical vapor deposition process that fuses Diamon-Fusion to the glass surface. The company will begin with FuseCube at its manufacturing facility in Port Orange, Florida, with plans to expand business operations in part by adding two additional FuseCubes.

LiteSentry and Stress Photonics Collaborate on Anisotropy Inspection Tech
LiteSentry, litesentry.com, partnered with Stress Photonics, stressphotonics.com, specialists in measuring stress and strain. The two companies will collaborate in the development, manufacture, sales and service of anisotropy inspection systems as an option to the Osprey Distortion and Flatness Inspection System, manufactured by LiteSentry.

Filipino Glass Manufacturer Acquires AGC Flat Glass Philippines Inc.
TQMP Glass Manufacturing Corp., a Philippines-based glass manufacturer, finalized its acquisition of AGC Flat Glass Philippines Inc, agc-flatglass.ph. The facility is located in the city of Pasig on a 3-million-square-foot property and can produce 500 tons per day. AGC will continue to work with TQMP following the acquisition.

Fuyao Glass America Creates Hardship Relief Fund for Employees
Fuyao Glass America Inc., fuyaousa.com, created the Fuyao Glass America Hardship Fund, a hardship relief fund to be administered through The Dayton Foundation. Eligible employees who have experienced financial setbacks due to illness or accident; a death in the family; the destruction of a personal residence; or medical expenses can apply for a grant through the fund. The Dayton Foundation will appoint a selection committee to approve grants, which range from $500 to $3,000.

Building Envelope Company Integro Sees Growth
Integro Building Systems, integrobuild.com, a building envelope company, reported that it has completed, or is constructing under contract, more than 1.5 million square feet of curtain wall in six U.S. and Canadian cities, and has achieved the milestone of approximately $70 million in annualized sales revenue for 2017. Formed in spring 2015, the company is headquartered in Toronto with offices and operations throughout North America.

THE CHAMPS ARE HERE!

INDUSTRY HEAVYWEIGHT CHAMPIONS

OVER 60 YEARS OF EXCELLENCE

LARGE LITE PROS

HANDLE UP TO 2,000LB LITES

WITH EASE

ELB 17/45 ELB 14/45 ELB 11/45 ELB 10/45
ELB 14 ELB 12 SERIES ELB 10 ELB 102

HEAVYWEIGHT

CHAMPIONS

made in excellence.

CALL SALEM TODAY
AND KNOCKOUT YOUR COMPETITION!

CAST IRON STRUCTURE
DAMPENS VIBRATION
“HONEYCOMB” CONSTRUCTION

TRACK SYSTEM
SIGNATURE DESIGN
SECURELY GRIPS LARGE LITES

HEAVY DUTY ELECTRO-SPINDLE MOTORS
ELIMINATE END-PLAY/WOBBLE & DRIFT

SALEM Flat Glass & Mirror
WE ARE 100% EMPLOYEE OWNED

WEIGHING IN AT 10,912LBS

ELB 10/45 CUP WHEEL EDGER
FOR CERIUM POLISHED FLAT EDGES OR 0-45° MITERS WITH ARRISES

CALIFORNIA 800.445.6339
NORTH CAROLINA 800.234.1982
CANADA 844.858.7444
www.salemdist.com

SALEM Flat Glass & Mirror
WE ARE 100% EMPLOYEE OWNED

CALIFORNIA 800.445.6339
NORTH CAROLINA 800.234.1982
CANADA 844.858.7444
www.salemdist.com

INDUSTRY HEAVYWEIGHT CHAMPIONS

OVER 60 YEARS OF EXCELLENCE

LARGE LITE PROS

HANDLE UP TO 2,000LB LITES

WITH EASE

ELB 17/45 ELB 14/45 ELB 11/45 ELB 10/45
ELB 14 ELB 12 SERIES ELB 10 ELB 102

HEAVYWEIGHT

CHAMPIONS

made in excellence.

CALL SALEM TODAY
AND KNOCKOUT YOUR COMPETITION!

CAST IRON STRUCTURE
DAMPENS VIBRATION
“HONEYCOMB” CONSTRUCTION

TRACK SYSTEM
SIGNATURE DESIGN
SECURELY GRIPS LARGE LITES

HEAVY DUTY ELECTRO-SPINDLE MOTORS
ELIMINATE END-PLAY/WOBBLE & DRIFT

SALEM Flat Glass & Mirror
WE ARE 100% EMPLOYEE OWNED

WEIGHING IN AT 10,912LBS

ELB 10/45 CUP WHEEL EDGER
FOR CERIUM POLISHED FLAT EDGES OR 0-45° MITERS WITH ARRISES

CALIFORNIA 800.445.6339
NORTH CAROLINA 800.234.1982
CANADA 844.858.7444
www.salemdist.com

SALEM Flat Glass & Mirror
WE ARE 100% EMPLOYEE OWNED

CALIFORNIA 800.445.6339
NORTH CAROLINA 800.234.1982
CANADA 844.858.7444
www.salemdist.com
NGA and GANA Finalize Combination
Association leaders share updated FAQs relevant to the merger

Officials from the National Glass Association, glass.org, and the Glass Association of North America, glasswebsite.com, announced the organizations officially combined on Feb. 1, becoming one, united voice representing the flat glass and glazing industry. Association leaders offered updated FAQs regarding the combination.

Q: Is the NGA and GANA combination final?
A: Yes, both organization’s memberships voted overwhelmingly to approve the combination. As of Feb. 1, 2018, NGA and GANA are now combined to form the largest trade association serving the architectural glass and metals industry supply chain, including glazing contractors, full-service glass companies, glass fabricators, primary glass manufacturers and suppliers to the industry.

Q: Is there a new name for the combined association?
A: The newly combined association will be known as the National Glass Association; a name change will be considered within two years of the closing date. The GANA name will remain on technical documents and related materials during this period.

Q: Will my membership change?
A: Yes, in that it will be stronger and more relevant, but members can expect the most vital aspects of both GANA and NGA will continue. We need your continued support and involvement as we integrate, and both leaderships ask that companies renew their 2018 membership when notices are issued. A new combined dues structure will be put in place at the beginning of the 2019 membership year.

Please note that for GANA member companies to maintain their voice in the technical document development process, their 2018 GANA dues invoice must be paid immediately if not yet paid.

Q: What happens with GANA’s staff?
A: GANA employed two full-time staff members, Urmilla Jokhu-Sowell and Sara Neiswanger. They have both been welcomed as full-time NGA employees.

The NGA formed a new Technical Services & Advocacy Department. Urmilla Jokhu-Sowell leads the department as advocacy and technical director, reporting to NGA president and CEO, Nicole Harris.

Sara Neiswanger joined the NGA as senior manager, GANA Member Services, reporting to NGA’s membership and marketing director, Michele Nosko.

Code consultants, Tom Culp, Birch Point Consulting, and Thom Zaremba, Roetzel & Andress, will continue their work monitoring and representing the association and the industry’s interests at building code hearings. Other consultants will be retained as needed.

Q: What about the Annual Conference and the Fall Conference?
A: The Annual Conference will proceed as planned April 23-26 in Napa, California. Registration information can be found on glasswebsite.com. NGA members can attend the events at the member rate with a discount code provided in NGA’s monthly newsletter.

Additionally, the Fall Conference will again be co-located with GlassBuild America in Las Vegas, held Sept. 12-14. Per attendee feedback, there will be minimal overlap between the Fall Conference and GlassBuild activities. The Fall Conference will begin on Monday, Sept. 11.

Q: What happens with existing task groups and committees?
A: As mentioned above, the Integration Task Force will work to outline the new association’s volunteer processes, and has recommended that the legacy GANA Division committees continue to operate as they have up through the Annual Conference in April, focusing on activities, deliverables and documents in process.

The association staff will also tap individual volunteers for micro-volunteering activity and projects, such as establishing course curriculum for education and training programs, writing questions for an industry trends survey or providing input on event programming.

Additionally, the Glazing Industry Code Committee and the Flat Glass Manufacturing Division will carry over to the new association, and NGA will provide management services for the Glazing Industry Secretariat Committee.

Q: What’s next?
A: A joint Integration Task Force of six representatives will oversee and advise the board of directors on transition and integration matters. NGA’s representatives are: Michael Albert, president and owner, S. Albert Glass, salbertglass.com; Angelo Rivera, vice president and general manager, Faour Glass Technologies, faourglass.com; Angelo Rivera, vice president and general manager, Faour Glass Technologies, faourglass.com; Nicole Harris, NGA president and CEO. GANA’s representatives are: Ren Bartoe, director, glass and industrial technologies, Vesuvius plc, vesuvius.com; Julia Schimmelpennig, global applications manager, Eastman

Q: What’s next?
Bigger is clearly better

The most innovative fire-rated glass-ceramic in the industry is now also the largest. At 51 x 99 inches, the new SCHOTT PYRAN Platinum sheet size lets you realize projects that were previously impossible.

Get the resources you need to start building bigger at us.schott.com/pyran
Chemical Company, eastman.com; and Stanley Yee, building design specialist, Dow Corning Corp., dowcorning.com.

The task force will outline the new association’s technical document development plan, refine the voting and approval process, and determine the advocacy process, among other tasks integral to the success of the combined association.

The ITF met for the first time on Jan. 24 and recommended that the legacy GANA Division committees continue to operate as they have up through the Annual Conference in April, focusing on activities, deliverables, and documents in process. Previously generated GANA documents will be maintained and offered. As of press time, the ITF was set to meet again in February and at the BEC Conference in March to continue its review of the technical process and structure. The end product of its work will come before the newly composed 13-member NGA board of directors as recommendations.

**Q: What is the new governance structure?**

**A:** The new board of directors of the combined associations will consist of 13 voting board members:

- 3 glazing contractors
- 3 full-service glass companies
- 2 WDDA dealers
- 2 glass fabricators
- 1 primary glass manufacturer (company changes yearly or biennially)
- 2 glass industry suppliers
- the NGA President/CEO as a non-voting ex officio member.

Effective Feb. 1, two voting positions of the initial combined board of directors were filled by the current GANA president, Doug Schilling, president and CEO, Schilling Graphics, schillinggraphics.com, and current GANA immediate past president, Stanley Yee, by special designation in a resolution of the NGA board.

**Q: What are the benefits to combining?**

**A:** There are many positive benefits resulting from the combination. First and foremost, NGA members will get to take advantage of GANA’s wide array of member publications and technical services, while GANA members will have access to NGA’s education and events. At the top of the list are positive impacts to association activities, including reducing operational and meeting redundancies. It will also trim time and expense for members and volunteers, so they can better focus on their companies’ growth and objectives, and the long-term health and welfare of the glass and glazing industry. In addition, companies that have two memberships—one in NGA and one in GANA—will see a reduction in membership dues.

**Q: How were the combination decisions made?**

**A:** The boards of directors of NGA and GANA appointed a Joint Task Force made up of members from both associations. NGA’s representatives were: Michael Albert, Angelo Rivera, Nicole Harris and Jerry Jacobs, NGA general counsel. The GANA task force was represented by: Stanley Yee; Doug Schilling; Gus Trupiano, director of sales, AGC Glass North America, agcglass.com; Steve Marino, manager, technical support, Vitro Architectural Glass, vitroglazings.com; Kim Mann, GANA general counsel.

The Joint Task Force met several times over the course of eight months to work through what the combined association would look like, covering governance, bylaws and the final transaction document. In September 2017, the boards of directors of both NGA and GANA both unanimously approved combining our associations. The NGA leadership will continue to update members and the industry as the integration evolves. For previous releases covering news of the combination, visit glass.org/ngagana-releases.html.
Need to Handle Very Large Glass?
Do you have difficult placements?

Skyhook WPI Under hook

A WPI Special at Cupertino, CA

At Oakland Zoo, 3800 lb. glass

THOM 4000

GM 4000 -12

At Rockefeller University, NYC

We have SOLUTIONS.

Call or email Jerry - j.nudi@ergorobotic.com - 518-796-2179 - ErgoRobotic.com
Manage Risks of Quality-related Data
Develop a plan to record, retain and evaluate information
By Matt Johnson

Data regarding product and system quality, both in terms of quality assurance and quality control, increasingly finds its way into risk management and legal arenas. While the requirements and obligations surrounding quality checks in the glazing market vary by segment, quality data—data related to product and system quality—is an essential business tool and risk management device. Development of a plan to record, retain and evaluate that data can prove essential to quality fabrication.

Understanding the risk from quality data starts with recognizing the difference between well-worn terms like quality control and quality assurance. Quality assurance is a system to ensure correct actions and procedures, while quality control tests the end result to make sure the system is reaching its intended goal. In other words, QA looks to the process and QC looks to the completed product, with both feeding information to each other.

The information that passes between QA and QC represents the fabrication chain of a design, system or assembly. Data collected along the development path can show how something is conceived, constructed and tested. It is also possible to identify insufficiencies, discrepancies and responses to quality concerns.

The ability to easily identify discrepancies and responses within broader sets of quality data is a tool that we see regularly. Parties challenging design concepts have taken to contesting QA plans as insufficient to ensure delivery of specified building targets, for example, energy, water or sustainability. Challenges to the performance of a product or component are being based on the ability to identify specific QC manufacturing concerns with increasing precision. And, challenges to site assembly are often founded upon a gap in job-checks, at the QA and QC levels, that fail to document necessary performance points.

How to collect quality data
The glazing marketplace must view quality as a big data issue that can be used to evaluate operations and defend claims. To do so, however, requires a process unto itself.

Identify data to record
Start with considering the quality points that require recording. Each segment of the glazing market has its own unique quality considerations. Those standards and processes likely have points...
WHERE IT ALL COMES TOGETHER

September 12 – 14, 2018
Las Vegas, Nevada

GlassBuild America
The Glass, Window & Door Expo
Sponsored by NGA, WDDA, GANA, AAMA, IGMA

Your Company

Your Industry

Your Community

NGA WDDA
WWW.GLASSBUILDAMERICA.COM
that can be identified and quantified as quality checks within a broader assurance plan. Evaluate those points and decide whether to record. Do not overdo; appropriate processes foster quality production without overburdening.

**Determine collection specifics and storage**

Once the process points are identified, look to the type of information that can be collected and consider its storage. Quality data as a risk management or production tool realizes its maximum use when there is easy and reliable access. Simplify the data recorded without sacrificing essential information. Use consistent terminology throughout quality data, regardless of the person inputting the information. Avoid “free text” entries. Consider whether the process points can be recorded individually (“single cells”) to allow later discrete analysis. And ensure that the data entry and any changes are logged so that improper creation or modification is avoided.

**Review the data**

Set up a review process for quality data. These regular, scheduled reviews do not delve into what the data means, but simply look at the data itself. Examination of the data can show outliers—points that do not make sense within the broader process. They can also identify incomplete or inconsistent entries. Regular, small-batch reviews of quality data can help avoid later challenges to entire data sets.

**Use the data**

Be ready to use the data. Develop the tools to respond to business or legal inquires discretely. Mass volumes of QA/QC can overwhelm and eliminate the value in the development and effort surrounding a quality-data system. Without the ability to parse the data, the situation becomes one where quantity does not equal quality.

**Determine data deletion schedule**

Consider retention. A quality-data plan should evaluate when destruction of data is appropriate. Electronic data storage may ease the obligation of retention. Development of a regular schedule to summarize, evaluate and then destroy quality data—retaining the summary and evaluation—may suffice for certain operations.

---

Matt Johnson is a member of The Gary Law Group, prgarylaw.com, a Portland-based firm specializing in legal and risk issues facing manufacturers of glazing products. Write him at matt@prgarylaw.com.
Products from Midwest Wholesale Hardware offer you a wide-range of solutions for your glass storefront needs. Whether it be the Adams Rite® 4590 Deadlatch Paddle for ease of use, the Rockwood® B157 Offset Door Pull for durability, or the Norton® 1601 Series Closer for proven quality, Midwest Wholesale has you covered.

Contact your Midwest Wholesale rep for more about glass storefront solutions.

ORDER ONLINE AT MIDWESTWHOLESALE.COM OR CALL 800.821.8527
TGP’s Jeff Razwick Talks of Growth and Change following Allegion Acquisition

On Jan. 2, officials from Allegion Plc, allegion.com, a leading global security products and solutions provider, announced the company had acquired fire-rated entrance and wall system supplier Technical Glass Products, fireglass.com, through one of its subsidiaries. Current TGP President Jeff Razwick, who will continue to lead the business, spoke with Glass Magazine about the deal.

How did this acquisition come about? Was TGP looking to sell?
Selling was not our priority or focus. TGP and our space in the industry—this space of specialty fire-rated entrances and glass—has gone from very small niche to a much more popular solution for commercial and institutional buildings. Like any business, that growth, that popularity, brings opportunity and interest. It brings other players who are in that space.

What drove Allegion’s interest in TGP?
They are smart about how they are approaching, how they are better serving, their key market segments in the years ahead. We are seeing a trend away from component-based business to solution-based business. The Allegion team sees the direction of the industry toward a complete specified solution, particularly when it comes to things like fire- and life-safety solutions. They are looking to offer integrated, complex, tested complete specified solutions. They are bringing together lots of parts and pieces into a system. ... We’ve got to have a package solution for our customers. I think that speaks to what we’ve done and where we are headed.

How will TGP benefit from being part of Allegion?
Our core business, every area of our business, every functional area of our company stands to benefit from this partnership with Allegion. They have hundreds of spec writers with complimentary products. The in-house R and D will be beneficial. We will have more robust executive support for IT, HR and manufacturing. Internally, this will be very helpful. It will take us to the next level.

What changes can customers and employees expect at TGP?
The immediate future is business as usual. Whether it’s our staff here, our partners, our customers, it will be business as usual.

In the long term, we expect more opportunities and better access to our products. ... Allegion, our team, [will work to] grow opportunities, grow the business. But that is a process. The goal here is to drive more specifications, drive more opportunities that benefit everyone. How do we better serve our distributors and fabricators with projects in the field? How do we better serve architects with expertise, complete solutions and hardware? How do we provide a better product? It isn’t about a fire-rated door or window. It’s about a well-engineered solution.

You mentioned long term growth potential for TGP, as part of Allegion. Can you describe what future growth might look like?
We are going to be focused on expanding our current offerings and markets. From a market-based perspective, they are very strong in the areas where we are also strong—the commercial and institutional markets. How do we grow that together? We are also looking geographically for other markets where our technology will meet the needs of the market.

Will TGP continue its activities in its other product categories, such as steel curtain wall?
Yes, we will continue to grow and pursue the steel curtain wall business. Steel provides unique advantages to the marketplace—large free spans; blast, ballistic and security benefits. There is a lot of potential there.

Allegion might be a new name to some in the glass and glazing industry. Can you tell me more about the company and its current product offerings?
Up until a few years ago, Allegion was Ingersoll-Rand. While you might not know Allegion by name, you would know Allegion’s brands. The company includes leading hardware for commercial and institutional projects in our industry—Schlage, Von Duprin, LCN closers, Steelcraft doors and frames, Republic doors and frames. Allegion brands include leading steel door and frame, and fire-rated door and frames in the industry. All of our industry depends on Allegion products in our commercial and institutional projects. We all know and use their brands, and depend on their brands, every day.
Leave the cookie cutters at the bake sale.

Unique buildings require novel façade system solutions. At Schüco, we’ve never settled for standard, we set our own, by providing services that support you in every phase of a project’s lifecycle, and system solutions that facilitate the most innovative project requirements. Lead the field with Schüco ultra high-performance façade system solutions and cutting-edge digital fabrication and installation workflows. With Schüco you have a partner in lockstep with your very need. www.schuco-usa.com
How to Finance the Purchase of a Glass Business

By Marco Terry

Financing the purchase of a company is a complex procedure. This article offers an introduction to the purchase process for potential buyers interested in looking to expand their glass business by acquiring another company, or looking to get into the glass industry by buying an existing company. Note, any potential buyer should work directly with professionals to guide them through the process.

Purchase structure
A small business can be purchased in two ways: by purchasing all outstanding stocks (or membership, if the business is an LLC), or by purchasing just the assets of a company without purchasing the corporate shell. Both methods have pros and cons.

Generally, purchasing the outstanding stock in a company gives the buyer all assets in addition to all current and potential future liabilities. This last point is important, as a buyer could be liable for future issues caused by actions that preceded their ownership of the company. In the second method, the purchaser buys only the company’s assets, such as copyrighted trade information, equipment, inventory, client lists, etc. The old corporate structure keeps the liabilities.

A purchaser’s financing options may vary based on the choice of structure.

Financing sources
Potential buyers should be aware of the various financing sources available. This section lists five sources of financing commonly used to purchase small and medium-sized companies.

1. **Seller financing**
   One of the most important sources of financing is provided by the seller. Seller financing is a loan that is amortized and paid over a period of time. The buyer often repays the loan using the proceeds of the business.
   Seller financing is advantageous for two reasons. It is usually available at competitive rates that are negotiable and, more importantly, the loan ties the seller indirectly to the future performance of the business. It helps ensure that the seller was forthcoming regarding the potential performance of the company.
   Keep in mind that the seller performs their due diligence on a buyer before providing financing. However, their due diligence is not as exhaustive as a bank’s due diligence. Sellers are generally willing to finance 30 percent to 60 percent of the purchase price.

2. **Small Business Administration-backed loan**
   Small Business Administration-backed loans are another great source of financing. The SBA provides guarantees that enable banks to lend funds to entrepreneurs and small business owners who would not otherwise qualify for a loan. SBA loan amounts vary, but the 7(a) loans commonly used to buy businesses can provide up to $5 million of financing.
   While getting an SBA-backed loan is simpler than getting a conventional loan, the process still requires bank underwriting. The business being acquired must have enough cash flow to support the loan plus the cost of operating the company. Additionally, the buyers must have industry experience, some assets and reasonable credit.

3. **Bank loan**
   An SBA 7(a)-backed loan is a great option for loans of $5 million or less. For larger loans, buyers must use a conventional bank. Qualifying for a conven-
tional bank loan is much harder than qualifying for an SBA-backed loan.

The company being purchased or merged with must have a good financial track record, solid assets and enough cash flow to repay the loan. Additionally, the buyers must have great credit and substantial assets of their own. Lastly, larger bank loans take time to approve because the underwriting team must review the business thoroughly.

**Inventory financing**

A buyer can cover some of the acquisition costs by leveraging some assets of the selling company (assuming the assets are free and clear). If the company has a lot of inventory, those assets can be leveraged using inventory financing. This strategy allows the buyer to use those funds towards the purchase cost of the business.

Keep in mind that finance companies never use market value when determining the value of the inventory to finance. Finance companies take this approach because, if they have to resort to foreclosing the collateral, they seldom can liquidate at market value. Instead, the finance company appraises inventory using the Net Orderly Liquidation Value or a similar metric. Depending on the details of the inventory, this appraisal method could shave a substantial part of its value. Furthermore, the finance company allows a buyer to borrow only a percentage of the appraised value.

**Personal funds**

Every transaction requires a buyer to make a contribution or down payment from their own funds. This part of the offer usually amounts to 20 percent of the purchase price, though lower percentages can be used if the purchaser has substantial seller financing and they are buying an asset-rich company.

These personal funds usually come from savings or stock accounts. A purchaser can also leverage home equity or retirement. However, Commercial Capital LLC recommends against this path, as it is best to avoid risking a home or retirement in the event things go wrong.

Most offers use multiple sources of funding. A purchaser should always use seller financing if available. Since seller financing seldom covers the whole transaction, a purchaser will have to use personal funds or a loan to complete the purchase.

Marco Terry is managing director of Commercial Capital LLC, comcapfactoring.com, a factoring company and leading provider of invoice financing to companies in the glass industry. He can be reached at 877/300-3258.
When Problems Arise
How to respond to mistakes or challenges and preserve a company’s reputation
By Joe Erb

What happens when, despite a company’s greatest efforts, an order or project doesn’t go as planned? What actions does a company take when it has an unsatisfied customer, or when a miscommunication results in a hiccup with a partner?

The reality of business today is that glass industry companies must do more with less. Not only is the industry dealing with a labor shortage, but it is also at a tipping point with technology. Company investments in high-speed automated lines, integrated software and safety measures bring opportunities to have fewer touchpoints with product, overall higher quality and greater output. But they also bring with them the risk of larger errors. Even though every good business has processes and procedures in place to maintain quality, efficiencies and, most importantly, safety, mistakes can happen.

In the event that they do, here are some actionable steps that will help a company get back on track when there is a bump in the road.

1. Be accountable.
   Just like anything in life, owning the issue and acknowledging it with the customer (or vendor or colleague) is a necessary first step. The most important part of this step is to keep it as genuine as possible. A personal phone call—or better yet, an in-person visit—is always better received than an email or note. It helps reinforce the importance of the relationship with that person or company, and it shows the situation is being taken seriously.

2. Create an action plan—for now and later.
   Fostering an environment of corrective action means finding the root cause of an issue, executing a plan to fix it and then implementing long-term measures to ensure it doesn’t happen again in the future. Again, communication is key here. When a customer knows when and how the problem is being resolved, the relationship is preserved, and trust is already starting to be rebuilt.

   It’s also important to keep this open dialogue with all vendors and partners. Although a company must take ownership with the customer, making sure...
Semi-Transparent Mirror Glass

It is the perfect solution for a sleek, modern look. When the TV or digital display is off, it appears to be a normal mirror. Once it is on, a clear image of the screen comes through providing optimal versatility.
every step of the process is examined and every party understands what can be done better in the future is critical. A company should establish a key point of contact with each vendor so that when something needs to be discussed, managers know with whom to speak. Keeping a consistent stream of positive, open communication in every facet of your business is an easy way to keep everything running smoothly.

Learn and move on. Once the problem is resolved, and the processes and procedures are in place to ensure it isn’t repeated, a company should move on from the situation both internally and with the customer. When addressed the right way, getting through a particularly challenging time can deepen relationships and build credibility with customers.

How a company responds to [challenges] can significantly affect its reputation and future success.

4 Always be safe. No matter how urgent the issue or how quickly something needs to be addressed, safety should always be the number one priority. Through automation and other technologies, the industry has eliminated many different touchpoints—and, therefore, risks—when it comes to glass production. But there will always be associated risk factors when operating machinery on the plant floor. Companies should put employee safety first, and invest in the education, procedures and appropriate measures to keep a safe working environment. That’s a business pillar any customer can respect.

In this fast and furious industry, companies are bound to be faced with challenges. How a company responds to them can significantly affect its reputation and future success. If a company tackles each hurdle as it comes its way with an authentic, communicative and solutions-oriented mindset, success and happy customers will naturally follow.

Joe Erb is commercial sales specialist for Quanex Building Products, quanex.com. For more tips, read Quanex’s blog, In Focus, at Quanex.com/InFocus, or contact Erb at joe.erb@quanex.com.
Hundreds of fabricators across the globe can’t be wrong, can they?

EXPERIENCE

FENEVISION

Our FeneVision ERP software runs production in hundreds of companies worldwide. That number is growing.

Join the FeneVision experience.

To arrange a demo or onsite visit, contact FeneTech at 330.995.2830 or email us at info@fenetech.com

FeneTech
North America 330.995.2830 | Europe +352 26 39 84 | fenetech.com
BUILDING A BOOTH

Seven tips for trade show success
By Olivia Parker

PHOTOS BY ROBB COHEN PHOTOGRAPHY & VIDEO

Trade shows offer a prime opportunity for companies to cultivate leads, interact with customers, build brand awareness, launch new products and gauge industry trends. To capitalize on trade show opportunities and to ensure trade show success, exhibitors should focus on developing a standout booth. “Your booth defines your show experience. It is the reason you’re there,” says Max Perilstein, owner of Sole Source Consultants, solesourceconsultants.com, a marketing and communications strategy consulting firm for the building products industry. “When exhibitors put little effort into their booth, they usually end up having a bad or unproductive time at the show. You just have to make attendees feel comfortable enough stepping onto that different-colored carpet, and it’s pretty simple from there.” Glass Magazine asked recent winners of GlassBuild America’s, glassbuildamerica.com, Best in Show exhibitor recognition program to offer tips on how to best design a booth and create a memorable experience for visitors. ▶

01

NARROW THE FOCUS

Several Best in Show winners recommend that exhibitors choose one product that will wow attendees and focus their booth design around that product. All pre-show promotions should highlight that one product.

“We determine what core product/service we want to showcase and make it central to the booth experience,” says Jeff Jones, public relations manager for Elias/Savion Advertising, representing Deceuninck North America, deceuninckna.com, the 2016 Large Booth Best in Show winner.

While booth design and promotion should emphasize a single product, a more comprehensive product line can be displayed inside the booth, exhibitors say.

“We focus on displaying one thing, knowing we can share more once people approach the booth,” says Rina Chakour, vice president of marketing and business development, Phoenicia Flat Glass Industries, phoenicia-ltd.com, winner of the 2017 Best in Show First Time Exhibitor award. “Put the best product in the front to create demand for other products.”
This is not a test: Your design vision was made to impress—just like jumbo coated glass. Guardian Glass® has a long history of creating jumbo coated glass around the world, and we’re bringing our newest jumbo coater to North America soon. Let us help you bring your vision to life.

SEE JUMBO AT GUARDIANJUMBOGLASS.COM
WORK WITH ORGANIZERS

A good booth starts with talking to the show’s contractor and staff, Best in Show exhibitors say. Before arriving at the show, exhibitors should submit a booth layout to show organizers. The organizer will be able to work out any questions or concerns the exhibitor may have about booth layout, placement and size, or any accommodations that need to be made.

Prior to the event, show organizers can assist with questions big and small. Where should an exhibitor place their banner so that it can be seen from furthest away? How can a small booth exhibitor stand out against competitors with much larger booths? What is the most effective layout for a particular product? Contractors and staff know the ins and outs of the show, the floor and the convention center. They can provide valuable insights about the show that exhibitors and attendees may have never considered.

Once at the show, exhibitors should take advantage of onsite services available from the show contractor and organizer. This is particularly true when things don’t go as planned, exhibitors say. For example, in 2017 several of the exhibitors at GlassBuild America reported they were delayed because of Hurricane Irma, and accommodations regarding their arrival and booth setup had to be made. “We had to adapt,” says Chakour. “A few members of our staff weren’t able to come at the last minute because of the hurricane. We had to let go, and let [the show organizers] help. For every challenge we faced we received help or found a solution.”

DECEUNINCK NORTH AMERICA received the Best in Show award for Large Booth during 2016 GlassBuild America.

RESEARCH THE SHOW

Prior to the event, exhibitors should familiarize themselves with the floor layout, the company’s booth location, event schedule and more.

“I would recommend reading all the exhibitor information provided to you by the show. Make sure you have a booth layout made well in advance and submit it to the show management, so they can work with you,” says Jessica Metz, marketing manager, Erdman Automation, erdman.com, the 2016 winner for Best Machinery Booth.

Some Best in Show exhibitors recommend starting this research a year in advance. “If possible, walk the show the year before to get a feel for who is attending, layout and companies you want to be near. Note what works in the booths and incorporate the ideas into your booth design. Look at the floor plan online, think about traffic flow for the show and which direction people will be seeing the booth from,” says Deceuninck’s Jones.

Once on the floor, exhibitors should be aware of the show’s schedule. Foot traffic may be light because a certain event is happening, or a rush may be coming because lunch just ended, exhibitors say. The more familiar with the show’s schedule an exhibitor can be, the easier it is to work within the flow of the event.
OPENING DOORS FOR GLASS FABRICATORS

Offering complete U.S.-based technical support and parts.

Glass edging and polishing equipment now available!

HSD Straight-Line Double Edging Machine

SYM Straight-Line Double Round Edging Machine

HSB Straight-Line Beveling Machine

SZM Automatic Super Speed Double Edger Line

HSE Straight-Line Multi Edging Machine

View complete product line at HHHtempering.com/edging.

Experience you can see. Schedule your equipment consultation today.
Call: 724-409-4681
DESIGN WITH INTENT

Booth design presents the opportunity for exhibitors to show who they are—to display their company and their products in a way that is tangible to potential customers. Exhibitors should determine the message they want to bring to customers and design the booth around best expressing that message.

The first priority of booth design should be brand recognition. Exhibitors should ensure branding is clear, concise and consistent. A booth visitor should immediately know which booth they are stepping into. “We look to create an inviting showplace that draws participants in while at the same time surrounding them with everything Lisec,” says Bob Quast, president, CEO and CFO, Lisec America Inc., lisec.com, the 2017 winner for Best Machinery Booth.

The exhibitor should then consider product promotion. If a product is a company’s centerpiece for the show, it should be displayed in its best light, exhibitors say. “Guardian Glass believes the best way to view a product is in application,” says Andy Russo, director of marketing, Americas, Guardian Glass, guardianglass.com. Guardian received the award for Best Large Booth in 2017. “Glass is a unique product to showcase. Reflection, scale, fabrication and, most importantly, lighting factor into the product experience.”

A shower stall can be set up to display a shower door, or machinery can be set up to do a demonstration. If the products can’t be displayed on site, exhibitors should use high-resolution, eye-catching graphics, and think outside the box, exhibitors say. “Be unique. Appeal to the senses. Give your audience something to touch or experience,” says Corey Faciane, product manager, perimeter systems division, Southern Aluminum Finishing Co., saf.com. SAF received the Best Small Booth award in 2016.

Booth products should never just be flopped on a table, says Max Perilstein. Exhibitors should instead use tables for print materials like brochures and other lead retrieval devices. Additionally, companies should refrain from displaying too many products or informational materials, as it can take away from the booth’s focus and create a cluttered look. “We don’t let typical exhibitor display items distract from our machines. They speak for themselves,” says Erdman’s Metz.

STAFF YOUR BOOTH WITH PURPOSE

A booth could look perfect, but it won’t matter if the employees staffing the booth aren’t positive and friendly, or are inattentive. “Trade shows are more about building relationships than being a smooth salesman. Getting attendees to your booth is less about design and more about people. A person needs to catch your eye. Make small talk with potential customers, not about the product, but about life, how their show experience is going,” says Adam Conley, president and CEO, Glass Expanse, glassexpanse.com, winner of the Best Small Booth category in 2017.

Additionally, exhibitors should ensure there are always enough people in the booth to give attendees and potential customers the best service possible. “Traffic comes in phases, so even when the show seems to be emptying out around certain events, make sure you always have people in your booth. A few key leads may trickle in when it seems there’s no one around,” says SAF’s Faciane.
CREATE CUSTOMER RELATIONSHIPS

When trying to create leads, exhibitors should strive for quality over quantity. Hundreds of people may pass through a booth, but if none become customers, then nothing of worth came of the exhibitor’s efforts, exhibitors say. Quality drives profits, not quantity. “We’d rather leave the show with having only had 20 visitors, and 12 are solid leads, than have 200 hundred visitors who all mean nothing,” says Faciane.

A booth should not only draw attendees in, but also keep them interested. Along with all the eye-catching products and branding, exhibitors should create a sit-down area with things like coffee machines and phone-charging stations to give attendees a place to rest their feet and learn about the exhibitor while they’re there.

“The goal for the Guardian Glass team at every trade show is, first and foremost, to enable conversations in the booth that bring value to our customers and visitors new to Guardian Glass,” says Russo. “We design with various visitors in mind. From decades-long relationships to brand-new connections, we work to create a welcoming and informative space.

FOLLOW UP

After the show, exhibitors should make sure to follow-up with leads. Without prompt follow-up, exhibitors will probably lose the interest of potential customers after the excitement of the show has come and gone.

“An essential component of the plan, but one that is easy to neglect because it’s not part of the at-the-show experience, is follow-up with booth visitors. This is the reason you’re at the show,” says Russo “Don’t lose the momentum by waiting too long, or worse, not communicating at all, with your customers.”

GEAR UP FOR GLASSBUILD

2018 promises to be another exciting year for the glass and glazing industry, and this year’s GlassBuild America: The Glass, Window & Door Expo, set for Las Vegas, Sept. 12-14, will enhance the exhibitor and attendee experience to capitalize on industry success. GlassBuild America show organizers offer opportunities to promote exhibiting companies and products in advance of the show. Visit GlassBuildAmerica.com or GlassMagazine.com/March2018 to find out how.

Additionally, to support a successful show for everyone, show organizers provide:

• Display Guidelines, which are detailed in the GlassBuild America Booth Application.
• Exhibitor Show Rules and Regulations, specific to the trade show facility and detailed for each exhibitor.
• First-time Exhibitor Guide, which offers a specialized summary of general trade show information and specific GlassBuild America information.
• Machinery Supplement, which targets valuable information for exhibitors displaying machinery and equipment.
• New for 2018: Improved Exhibitor Console and enhanced promotional tools.
• New for 2018: Additional exhibit hours on the first day for a welcome event on the trade show floor.

Find this information and more, including how to register as an exhibitor or attendee, at GlassBuildAmerica.com.
TOP GLASS FABRICATORS

UP TO THE CHALLENGE

FABRICATORS REPORT SALES GAINS IN FACE OF INCREASED COMPLEXITY, LABOR STRUGGLES AND SUPPLY CONCERNS

BY NORAH DICK AND KATY DEVLIN; CONTRIBUTIONS FROM WENDY VARDAMAN

ONLINE:
VISIT WORLDOFGLASSMAP.COM FOR THE INTERACTIVE, SEARCHABLE MAP OF ALL TOP GLASS FABRICATOR LOCATIONS IN THE UNITED STATES AND CANADA.
Fabricators say strong market demand has kept companies busy and sales high. However, it has also stretched capacity and exacerbated an already tight labor market. Sixty-seven percent of Top Glass Fabricators said the labor shortage worsened between 2016 and 2017, and a plurality of survey respondents ranked it as the top challenge for 2017, and a plurality of survey respondents ranked it as the top challenge for the year.

The biggest challenge for Kensington Glass Arts, kensingtonglass.com, was “maintaining our production capability in a fast-paced production demand world [despite] the tight labor supply,” says Bill Wilson, director of sales, Kensington Glass Arts, kensingtonglass.com.

Concerns over glass supply also continued during the year, particularly after several U.S. float lines went down unexpectedly midyear. “Glass supply became a challenge in 2017,” says Richard Wil- son, president, AGNORA, agnora.com. “Working with our suppliers to inventory additional glass allowed AGNORA to meet customers’ demands.”

“Glass supply has continued to be a challenge for Vitrum,” agrees Michael Zizek, marketing director, Vitrum, vitrum.ca. “As a leader in our region, we can easily consume more glass than is available by our certified fabricator partners in North America. Throughout 2017 many projects were delayed due to lack of glass supply.”

In addition to keeping up with higher demand, fabricators say they also face calls for more advanced glasses and more challenging orders. Architects and building owners want larger lites, which requires fabrication equipment to accommodate jumbo sizes. Calls for more decorative products require new or updated machinery. Quality demands have increased, particularly with the proliferation of all-glass systems that feature bare, polished edges. “[We’ve seen] increased expectations regarding quality, especially for laminated railings,” says Gary McQueen, senior director of sales and marketing, J.E. Berkowitz, jeberkowitz.com.

Orders have also become more complex, with projects featuring multiple glass types in sophisticated systems, fabricators say. “Architects are wanting to push glass to its limits,” says Patrisia Yanez, product development leader, decorative products, Cristacurva, cristacurva.com. “We are combining various products into one. For example, [we are] taking custom decorative glass and fabricating it as large as possible—oversized—and at a special radius—curved—for an application that requires energy-efficient glass, all in one.”

**Report and map**

Learn more about the state of the glass fabrication market in the Top Glass Fabricators report that follows—from an in-depth look at trends and industry performance in The Market on pages 34-37, to the list of Top Glass Fabricators on pages 46-54, to a series of project features that demonstrate the move toward more complex and value-added glass applications on the interior and exterior, on pages 38-45.

This year’s Top Glass Fabricator report also includes a pull-out map featuring all locations in the United States and Canada. For an interactive, searchable map of the 236 Top Glass Fabricator locations, including additional details about each plant, visit the revamped and updated website WorldofGlassMap.com.

**About the list**

The Top Glass Fabricators annual list is based on annual sales volume and recognizes glass fabrication companies that operate stand-alone architectural glass fabrication plants in the United States or Canada. An exception to this rule is Tecnoglass. Although the Tecnoglass’ manufacturing facility is located in Barranquilla, Colombia, its significant U.S. presence earned it a spot on the list. The list does not include float glass manufacturers that also have fabrication capabilities at their locations.

The majority of the information included in the Top Glass Fabricators report comes directly from the fabricators themselves. In cases where a company did not provide information, Glass Magazine gathered sales estimates and other data from industry insiders, business credit resources, prior year submissions and the respective companies’ websites. Sales figures for these companies are shown as estimates. Although the report provides specific sales data when it’s available, many privately held companies do not release sales figures. As a result, fabricators are listed alphabetically within six sales range categories.

We at Glass Magazine believe the Top Glass Fabricators report reflects leading companies within this industry segment. If your company belongs on the list, or you would like to update the information published here, please contact us. It is only with the cooperation of individual companies that Glass Magazine’s Top Glass Fabricators can reflect the industry as it is today. Questions or comments about this year’s list and requests to be included next year can be sent to Norah Dick at ndick@glass.org.
1. How did sales levels in 2017 compare to the previous year?

- Higher 71%
- Same 27%
- Lower 2%

2. Did your company add production capacity in 2017?

- Yes 81%
- No 19%

4. Which geographic market offers the most potential for growth in 2018?

- West 15%
- Southwest 08%
- Midwest 21%
- Northeast 44%
- Southeast 12%

5. Which of the following commercial construction segments provided the most growth for your company in 2017?

- Office buildings 67%
A large majority—71 percent—of Top Glass Fabricators reported an increase in sales in 2017. However, this marks a decline from 2016, when 89 percent of companies reported a growth in sales.

Most Top Glass Fabricators increased production capacity in 2017. The reason for many companies is the growing market demand for more specialty glass products, from decorative products to oversized glass.

“We continue to see growing demand for decorative glass, as well as a need for design assistance. We are working with our customers to provide the information and design assistance that they need to successfully integrate decorative glass into their business and take advantage of this trend,” says Josh Primmer, sales, M3 Glass Technologies, m3glass.com.

Companies also report adding capacity in order to improve lead times, increase production efficiencies and better serve the busy construction economy.

Top Glass Fabricators were asked to choose the one building segment area that offered the most growth in 2017. According to the survey, office building construction was by far the strongest segment for companies.

**WHAT PRODUCT OFFERS THE MOST POTENTIAL FOR GROWTH IN 2018?**

- Energy-efficient glass **40.3%**
- Decorative glass **19.2%**
- Other* **19.2%**
- Protective glazing **17.3%**
- Dynamic glazing **2%**
- Solar **2%**

*Including oversized/jumbo glass, office partitions and railings, laminate fabrication, digital printing, custom glass and metal products.

**COMMERCIAL CONSTRUCTION SEGMENTS PROVIDED THE MOST GROWTH IN 2017?**

- Retail **7%**
- Hotels **6%**
- Transportation **6%**
- Government **6%**
- Healthcare **4%**
- Education **2%**
- Multifamily **2%**

Companies were asked to choose one geographical region poised for growth. The Northeast came away on top, with 44 percent of the vote, followed by the Midwest at 21 percent.

Top Glass Fabricators were asked to choose the one building segment area that offered the most growth in 2017. According to the survey, office building construction was by far the strongest segment for companies.
Fabricators continue to rank the labor shortage as the biggest challenge facing the industry, ahead of glass supply and capacity planning. Sixty-seven percent of survey respondents say finding labor was more difficult in 2017 than the previous year. A number of companies report they are leaning more heavily on automated machinery. Others say they are pursuing a wide range of methods for recruitment and retention, including:

- Social media advertising
- Incentivized employee referral programs
- Competitive wages and benefits
- Improved onboarding and training programs
- Internship programs
- High school graduate recruitment
- Outside recruiters.

“We have started to leverage social media more, such as Facebook, LinkedIn and Glassdoor to further enhance our presence,” says Jordan Filenko, marketing and communications, Garibaldi Glass Industries Inc., garibaldiglass.com.

“We ... encourage our team to invite skilled craftsmen they may know to join us as they understand our quality needs and market demands,” adds Patrisia Yanez, product development leader, decorative products, Cristacurva, cristacurva.com.

Richard Wilson, president, AGNORA, agrnora.com, says his company focuses on training. “We hire for fit first and train our employees for skill,” he says. “Our full in-house training program allows us
Increased competition 6%
TOP GLASS FABRICATORS

THE PROJECTS

© Terry Wieckert, Abstract Photography
COMPANIES TOUT THEIR COMPLEX FEATS OF FABRICATION

An arresting curved façade of decorative glass surrounds the new state-of-the-art Brooklyn Health Center in Brooklyn, New York. To achieve the unique and vibrant wave pattern on the exterior of the building, Viracon, viracon.com, provided 50,157 square feet of insulating glass, including over 22,000 square feet of DigitalDistinctions digitally printed glass.

DigitalDistinctions, a specialty line of glass engineered to combine energy performance and ceramic printing, was part of a design that integrates vertical and horizontal glass framing lines and vertical fins, along with waves of horizontal digitally printed lines and various shaped lites, says Annette Panning, director, marketing and product management, Viracon.

Creating the complex effect required close collaboration between architect Francis Cauffman, franciscauffman.com, and Viracon, especially regarding color selection. Whereas most designers are familiar with CMYK litho-printing, they may be less familiar with ceramic digital inks, explains Panning. Viracon fabricated 12-inch-by-12-inch samples during the design process for the architect’s review and feedback regarding color and pattern, she says.

Aligning the horizontal and vertical framing lines across 158 differently shaped lites presented a definite challenge for the fabrication team. To ensure consistent color-printing across all lites, Viracon printed a mockup using simulated etch ink, a process that in itself posed difficulties.

“Printing simulated etch ink requires an ultra-clean work environment, as the transparent etch ink magnifies imperfections caused by dust or oils left on the glass prior to printing and firing,” says Brian Distel, Viracon’s digital print specialist. “By using the glazier’s elevation, we were able to position each prepped file in its location on the curtain wall, prior to printing, to check for inconsistencies in the hookup/registration of the line pattern. By catching any issues prior to printing, we saved everyone involved time and money.”

To align lites correctly during the printing process, Viracon’s prepress department created unique identifiers for each of the 3,000 lites of glass. The team created a digital file for each lite that contained information for the color(s) to be applied, the size of the lite and whether or not edge deletion should occur, if the unit was coated, explains Distel. Operators then used the individualized specs to physically place the lite so that the printer could register it, a process that was key for the differently-shaped lites.

“With odd-shaped lites, the orientation is critical,” says Distel. “There was typically only one corner that could be used for proper registration.” Inks were printed directly onto the glass substrate and then Viracon’s VRE-59 coating was applied over the printed image.

Skansa, skanska.com, was the general contractor. EFCO Corp. manufactured the curtain wall, and handled the full assembly of the unitized system and the installation.
triking decorative glass pylons guide visitors through the Cadillac Fairview Shops at Don Mills, an outdoor mall in Toronto. AGNORA, agnora.com, fabricated the glass signage, including: five 40-foot pylons to mark the main entrance; three 32-foot pylons at the secondary entrance; and 27 smaller signs, each just under 10 feet, for parking spaces and intersections.

Given the wayfinding purpose of the outdoor signs, the design required pylons and signage to be visible both day and night. Creating the desired effect required that AGNORA closely collaborate with the design team, and experiment with ink opacity and color application, says Richard Wilson, president of AGNORA.

“In a collaborative process with the sign designer, Jonathan Picklyk of [the Cygnus Design Group] and the sign installer, Forward Signs Inc., AGNORA developed a two-layer opacity application of the ink, meaning a double pass on the same surface to achieve the desired color and preserve the design intent,” explains Wilson.

“This created a stunning effect both during daylight and when backlit at night.”

The use of frit for the signature pieces also represented a design hurdle. “Using frit for a project needing visual integrity both day and night on both sides posed technical challenges,” says Wilson. “Internal samples and progressive mock-ups for the project players to test allowed the process to move forward.”

AGNORA fabricated the gateway pylons by digitally printing ceramic frit onto about 6 ½-by-19 ½-foot panels of Pilkington’s Optiwhite, low-iron, monolithic and two-ply laminated tempered glass. Each gateway pylon was then constructed by stacking two of the panels vertically, with the graphic pattern designed to transition between the pieces.

The general contractor was Ellis Don, ellisdon.com. Signs were installed by Explore1, explore1.ca. Installation was managed by Forward Signs Inc., forwardsigns.com. The designer was The Cygnus Design Group, cygnusgroup.ca.
Dynamic orange and white fins decorate the lower levels of Amazon’s new campus in downtown Seattle. Vitrum Glass Group, vitrum.ca, delivered a total of 1,000 glass fins for the project, covering about 10,000 square feet on the exterior of the building.

“The fins not only add color and dimensional relief, but also help control the amount of direct sunlight on the building skin,” says Dale Alberda, principal and architect, NBBJ, nbbj.com, the design firm on this project. “The idea to use two colors came very early in the design process and was driven by the desire to create a dynamic and changing building façade.”

Each of the glass fins is composed of two ¼-inch, low-iron, heat-strengthened Starphire Velour Etch glass panes on the external surfaces. The laminate interlayer is comprised of 0.030 clear polyvinyl butyral, 0.030 Trosifol Diamond White PVB and a GCC ceramic frit. The ceramic frit was roll-coated onto the glass in colors “Curry,” “Forceful Orange,” “Nasturtium” and “Golden Rod.” Vitrum created four sizes for the panels, ranging from 8-by-63 inches to 12-by-87 inches.

The desired color effect required some initial trouble-shooting with the design and glazing team, says Michael Zizek, marketing director, Vitrum Glass Group. The design brief included two-toned, double-sided glass fins in three shades of orange and three shades of white, with the orange transitioning from darkest to lightest. To achieve this look, the glazing contractor, Walters and Wolf, waltersandwolf.com, approached Vitrum to create a laminated make-up that combined the two colors, with a matte finish on the orange-colored side, says Zizek.

Creating the orange-white, two-tone fin proved a slight challenge, he explains, and required Vitrum to produce several samples. “We had a number of challenges with read through, where the orange continued to be visible or was impacting the purity of the white,” says Zizek. To overcome the issue, the fabricators replaced the white ceramic frit and one of the clear PVB interlayers in their original sample with Diamond White PVB. “This produced the most rich and vibrant oranges and prevented all read through, with no orange being visible from the white side of the fin,” says Zizek.

The Museum of the Bible in Washington, D.C., features 381 large custom glass panels digitally printed with images of biblical artifacts. Skyline Design, skydesign.com, fabricated the decorative glass panels for the 30,000-square-foot museum, which opened in November 2017.

“The unique character of enlarging and reproducing archival documents on the surface of glass set this project apart,” says Mark Toth, sales director, Skyline Design. “The importance of reproducing original documents to be shared by the public in a museum of this magnitude was unique.”

Achieving the design goal of replicating biblical artifacts on architectural glass required close collaboration between Skyline Design and the project’s interior architects, PRD Group, theprdgroup.com, says Toth. As a team, PRD and Skyline worked to realize the architect’s concept. “PRD created the artwork and our production team worked closely with them to turn their conceptual layouts into reality,” he says. Design and Production Inc., d-and-p.com, installed the glass and provided fabrication for other parts of the exhibit.
Color matching proved to be one of the main challenges of reproducing printed text on glass, says Toth. The architect and fabricator worked back and forth with hundreds of samples to match the correct color, hue and saturation. “Color and character of the ancient documents had to be interpreted through the digital printing process and visually matched the thickness of the glass,” he says. “Much of the glass was back-lit, so Skyline Design had to work closely with the lighting designer to achieve the desired result.”

The glass was ½-inch low-iron from Vitro Architectural Glass, vitronglazings.com. Skyline tempered the glass in-house, and digitally printed on side No. 2. For a little less than a quarter of the panels, Skyline also deeply etched the text on side No. 1 and then painted the etched glass with a gold infill. After digital printing, glass panels were tagged, packed and crated for final installation on-site. Once samples and full-scale glass mockups were approved, Skyline cut the glass to spec. Panel sizes ranged from 12-by-20 inches to 58-by-80 inches.
$250 to $500 million

**Viracon**
Owatonna, Minn.
viracon.com

Employees: 2,200
Certifications: IGCC
No. of locations: Two
Products offered: Insulating, tempered, laminated and decorative glass.

$100 to $250 million

**Hartung Glass Industries**
Tukwila, Wash.
hartung-glass.com

Employees: 800+
Certifications: Vitro/PPG Certified Fabricator, Guardian Select Fabricator, Kuraray/SentryGlas
No. of locations: Nine
Products offered: Tempered, insulating, laminated and decorative glass; switchable privacy glass; magnetic glass whiteboards.

Hartung is the parent company of Agalite Shower & Bath Enclosures, agalite.com; Holcam Bath & Shower Enclosures, holcam.com; and Lami Glass Products, lamiglass.ca.

**Prelco Inc.**
Rivière-du-Loup, Québec, Canada
prelco.ca

Employees: 600
Certifications: IGCC, SGCC, Guardian Select Fabricator, Kuraray/SentryGlas, NSG/Pilkington Select Fabricator, Saint-Gobain
No. of locations: Three
Products offered: Tempered, insulating, laminated and decorative glass; curved glass; oversized glass; integrated blinds; solar control glass.

$50 to $100 million

**Cristacurva**
Houston
cristacurva.com

Employees: 600
Certifications: AGC, IGCC, SGCC, Vitro/PPG Certified Fabricator, Guardian Select Fabricator, Kuraray/SentryGlas, NSG/Pilkington, Saint-Gobain
No. of locations: Three
Products offered: Tempered, insulating, laminated and decorative glass; fire-rated glass; heat-soaked glass, mirror.

**Tristar Glass Inc.**
Catoosa, Okla.
tristarglass.com

Employees: 235
Certifications: AGC, IGCC, SGCC, Guardian Select Fabricator, NSG/Pilkington, Saint-Gobain, Vitro/PPG Certified Fabricator
No. of locations: Four
Products offered: Tempered, insulating, laminated and decorative glass; heavy glass doors and enclosures, spanning, fire-rated glass.

**Gardner Glass Products Inc.**
North Wilkesboro, N.C.
gardnerglass.com

Employees: 230
Certifications: Vitro/PPG Certified Fabricator, Guardian Select Fabricator, Kuraray/SentryGlas, NSG/Pilkington, Saint-Gobain
No. of locations: Three
Products offered: Tempered, insulating, laminated and decorative glass; insulated glass units, mirror.

**Glasswerks LA Inc.**
South Gate, Calif.
glasswerks.com

Employees: 500
Certifications: Guardian Select Fabricator, Vitro/PPG Certified Fabricator
No. of locations: Four
Products offered: Tempered, insulating, laminated and decorative glass; jumbo glass, bent-tempered glass, warm-edge insulating glass units, mirror.

**Vitrum Glass Group**
Langley, British Columbia, Canada
vitrum.ca

Employees: 500
Certifications: Guardian Select Fabricator, Kuraray/Sentry-Glas, Saint-Gobain, Vitro/PPG Certified Fabricator
No. of locations: Two
Products offered: Tempered, insulating, laminated and decorative glass; bent glass.

*Annual sales volume is an estimate, not confirmed by the company. ** Certification listings are not necessarily comprehensive. They reflect only those certifications publicly promoted by the respective certifying organizations.
THE TOP GLASS AND METAL FABRICATORS

Among the leading glass fabricators in the United States and Canada are several companies that also manufacture architectural aluminum products for storefront and curtain wall applications, using their own proprietary lines and dies. Due to their unique product offerings, they are ranked separately from the Top Glass Fabricators, here. Services and locations are limited to glass fabrication only. For information on these companies' metal fabrication capabilities, please see Glass Magazine's Top Metal Companies rankings in the November 2017 issue.

More than $500 million

Oldcastle BuildingEnvelope
Dallas
obe.com

Employees: 6,600+
No. of locations: 76
Products offered: Custom-engineered curtain wall and window wall; architectural windows; storefront and entrance systems; skylights; blast- and hurricane-resistant systems; architectural glass including: tempered, insulating, laminated, structural, decorative; custom hardware products and supplies.

$250-500 million

Tecnoglass SA
Barranquilla, Colombia
tecnoglass.com

Employees: 5,345
Certifications: IGCC, SGCC, Guardian Select Fabricator, Kuraray/SentryGlass, NSG/Pilkington, Vitro/PPG Certified Fabricator
No. of locations: Five
Products offered: Tempered, insulating, laminated and decorative glass; low-emissivity glass, insulating-laminated glass, curved glass. Although it does not have fabrication facilities in North America, Tecnoglass has a major presence in the United States, and is therefore included in this list.

$50-100 million

Coral Industries Inc.
Tuscaloosa, Ala.
coralind.com

Employees: 450
Certifications: SGCC
No. of locations: Three
Products offered: Tempered glass.

PRL Glass and Aluminum
City of Industry, Calif.
prlglass.com

Employees: 450
Certifications: IGCC, SGCC, Guardian Select Fabricator, Kuraray/SentryGlass, Vitro/PPG Certified Fabricator
No. of locations: Three
Products offered: Tempered, insulating, laminated and decorative glass; custom architectural glass/metal.

SIGCO Inc.
Westbrook, Maine
sigcoinc.com

Employees: 235
Certifications: IGCC, SGCC, Guardian Select Fabricator, Kuraray/SentryGlass, Vitro/PPG Certified Fabricator
No. of locations: Two
Products offered: Tempered, insulating and laminating glass; ceramic frit spandrel.

$35-50 million

Aldora Aluminum and Glass Products*
Coral Springs, Fla.
aldora-architectural.com

Employees: 350
Certifications: SGCC, Guardian Select Fabricator, Kuraray/SentryGlass
No. of locations: Five
Products offered: Tempered, insulating, laminated and decorative glass; fire-rated glass, spandrel and insulated-laminated glasses.
$35 to $50 million

**Custom Glass Products**
Weston, Wis.
customglassproductswi.com

Employees: 210  
Certifications: AGC, IGCC, SGCC, Guardian Select Fabricator  
No. of locations: Two  
Products offered: Tempered and insulating glass; heavy glass.

**J.E. Berkowitz LP**
Pedricktown, N.J.
jeberkowitz.com

Employees: 200  
Certifications: IGCC, SGCC, Guardian Select Fabricator, Kuraray/SentryGlas, Vitro/PPG Certified Fabricator  
No. of locations: One  
Products offered: Tempered, insulating, laminated glass and decorative; silkscreen.  
*J.E. Berkowitz is a Consolidated Glass Holdings company*

**Nashville Tempered Glass Inc.**
Nashville, Tenn.
ntglass.com

Employees: 190  
Certifications: AGC, Guardian Select Fabricator, Kuraray/SentryGlas, Vitro Certified Fabricator  
No. of locations: Two  
Products offered: Tempered, insulating, laminated and decorative glass; bent-tempered glass, spandrel, heat-soaked, tech glass, jumbo laminated glass.

**Northwestern Industries**
Seattle
nwglass.com

Employees: About 400  
Certifications: Guardian Select Fabricator, Vitro/PPG Certified Fabricator, Vitro/PPG Certified Laminator  
No. of locations: Two  
Products offered: Tempered, insulating and laminated glass.

**Solar Seal**
South Easton, Mass.
solarseal.com

Employees: 180  
Certifications: AGC, IGCC, SGCC, Guardian Select Fabricator, NSG/Pilkington, Vitro Certified Fabricator  
No. of locations: Three  
Products offered: Tempered, insulating and decorative glass.  
*Solar Seal is a subsidiary of Consolidated Glass Holdings, Grey Mountain Partners*

$20 million to $35 million

**AGNORA - Architectural Glass North America**
Collingwood, Ontario, Canada
agnora.com

Employees: 65  
Certifications: SGCC, IGCC, Kuraray/SentryGlas, NSG/Pilkington, Saint-Gobain  
No. of locations: One  
Products offered: Tempered, insulating, laminated and decorative glass; oversized glass.

**Bendheim***
Wayne, N.J.
bendheim.com

Employees: 180  
Certifications: SGCC  
No. of locations: Two  
Products offered: Tempered, laminated and decorative glass.

**CamGlass**
Broken Arrow, Okla.
camglass.com

Employees: 100  
No. of locations: One  
Products offered: Tempered, laminated and decorative glass.

**Dillmeier Glass**
Van Buren, Ark.
dillmeierglass.com

Employees: 170  
Certifications: Guardian Select Fabricator  
No. of locations: Two  
Products offered: Tempered, laminated and decorative glass; low-iron, acid etch and pattern glass.

**Glass and Mirror Craft**
Wixom, Mich.
glassandmirrorcraft.com

Employees: 200  
Certifications: IGCC, SGCC, Guardian Select Fabricator, Kuraray/SentryGlas  
No. of locations: One  
Products offered: Tempered, insulating, laminated and decorative glass.

**GlassSource**
Grand Haven, Mich.
glasssource.net

Employees: 110  
Certifications: Guardian Select Fabricator  
No. of locations: One  
Products offered: Tempered and decorative glass.

*Annual sales volume is an estimate, not confirmed by the company. ** Certification listings are not necessarily comprehensive. They reflect only those certifications publicly promoted by the respective certifying organizations.*
WORLD’S MOST EFFICIENT AUTOMATED COATING MACHINE
With the lowest labor costs in the industry

THE FUSECUBE™
The world’s top glass fabricators are turning to DFI’s FuseCube to streamline and automate their low-maintenance coating demands. With simple touch screen monitoring and a load-and-go cartridge system, all backed by a team who will stop at nothing to help you succeed, the choice is easy.

Unprecedented 3-Year Warranty

READY SET GO

Unbelievable Cost Savings
Virtually eliminate all labor and drastically cut material - saving up to 84% in costs.

Ensure Optimum Coverage
Fully automated system guarantees a uniform coating on both sides of the glass.

No Chemical Exposure

Keeps on Running
Innovative back-up delivery systems ensure production won’t slow down.

Eliminate Human Error
Prevent backward installations and issues with coating the wrong side of the glass.

Superior Protective Coating
Diamon-Fusion is an industry-trusted, low-maintenance coating used globally.

Call IGE: 1-800-919-7181 or online at www.igesolutions.com
Call DFI: 1-888-344-4334 or online at www.DFI-solutions.com

© 2018 Diamon-Fusion International
Glaz-Tech Industries Inc.*
Tucson, Ariz.
glaztech.com

Employees: 200
Certifications: Guardian Select Fabricator
No. of locations: Eight
Products offered: Tempered, insulating and laminated glass.
Glaz-Tech Industries also carries a storefront aluminum product line at one of its locations.

Global Security Glazing
Selma, Ala.
security-glazing.com

Employees: 88
Certifications: IGCC, SGCC, Guardian Select Fabricator, Kuraray/SentryGlas, Vitro/PPG Certified Fabricator
No. of locations: One
Products offered: Tempered, insulating and laminated glass; protective glazing.
Global Security Glazing is a division of Consolidated Glass Holdings, Grey Mountain Partners

Goldray Glass*
Calgary, Alberta, Canada
goldrayglass.com

Employees: 110
Certifications: SGCC
No. of locations: Two
Products offered: Tempered, laminated and decorative glass.

Insulite Glass Co.
Olathe, Kan.
insuliteglass.com

Employees: 175
Certifications: AGC, IGCC, SGCC, Guardian Select Fabricator, NSG/Pilkington, Vitro/PPG Certified Fabricator
No. of locations: Two
Products offered: Tempered, insulating, laminated and decorative glass; spandrel glass.

Multiver Ltd.*
Québec City, Québec, Canada
multiver.ca

Employees: 400
Certifications: IGCC, SGCC
No. of locations: Two
Products offered: Tempered, insulating, laminated and decorative glass; heat-soaked glass; manual or motorized integrated blinds.

Paragon Tempered Glass LLC
Antwerp, Ohio
paragontemperedglass.com

Employees: 165
Certifications: SGCC, Guardian-Anti-Reflective Coating, NSG/Pilkington
No. of locations: Two
Products offered: Tempered, insulating, laminated and decorative glass; bent-tempered glass.

Standard Bent Glass
Butler, Pa.
standardbent.com

Employees: 120
Certifications: SGCC, Guardian Select Fabricator, Kuraray/SentryGlas
No. of locations: One
Products offered: Tempered, insulating, laminated and decorative glass; security glass.

Thompson I.G.
Fenton, Mich.
thompsonig.com

Employees: 150
Certifications: IGCC, SGCC, Guardian Select Fabricator, Kuraray/SentryGlas, NSG/Pilkington, Vitro/PPG Certified Fabricator
No. of locations: One
Products offered: Tempered, insulating, laminated and decorative glass; dynamic glass; bullet-resistant glass.

W.A. Wilson Inc.*
Wheeling, W.V.
wawilsonglass.com

Employees: 95
Certifications: Guardian Select Fabricator, Vitro/PPG Qualified Fabricator
No. of locations: One
Products offered: Tempered and insulating glass; spandrel glass.

$10 to $20 million

Columbia Commercial Building Products
Rockwall, Texas
ccbpwin.com

Employees: 60
Certifications: IGCC, SGCC, Guardian Select Fabricator, Vitro/PPG Certified Fabricator
No. of locations: One
Products offered: Tempered and insulating glass.

*Annual sales volume is an estimate, not confirmed by the company. ** Certification listings are not necessarily comprehensive. They reflect only those certifications publicly promoted by the respective certifying organizations.
Complete Line Glass Fabricators - Distributors
San Antonio, Texas
completelineglass.com

Employees: 75
Certifications: AGC
No. of locations: Two
Products offered: Tempered and insulating glass.

Consolidated Glass Corp.
New Castle, Pa.
cgcglass.com

Employees: 75
Certifications: SGCC, Guardian Select Fabricator, Vitro/PPG Certified Fabricator
No. of locations: One

Products offered: Tempered and decorative glass; heat-soaking.

Dlubak Corp.
Blairsville, Pa.
dlubakglass.com

Employees: 90
Certifications: IGCC, SGCC, Guardian Select Fabricator, Kuraray/SentryGlas, Vitro/PPG Certified Fabricator
No. of locations: One
Products offered: Tempered, laminated and decorative glass; bent and curved glass; protective glazing.

Dlubak is a division of Consolidated Glass Holdings, Grey Mountain Partners

EFI*
Kernersville, N.C.
efi-us.com

Employees: 85
Certifications: SGCC, NSG/Pilkington
No. of locations: One
Products offered: Tempered, laminated and decorative glass; glass shelving; markerboards.

Flat Glass Distributors
Jacksonville, Fla.
flatglassdistributors.com

Employees: 70
Certifications: AGC, IGCC, SGCC, Guardian Select Fabricator
No. of locations: One

Products offered: Tempered, insulating and decorative glass.

GlasPro Inc.*
Santa Fe Springs, Calif.
glas-pro.com

Employees: 90
No. of locations: One
Products offered: Tempered, insulating, laminated and decorative glass.

Glass Dynamics
Stoneville, N.C.
glassdynamics.com

Employees: 130
Certifications: IGCC, SGCC, Guardian Select Fabricator, Vitro/PPG Certified Fabricator

EXPERT SERVICE, EXCELLENT PRODUCTS.

Our people are our greatest asset. JLM Wholesale is built on people - those who work for us, and those we do business with.

Our capabilities are numerous and we are determined to provide you with not only quality products, but expert support and advice. With three locations to efficiently serve your needs, JLM continually strives to be an industry leader.

To learn more, visit www.jlmwholesale.com or call us today
MI: (800) 522-2940 | NC: (800) 768-6050 | TX: (877) 347-5117
No. of locations: One
Products offered: Tempered, insulating, laminated and decorative glass.

**Glenny Glass Co.**
Cincinnati, Ohio
glennyglass.com

Employees: 95
Certifications: IGCC, SGCC, Guardian Select Fabricator, NSG/Pilkington

No. of locations: Two
Products offered: Tempered, insulating, laminated and decorative glass; spandrel glass; beveling; integrated blinds.

**InKan Ltd.**
Brampton, Ontario, Canada
inkan.ca

Employees: 80
Certifications: SGCC, Kuraray/SentryGlas

No. of locations: Two
Products offered: Tempered, laminated and decorative glass; spandrel glass.

**ITI Glass**
Bel Aire, Kan.
itiglass.com

Employees: 100
Certifications: Vitro Certified Fabricator

No. of locations: One
Products offered: Tempered, insulating and laminated glass; oversized glass; spandrel glass.

**Kensington Glass Arts**
Ijamsville, Md.
kensingtonglass.com

Employees: 35
Certifications: SGCC, Guardian Select Fabricator, NSG/Pilkington, Vitro/PPG Qualified Fabricator

No. of locations: One
Products offered: Tempered glass.

**M3 Glass Technologies**
Irving, Texas
m3glass.com

Employees: 110
Certifications: SGCC, Guardian Select Fabricator, Kuraray/SentryGlas, Vitro/PPG Certified Fabricator

No. of locations: One
Products offered: Tempered, laminated and decorative glass; glass treads and flooring.

**Midwest Glass Fabricators**
Highland, Mich.
mwgf.com

Employees: 112
No. of locations: Two
Products offered: Tempered glass; mirror.

**Precision Glass Bending**
Greenwood, Ark.
e-bentglass.com

Employees: 100

*Annual sales volume is an estimate, not confirmed by the company. ** Certification listings are not necessarily comprehensive. They reflect only those certifications publicly promoted by the respective certifying organizations.

---

**MAKE YOUR GLASS FABRICATION SAFER AND FASTER**

**STORE**
Products are constructed of heavy duty materials (no recycled materials or inferior steel used) which help them last longer and stand up to rugged conditions.

**TRANSPORT**
Complete with all items needed such as hold down bars, casters and straps to keep materials in place, as well as riveted rubber to keep steel in good shape.

**FABRICATE**
Built with the customer in mind, offering tremendous strength and support for every job they are needed for!

---

Groves Incorporated has been providing end-to-end material handling solutions for glass fabricators since 1960. From rugged storage systems to innovative transportation equipment, we have the tools to help you succeed.

---

WE KNOW HOW YOU MAKE A LIVING!

800.991.2120 Groves.com
TOP GLASS FABRICATORS

Certifications: SGCC, IGCC, Guardian Select Fabricator, Kuraray/SentryGlas, NSG/Pilkington
No. of locations: One
Products offered: Tempered, insulating, laminated and decorative glass.

TBM Inc.
Santa Ana, Calif.
tbmglass.com

Employees: 50
Certifications: SGCC, Kuraray/SentryGlas
No. of locations: One
Products offered: Tempering, insulating and laminated glass; bullet-resistant glass, glass flooring and stair treads.

Triview Glass Industries
City of Industry, Calif.
triviewglass.com

Employees: 105
Certifications: IGCC, SGCC, Guardian Select Fabricator, Kuraray/SentryGlas, NSG/Pilkington
No. of locations: One
Products offered: Tempered, insulating, laminated and decorative glass; fire-rated and anti-reflective glass.

United Plate Glass Co.*
Butler, Pa.
unitedplateglass.com

Employees: 120
Certifications: IGCC, SGCC, Guardian Select Fabricator, Vitro Certified Fabricator
No. of locations: Three
Products offered: Tempered and insulating glass.

NATION WIDE DISTRIBUTION.
QUALITY. RESOURCES. EXPERIENCE.

As part of the global Wurth family of companies, Marine Fasteners has unmatched resources to fulfill your fastener needs. Our knowledgeable staff represents over 700 years of fastener experience. We maintain 100% traceability, including chemical and physical documentation. Be assured, with our customer retention ratio of over 96% and a service degree of over 98%, we are here to help you meet your tight production schedule.

Contact us today for your fastener quote!

marine
FASTENERS
STAINLESS STEEL FASTENERS
(866) 246-3916
ISO 9001 Certified
SEVEN LOCATIONS:
FLORIDA | INDIANA | MISSOURI | ARIZONA | TEXAS | NEVADA | PENNSYLVANIA
www.marfas.com

NEW Matte Black Finish on Many Popular Shower Hardware Items

– Creates a Very Contemporary Look
– Ready for Immediate Shipment
• Hinges and Clamps
• Pull Handles
• Towel and Support Bars
• U-Channels

ushorizon.com
Phone: (877) 728-3874  |  Fax: (888) 440-9567

www.GlassMagazine.com 53
Woon-Tech
Whitinsville, Mass.
woon-tech.com

Employees: 60
Certifications: SGCC, Guardian Select Fabricator, NSG/Pilkington
No. of locations: One
Products offered: Tempered, laminated and decorative glass; safety, fire-rated, mirror, shower guards and bird glass.

$5 million to $10 million

All Counties Glass Distribution
Stockton, Calif.
allcountiesglass.com

Employees: 40
Certifications: IGCC, SGCC, Guardian Select Fabricator
No. of locations: One
Products offered: Tempered and insulating glass; mirror; spandrel.

Dundy Glass & Mirror Corp.*
Springfield Gardens, N.Y.
dundyglass.com

Employees: 25
Certifications: NSG/Pilkington, Kuraray/SentryGlas
No. of locations: One
Products offered: Tempered, insulating, laminated and decorative glass; back painted glass.

Galaxy Glass & Stone*
Fairfield, N.J.
galaxycustom.com

Employees: 45
Certifications: SGCC, Kuraray/SentryGlas
No. of locations: One
Products offered: Laminated and decorative glass.

Shower Doors & More Inc.
Ft. Lauderdale, Fla.
showerdoors.com

Employees: 29
Certifications: SGCC
No. of locations: One
Products offered: Tempered, insulating glass and decorative glass.

Tempco Glass Fabrication
Flushing, N.Y.
tempcoglass.com

Employees: 53
Certifications: SGCC, IGCC
No. of locations: One
Products offered: Tempered and insulating glass.

*Annual sales volume is an estimate, not confirmed by the company. ** Certification listings are not necessarily comprehensive. They reflect only those certifications publicly promoted by the respective certifying organizations.
MUTO Comfort — our manual sliding door system — is so easy to install, you’ll think we’re hiding something. We are! The compact header conceals multiple options and adjustable controls to enhance convenience and operation. Plus, glass cutting or drilling is not required — making MUTO the new standard for quick, precise and hassle-free installation. Versatile, convenient, compact and easy to install — MUTO is one smooth operator.

Call 800-523-8483 for more MUTO information.

DORMA and KABA are now dormakaba. Visit dormakaba.us
I N RECENT YEARS, glass has emerged as a critical design element for hospitals and healthcare facilities. Ample glass on the interior and exterior allows natural daylight to penetrate deeper into buildings, promoting patient comfort and accelerating recovery.

“Light impacts outcomes in healthcare settings by reducing depression among patients, decreasing length of stay in hospitals, improving sleep and circadian rhythm, lessening agitation among dementia patients, easing pain and improving adjustment to night-shift work among staff,” according to the Center for Health Design’s The Impact of Light on Outcomes in Healthcare report, which provides a comprehensive look at numerous studies on the effects of daylighting on health.

According to a 2016 Dodge Data & Analytics, construction.com, report on biophilic design, hospital patients with views of nature saw length of stays fall 8.5 percent, and patients in daylit rooms requested 22 percent less pain medication.

From glazed façades to interior glass railings and partitions, glass allows architects to meet goals for patient-centric design. And, designers increasingly want more from their glass products for healthcare applications. Designers are pushing the envelope even further by looking for glass in healthcare facilities that also provides elements of decorative design, meets occupant security requirements, offers privacy to patients and more.

The following glass Idea Book offers a wide range of examples of glass in healthcare facilities, from glass and metal modern exteriors to decorative interior and exterior solutions. For more examples of glass in healthcare facilities, visit GlassMagazine.com/March 2018.
DESIGNED FOR COMFORT  The glass- and metal-clad Legacy ER in Allen, Texas, is a freestanding emergency and urgent care facility designed for patient comfort and wellness. The 8,500-square-foot building features a modern design and simplified interior layout intended to create a calming environment for patients. Natural light, provided through the curtain wall enclosure, further promotes this goal. YKK AP, ykkap.com, supplied its YCW 750 SSG curtain wall, YCW 750 SplineTech curtain wall and YKK AP 35D entrance door for the project. MetalTech-USA, metaltech-usa.com, fabricated zinc panels for the exterior. 5G Studio Collaborative, 5gstudio.com, was the architect, and Southern Glass & Mirror, sgmplano.com, the contract glazier.

DECORATIVE DNA  A 10-by-38-foot decorative glass installation spans the four-story main stairwell at the Brigham and Women’s Hospital - Building of Transformative Medicine in Boston. The decorative wall consists of 15 individual laminated glass units consisting of two lites of ¼-inch Starphire tempered glass with a .060 custom decorative urethane interlayer. Surface No. 1 and No. 4 are laser engraved with a DNA sequence that starts at the bottom left and spans the wall. Quality Glass Works Inc., Watertown, Connecticut, was the glass fabricator; Vitro Architectural Glass, vitroglazings.com, was the glass manufacturer. The project architect was NBBJ, nbbj.com, and the Cheviot Corporation, cheviotcorp.com, the contract glazier.
HIGH-PERFORMANCE VIEWS  The three-story, 230,000-square-foot Promedica Health and Wellness Center in Sylvania, Ohio, features two open-air courtyards and a glass atrium that flood the gallery space with natural light and provide visual access to the outdoor environment. Architects from HKS Inc. chose Solarban 72 solar control low-emissivity glass with an ultra-transparent Starphire glass substrate to maximize the effects of that natural light and to provide a calm, healing aesthetic to patients. Vitro Architectural Glass, vitroglazings.com, was the glass manufacturer; Oldcastle BuildingEnvelope, obe.com, was the glass fabricator. Toledo Mirror and Glass, toledomirror.com, served as glazing contractor, and VM Systems, vmsystemsinc.com, as the façade contractor. Photo by Jim Cunningham.
QUIET AND CALM OUTDOORS Patterned glass railings enclose the Healing Garden at Kaiser Permanente Los Angeles Medical Center, a peaceful exterior space for hospital patients and visitors. The perimeter guardrail features a blue/green laminated glass that improves the acoustic ambiance of the garden and serves as a windscreen. C.R. Laurence Co., crlaurence.com, supplied its GRS Taper-Loc and GRS 1202 Glass Gate systems for the project; Trulite, trulite.com, fabricated the glass; Giroux Glass, girouxglass.com, was the glazing contractor. Photo by Carlos Gomez, Giroux Glass.

LIGHT AND BRIGHT INSIDE BWBR Architects, bwbr.com, designed the four-story, 130,000-square-foot HealthPartners Neuroscience Center, in St. Paul, Minnesota, to bring as much natural sunlight into the building as possible. Interior glass railings proved essential to achieving this goal, allowing unobstructed views to the outdoors and natural light throughout the main lobby and multi-level parking entranceway. The project features 541 linear feet of Trex Commercial Products’, trexcommercial.com, Dot series glass railing with ½-inch clear tempered glass on staircases ascending multiple levels and on balcony overlooks. Oldcastle BuildingEnvelope, obe.com, was the glass fabricator, and MG McGrath Architectural Glass and Glazing, mgmcgrath.com/architectural-glass-glazing, the glazing contractor.
ON-DEMAND PRIVACY Healthcare environments demand privacy solutions for patients. Switchable privacy glass provides a privacy solution that mitigates the infection risk inherent with more traditional window coverings, according to officials from Vistamatic, vistamatic.com. The company supplied its electronic switchable privacy glass to CapRock Hospital in College Station, Texas. The project features Vistamatic Clarity Smartglass with a liquid crystal interlayer that can switch from an opaque state to clear state with a switch of a button, allowing for both patient privacy and discrete staff observation. PhiloWilke Partnership, pwarch.com, served as architect, and Austin Glass & Mirror, austinglass.com, as glazing contractor.

PROTECT AND PERFORM Protective glazing products allowed architects from RLF Architects, rlfarchitects.com, U.S. Army Corps of Engineers to meet requirements for patient care and healing, along with fire-rated building codes and Department of Defense Anti-terrorism Standards at a new Army hospital in California. For the exterior, Safti First, safti.com, supplied its GPX Blast System, a two-hour fire-resistive, blast-rated curtain wall. For the interior, the company supplied the SuperLite II-XL 60 and 120 in GPX Architectural Series Framing for the one-hour fire-resistive atrium wall with warm gray spandrel for a decorative effect, and two-hour fire-resistive glazing for the stairwells. The glazing contractor was Sashco Inc., sashcoinc.com.
Perfect glass handling solutions for on-site and in-shop

**Vector 880**
- Lifting capacity up to 880 Lbs
- Dual vacuum systems
- Self-propelled
- Precision adjustment for glazing
- Glazes overhead
- Rotates and indexes IGU’s
- 24V electrical system
  **Options include:**
  - Capacity to lift stone and curved glass


**Forklift Glassboy 880**
- Lifting capacity up to 880 Lbs
- Horizontal tilt to 90 degrees with remote
- Side pivot glass either side for narrow access
- 360 degrees manual rotation
- Easily secures to forklift
- Dual vacuum systems
- Safety chain
  **Options include:**
  - Upgrade to 1320 Lbs
  - Capacity to lift stone and curved glass


Quattrrolifts

Through innovation
Saving time, money and injuries

301 748 7127
quattrrolifts@gmail.com
www.quattrrolifts.com
Industry Products

Top Glass Fabricators

Top Glass Fabricators, featured on pages 32-54, have introduced a range of new products designed to meet market demands, from calls for better thermal performance to additional capabilities and flexibility in decorative glass. The following are several new Top Glass Fabricator product introductions. For more, visit GlassMagazine.com/March2018.

Decorative Patterns from Skyline Design
Skyline Design introduced Transcend, a collection of six etched and printed glass patterns by designer Suzanne Tick. The patterns of Transcend are designed to intersect, overlap or fade, allowing for different degrees of translucency and privacy. Designers can customize scale, color and technique to meet project needs. Transcend is available on clear tempered safety glass and low-iron tempered safety glass, and in sizes up to 60 by 120 inches in standard glass thicknesses.
773/969-5886 | skydesign.com

Glass Engraving from Triview Glass Industries
Triview Glass Industries developed LaserLite Glass, a process for 3-D and 2-D engraving in and on glass substrates, including mirrors. Custom imagery, including photography, custom patterns and artwork, is captured into a monolithic glass panel. Glass illuminates readily, with standard LED and/or RGB LED strip lighting. LaserLite can be used for feature walls, interior and exterior graphics, signage, corporate identity, artistic imagery and other creative applications. The glass can be tempered or laminated after engraving. The process can be applied to substrates of any thickness in sizes up to 9 by 30 feet.
800/452-7745 | triviewglass.com

Jumbo Printing from Vitrum Glass Group
To meet demand for larger glass sizes, Vitrum Glass Group now offers digital printing with ceramic inks in sizes up to 110 by 200 inches. With unlimited colors, opacities and design options, glaziers and architects can realize their design vision without the cost and challenges of silk-screens, according to company officials. Customers can supply their own artwork or choose from one of Vitrum's exclusive ready-to-print designs. Vitrum's digital printing is suitable for a wide range of interior and exterior applications, and may be combined with laminated and tinted glass.
604/882-3513 | vitrum.ca

Thermal Spacer from Viracon
Viracon introduced the Viracon Thermal Spacer, a new thermal spacer technology that replaces the traditional combination of metal spacer, desiccant and primary sealant with a single component. The formulation of VTS consists of a black thermoplastic with integrated desiccant and primary sealant that is chemically bonded directly to the glass and secondary silicone sealant. The technology has been engineered to outperform conventional and other thermoplastic spacer systems, according to company officials. The extrusion of the thermoplastic along the edge of glass results in a smooth, continuous, matte black finish, delivering a monolithic aesthetic.
800/533-2080 | viracon.com
Rethink interior hardware...

- diverse and highly specialized product range
- short lead times
- easy to do business with

Stuck in a purchasing rut? Rethink your interior hardware source.
Break the buying habit with game-changing hardware and glazing supplies for almost any application from Bohle America. Premium quality products from one of the world’s most respected names in glass processing and finishing.

Practical Solutions for the Glass Professional
### Industry Products

#### Architectural glass

**Customized coating service**

Interpane launched Coating on Demand, a service for designers and architects that allows them to create a completely custom, from-scratch, high-performance low-emissivity coating. Coating on Demand allows designers to run a simulation of the custom glass on realistic renderings of the building and make demo samples. The process includes a one-day session where designers and architects can choose their design, play with glass color and performance, and calculate thickness. Through the Coating on Demand software, designers can also determine the composition of the glass based on the application type, load requirements, thermal requirements and soundproofing estimates.

781/927-4118 l interpane.com

#### Low-iron glass

AGC Glass developed Clearvision low-iron glass. Available in laminated, heat-treated, bent, silk-screened or insulated configurations, Clearvision can be specified for interiors and exteriors. When used in an insulating glass assembly, Clearvision’s double- and triple-glazing units provide 92 percent light transmission and maximize solar energy. In addition to its commercial architecture applications, Clearvision is optimal for residential applications, such as frameless and heavy glass shower enclosures, custom tabletops, shelving and display cases. Clearvision can be specified in a wide range of thicknesses, from 3 millimeters to 12 mm, with custom thicknesses available upon request. Clearvision is also Cradle to Cradle Certified Silver.

404/446-4200 l agcglass.com

#### Solar-control glass

Şişecam Flat Glass introduced a new heat- and solar-control insulating glass, the Şişecam Temperable Solar Control Low-E Neutral 62/44. The glass reduces heat loss from windows by 50 percent compared to traditional insulating glass units, according to the company. Additionally, the 62/44 series glass offers light transmittance of 60 percent and solar control of 43 percent, making it ideal for commercial buildings.

+(90) 8502-0650-50 l sise cam.com

#### Curtain wall

**Impact system**

YKK AP America announced its ProTek impact-resistant products, including the YHC 300 OG high-performance curtain wall, YHC 300 SSG Cassette pre-glazed curtain wall and YHW 60 TU pre-glazed window wall, will be standardized to meet Florida Building Code’s revised 2017 Florida Product Approvals. Pre-engineered anchor conditions will be expanded, and the mullion height of the YHC 300 curtain wall will more than double to reach as high as 324 inches. This will allow for bigger spans of pure glass on multi-story buildings, resulting in a cleaner aesthetic and improved daylighting.

678/838-6000 l ykkap.com

#### Decorative glass

**Organic textures**

Nathan Allan introduced organic textures to its interior designer glass selections. Organic textures clear or low-iron glass can be installed in wall dividers, partitions, doors, glass balustrades and heavy glass countertops, with various color options and privacy finishes available. The textured glass is available in standard or custom sizes up to 5 by 10 feet and in thicknesses of ¼ inch, ⅜ inch or ½ inch for safety tempered panels, or 1 ½ inches for heavy glass countertops.

604/535-8849 l nathanallan.com

**Pink back-painted glass**

Bendheim announced the new ruby swiss chocolate pink back-painted glass. The shade is available on fire-polished, semi-matte and matte Bendheim glass. The anti-glare matte and semi-matte SatinTech options are perfect for daylight-friendly wall cladding applications, according to company officials. In addition to the ruby chocolate, Bendheim offers a variety of warm pink hues in durable, colorable architectural glass, including: transparent pink laminated glass, pale pink mirror, and vibrant magenta textured mirror.

800/221-7379 l bendheim.com

#### Hardware

**Electrified mortise locksets**

Security Door Controls introduced the MLR Z7600 series motorized latch retraction mortise locksets. Designed for the access control of openings in commercial, industrial and institutional facilities, MLR Mortise Locksets are designed to ensure the door stays latched even when unlocked, maintaining fire-door integrity. MLR locksets comply with all national building and fire life safety code requirements for use on fire-rated doors where the use of electric strikes and magnetic locks is prohibited. The locksets are currently available in fail-secure mode that fea-
We sincerely would like to thank all our suppliers and customers who have played an invaluable part in our success.

- HIGH PERFORMANCE INSULATING GLASS
- TEMPERED GLASS
- SPANDREL / SILKSCREEN
- SHOWER ENCLOSURES
- ARCHITECTURAL / CUSTOM LAMINATED
- HEAVY GLASS / ALL GLASS ENTRANCES
- RESIDENTIAL GLASS
- SPECIALTY PRODUCTS
- FIRE RATED GLAZING
- HEAT SOAK
- OVERSIZED CAPABILITIES
industry products

features motorized low-current operation, as well as field selectable handing and optional full monitoring capability.

410/248-9228 | sdcsecurity.com

interlayers and films

protection film
Lamatek introduced Protek surface protection films to protect glossy and semi-matte surfaces. The films can be used to protect bare metals, pre-coated metals, aluminum profiles and glass against dust, scrapes, surface contaminants and UV rays during production, installation, shipping and handling. Protek utilizes high-tack, residue-free adhesives that remove cleanly even after extended outdoor aging, according to company officials. Protek can be specified to indoor and outdoor protection on a variety of sizes and components.

856/599-6000 | lamatek.com

machinery and equipment

crawler crane
Maeda announced the CC1485 telescopic boom crawler crane, which replaces Maeda’s LC785 model. The CC1485 features a 6.6-ton maximum lift capacity, a 98-inch wide, heavy-duty steel undercarriage and hydrostatic transmission. The crane offers a no-outrigger design with a 72.2-foot maximum hook height and near-zero tail swing. It also includes an available fly jib with multiple offset angles, black rubber or non-marking bolt-on track pads, single-part line ball and hook, and railroad rail drive attachment.

713/715-1500 | maedausa.com

cutting table
Biesse Group introduced the Genius RS-A cutting table. The Genius RS-A comes standard with Windows-based software, a loading tilt system with arms that automatically extend and retract for loading heavy glass, and an optional GCR low-emissivity coating removal system. According to the company, the table’s high grade of flatness provides the highest quality scores and fast cutting speeds of up to 200 meters per minute.

704/357-3131 | biessegroup.com

resources

website and brochure
Quality Metalcrafts/Americlad launched its new website, americlad.com, and released a new brochure. The new website and 20-page brochure offer architects, building owners and contractors the opportunity to better understand the different types of systems and components
Pyrobel Glass, PyroFrames™, and PyroDoors™

Pyrobel Fire-Resistive Glazing

- Protects against the threat of deadly radiant heat from 45 minutes up to 2 hours.
- Interlayer technology eliminates unsightly black spacers.
- 40% less water content than gel interlayers, ensuring optical stability to -20° F.

PyroFrames™ and PyroDoors™

- Narrow sightlines typical of roll-formed steel profiles.
- Sendzimir galvanizing inside and out plus high-performance finishes ensure lifetime durability.
- KD systems and fabricated assemblies available.
- Pyrobel, PyroFrames™ and PyroDoors™ are listed by Intertek in accordance with UL 263, UL 10c, and ASTM E 119 with hose stream.

Download GGI Fire-Rated product information today at www.generalglass.com

Contact GGI for more information: 800.431.2042 | sales@generalglass.com | generalglass.com
available to make more informed decisions in their selection process, according to company officials.

734/261-6700 | qualitymetalcraft.com

Tools

Tool tethers
Gear Keeper introduced Super Coil anchored tool tethers. With a low-force polyurethane elastic core that is woven throughout the entire body of the webbing, the Super Coil creates an 18-foot diameter working area that can retract to just 42 inches. The tether is designed for tools weighing up to 25 pounds. Super Coil comes in two models: model TL1-4021, which has two stainless steel carabiners load rated to a little over half a ton with gates; and model TL1-4025, which includes one stainless steel carabiner and a fixed web tool attachment loop. Both models include 1-inch tether webbing.

888/588-9981 | gearkeeper.com

Windows

Hinged and fixed windows
Western Window Systems introduced hinged and fixed windows to its Series 7000 aluminum windows and moving glass walls. The windows can be directly mulled to Series 7000 sliding doors, fixed window walls and hinged doors. The systems feature a frame depth that supports triple-pane, laminated and security glass. Depending on glass selection and sill type, U-values can reach 0.17 for a fixed window with triple-pane glass and 0.32 for a casement window. Windows are NFRC-tested, comply with California's Title 24 requirements and received a performance rating of CW-PG50.

877/268-1300 | westernwindowsystems.com

Frameless impact windows and doors
Faour Glass Technologies broadened its Slimpact frameless impact line, increasing the panel size and design pressures of its frameless impact windows by adding frameless impact doors and 90-degree corners. The window panel sizes increased from 5 by 10 feet to 8 by 12 feet, and the design pressures increased from +/- 60 pounds per square foot to +/- 110 pounds per square foot, all while continuing to meet Florida’s High Velocity Hurricane Zone wind-borne debris requirements.

800/929-4691 | faourglass.com
Knowledge

We understand your needs

Best-in-class technical support
On-time delivery
Unmatched inventory
State-of-the-art website
Seclock on-site®
Expand your brand with our drop ship program

From the newest technologies to the oldest locksets, knowledge is never a commodity. Whatever manufacturer or configuration you need, we deliver.

Master Distributor of ASSA ABLOY Commercial Door Hardware Brands.

WWW.SECLOCK.COM
800-847-5625
**EFCO**

EFCO, efcocorp.com, named Steven E. Westfall as president, effective Jan. 8. Westfall comes to EFCO from Tuthill Vacuum & Blower in Springfield, Missouri, where he has been president since 2013. He was instrumental in leading the transformation of the 125-year-old, family-owned industrial manufacturing business. From 2008 to 2013, Westfall led two companies owned by private equity firms, CST Storage and Detroit Tool Metal Products. Prior to that, he served as president and CEO of EaglePicher Technologies, a high technology organization that produces batteries for mission critical aerospace, defense and medical markets.

**The Wagner Cos.**

The Wagner Cos., wagnercompanies.com, hired Michael Dover as president. He assumes the position previously held by Rick Kettler who retired after an 18-year career with the company and a nine-year tenure as president. Dover brings 26 years of extensive manufacturing, sales and marketing experience to the company. For the last ten years, he served as president of Scan-Pac Manufacturing, a producer of industrial friction products targeting the drilling, mining, agricultural and transportation industries.

**CGH**

Consolidated Glass Holdings, cghinc.com, appointed Bob Price as vice president of strategic architectural sales and Sam Benowitz as vice president of point-supported glass and metal sales. As vice president of strategic architectural sales, Price will be responsible for developing CGH’s strategic growth accounts, as well as providing strategic direction to the company’s architectural sales teams. As vice president of point-supported glass and metal sales, Benowitz will be responsible for managing the sales team for CGH’s complete line of Invisiwall glass systems. They will both work with personnel at Columbia Commercial Building Products in Texas; J.E. Berkowitz in New Jersey; and Solar Seal in Connecticut, Massachusetts and Virginia.

**Paragon Tempered Glass LLC**

Paragon Tempered Glass LLC, paragontemperedglass.com, named Dan Wright president and promoted Tim Erli to the position of vice president of finance and accounting. Wright brings over 20 years of leadership experience in the glass industry. As president, Wright will have profit and loss responsibility for the Antwerp, Ohio, and Niles, Michigan, facilities. Erli has been the controller for both Paragon locations since February 2017. He brings 30 years of accounting and leadership experience with over 20 years in the manufacturing sector.

**Bohle America**

Bohle America, bohle-america.com, hired Connor Leahy Jr. as national sales director. Leahy will have responsibility over the inside and outside sales teams and will be charged with continuing to grow Bohle America’s sales footprint within North America. He will be based out of Bohle’s Charlotte, North Carolina, headquarters. Leahy joins Bohle America with more than a decade worth of sales management experience in the glass industry.

**J.E. Berkowitz**

J.E. Berkowitz, je-berkowitz.com, appointed Gary McQueen as senior director of sales and marketing. In his new role, McQueen will...
**Tin Side Detection Lamp**

The TS1470 Tin Side Detector is the perfect solution for brighter lit environments where it can be difficult to see the glowing tin side of the glass. It is ideal for testing single pieces of glass, as well as stacks of glass that have a small portion of the glass face exposed. The glowing light from the tin side can be easily viewed on the glass surface, as well as on the edge of the glass.

- Equipped with a comfortable Ergonomic handle
- Comes standard in a 115V version
- Displays milky white glow when encountering the tin-side of glass

**Low-E Detectors**

**Consistent and reliable meters with durable cases and quality electronics.**

- The "ETEKT+" Double Pane Low-E Detector has been the industry standard detector for over 25 years.
- Detect coatings on double pane windows in the field.

**Model # AE1601**

- The Single Pane Low-E Detector is designed for rigorous factory settings.
- Check both surfaces with a single test - a big time saver in production.

**Model # AE3600**

For our whole Low-E product line, visit edtm.com.
be responsible for managing JEB’s sales, estimating and project management personnel, as well as leading all marketing initiatives. McQueen joined JEB as architectural design manager in September 2014 and transitioned to director of architectural sales in January 2017.

**Quanex Building Products**
Quanex Building Products, quanex.com, hired Brian Ludwig as Northeast sales manager. Based in New York, Ludwig will be tasked with growing and expanding Quanex’s business in the territory. A 23-year industry veteran, Ludwig has experience through all parts of fenestration operations, including product design, manufacturing, sales and end-user support.

**Tubelite**
Tubelite Inc., tubeliteinc.com, named Jeff Wright as client development manager serving clients in Maryland, Washington, D.C., and northern Virginia. Based in Baltimore, he reports directly to Patrick Daniels, Tubelite regional sales manager. Wright and Daniels work closely with glazing contractors and architectural teams across the region to assist with storefront, curtain wall, entrances and daylight control systems.

**Barrett Ltd.**
Barrett Ltd., barrettlimited.com, hired Matt Hale as national business manager, specifically servicing architectural glass and hardware, and emerging markets for Barrett. Hale brings over 38 years of industry experience in float glass, automotive glass, fabricated glass, architectural aluminum, marketing and business development.

**Faour Glass Technologies**
Faour Glass Technologies, faourglass.com, welcomed Lee Webster as its newest architectural representative for northern Florida. Webster brings over 20 years’ experience in sales and as a business owner. He is also founder and CEO of Fenblik, the U.S. importer of Gaulhofer Windows & Doors, a European manufacturer of luxury windows and doors.

**Glaston**
Glaston, glaston.net, hired Kai Knuutila as digitalization manager, a newly created position. His goal will be to bring the power of the Industrial Internet of Things to glass processing equipment. Knuutila spent 13 years working for Nokia in many different roles, including system design and architecture. He then went on to work for Intel Corp. and Trelab, one of Glaston’s business partners that focuses on wireless sensor solutions that measure vibration, movement and other performance data in machinery.

**Apex Aluminum Extrusions**
Apex Aluminum Extrusions, aphextrusions.ca, welcomed Ken Rowson to the role of director of sales for its Apex Facade Systems division. He will be responsible for developing sales strategies, assisting in product design and leading all sales efforts for Apex’s architectural glazing system.

**Washington Glass Association**
Washington Glass Association, wg-a.org, appointed Patricia Hernandez as vice president. Hernandez is the Northwest regional sales manager for Vetrotech Saint-Gobain North America, saint-gobain-northamerica.com. She has more than 25 years of experience in the building materials industry and is active in numerous architectural and professional organizations.

**Graham Architectural Products**
Graham Architectural Products, Curtain Wall Solutions, grahamwindows.com, named Ken Schmidtchen general manager and Fred Grunewald national sales manager. As general manager, Schmidtchen will oversee the main functions of the business. He joined the company in May 2015 as engineering manager, and in February 2017, he was named operations manager of the facility. Grunewald joined the company in September 2012 as vice president and general manager. Most recently, he has been acting as the main sales contact for the business.

**In Memoriam**
**Peter John de Gorter**
President and CEO of DeGorter Inc., degorter.com, Peter John de Gorter, died suddenly of unknown causes on Dec. 29. He has been president and CEO of DeGorter Inc. since 1989. After graduating from the University of Miami, he dedicated his life to working in the family business, DeGorter Inc.

**John Hoisington**
Madison Heights Glass, mhglass.com, owner John Douglas Hoisington passed away at the age of 82 on Nov. 28. He enlisted in the U.S. Navy after high school, serving in the Korean War from June 1952 to December 1955, then entered the glass industry in Michigan after his honorable discharge. By the end of his career, he was recognized by the Glass Dealer’s Association for 50 years of excellence. Hoisington is survived by his children Taryn and Janelle, and grandchildren Elise, Shane, Zachary and Ethan.
REVOLUTIONARY SOLUTIONS FOR GLASS.

Discover the wide range of Made in Intermac solutions for glass processing.

Master Series, the new range of machining centers designed to meet the machine operator’s needs, maximizing efficiency, flexibility and productivity.

Busetti Series, double edging lines with the brand new patented Radius Revolution device for rounded or chamfered corners, both on diamond and polished edges.

INSIDE INTERMAC
19-20 APRIL 2018
CHARLOTTE, NC
X-RAY LEADED GLASS
McGrory Glass, Inc. can provide x-ray leaded glass products cut to size within 24 hours. Laminated/safety x-ray glass is also stocked for immediate availability.
E-mail: xray@mcgrory.com.
Ph: 800/220-3749
Fax: 856/579-3233
www.mcgrory.com

Vertical Edge Polisher For Sale
VE-1P variable speed polisher – NEVER BEEN USED.
Designed to produce quality edges on the most common range glass thicknesses and sizes. Edger has frame with grinding compartment, polishing wheel, drive motor, conveyor system, glass support frame, coolant tank and pump.

Priced at $9,000; shipping included in continental US. Contact Becky - 208/466-2476 or email - bec@asquetaglass.com

Full service drafting firm providing high quality, accurate, on time, and on budget shop drawings within the glass, and glazing industry. Providing shop drawings, and engineering services for projects located all over the country. Engineers licensed in over 45 states.

Our recent shop drawings and engineering projects are posted on our newly redesigned website.

If your looking for high quality and personal service, then we are the drafting firm for you. Please contact us for a free, fast, competitive, shop drawing, and/or engineering quote.

Kyle Schneck
Phone: (717) 228-7114
ksdraftingdesignllc.com
ksdraftingdesignllc.com
3911 Birchwood Circle
Harrisburg, PA 17110
7am – 5pm EST, Mon.-Fri.
WELL ESTABLISHED PROFITABLE GLASS COMPANY FOR SALE: 2-3M sales. Versatile business in Auto, Commercial, Residential, Industrial and Marine sectors makes this company recession resistant. Highly motivated staff with average tenure 9-10 yrs. Located between two major cities in south Louisiana. Contact don@innovativeman.com

BUSINESS FOR SALE
Well-established shop drawing business for sale specializing in aluminum entrances, storefronts, and curtainwalls. Work from home. $85k in gross sales; $65k in cash flow. Steady increase in sales year to year with excellent growth potential. Owner terms may be available with sufficient down payment. Serious inquiries only to: draftingbiz4sale@yahoo.com

GLASS SHOP FOR SALE
Glass shop in Greer, SC. Specializing in shower door install & repair. Established 14 yrs; two buildings totaling 8000 +/- sq ft of warehouse and showroom space. Annual sales: 900k-1M. Please contact Mae Roberts 864.201.2493

BUSINESS FOR SALE
Well-established and extremely profitable commercial glass and glazing company for sale in North Central California. Fully equipped with strong management team in place. Owner willing to assist with transition and support customer relationship. Revenues in excess of $25MM with underlying EBITDA averaging 18-20%. Please direct inquiries to JBazzano@BeaconExitPlanning.com

BUSINESS FOR SALE
Glass & Glazing Contractor w/ Retail Location & Showroom in Morro Bay, CA. Est.1970. $1M+sales. Seller fin. Broker BRE #01377597. (805)773-5447 info@garybayus.com

BUSINESS FOR SALE
Well-established shop drawing business for sale specializing in aluminum entrances, storefronts, and curtainwalls. Work from home. $85k in gross sales; $65k in cash flow. Steady increase in sales year to year with excellent growth potential. Owner terms may be available with sufficient down payment. Serious inquiries only to: draftingbiz4sale@yahoo.com

Diamond Glass Company is located in Central Florida and is looking for an Estimator/PM. Top pay, 401K and a signing Bonus. Please contact bkuhn@diamondglasscompany.com

ESTIMATOR
Come work in paradise! Key Glass is located on the West Coast of Florida and has been consistently listed among the Top 50 Glaziers in the nation. Ideal candidate will have a thorough knowledge of curtainwall, storefront, aluminum entrances & glass handrails. Possess the ability to work in a fast-paced environment, self-directed, excellent computer skills & 5 yrs experience working on large commercial glazing projects as a PM or Estimator. Family-founded business with amazing fellow employees. Competitive pay, Excellent Benefits. Send resume and salary requirements to miriamcarpenter@keyglass.com

PROJECT MANAGER & ESTIMATOR
HAWAIIAN ISLANDS
Reflections Glass Company
We are a highly respected brand on the Hawaiian Islands and we are looking for strong TEAM members who are not looking for a job, but a career in beautiful Hawaii. Forget the cold winters and enjoy summer every day of the year. Please submit your resume and salary requirements to Eric Carson - eric@reflections-glass.com

PROJECT MANAGER/ESTIMATOR NEEDED
Lake Shore Glass & Mirror Co. searching for an experienced commercial project manager/estimator. Company has been based out of Chicago since 1987 with annual sales of 10-15MM/year. Ideal candidate has minimum of 3 years in glazing/aluminum industry. Benefits, vacation, competitive salary, possible relocation assistance. Email resumes to: Seamus@lsglass.com

CONSULTANT SERVICES
SoleSource consultants
Full Service Consulting Programs
- Marketing   - Sales   - Codes
- Operations   - Research   & so much more!
salesourceconsultants.com | info@salesourceconsultants.com

HELP WANTED
ALLIANCE GLAZING TECHNOLOGIES
A Top 15 Glazing Contractor in the US with over 28 years of experience is growing its Irving, Texas team. AGT is known for its dedication and commitment to its employees, customers and community. We are currently looking for highly motivated, individuals for numerous job openings:

Senior Project Manager
Project Manager
General Superintendent

These full time positions offer excellent benefits and paid time off. Email resumes to HR@allianceglazing.com

Completely Committed
Radically Team Orientated
Extremely Passionate
Willing to go Above and Beyond

www.GlassMagazine.com 75
FOR SALE

60 Slot Harp Rack
$1170 Used. Pick-up only.
Quality Windows, Inc.
Oxnard, CA 93030
Call 805-984-5895;
Email amber@qualitywindows-doors.com

AMERACAN EQUIPMENT CORP.

YOUR TRUSTED SOURCE
FOR NEW AND USED
EQUIPMENT FOR THE
GLASS AND WINDOW
INDUSTRIES.

www.ameracanequipment.com
855/669-9108
303/669-9108

AMERACAN EQUIPMENT CORP.

Why wait for your sealed
units when you can have
them immediately at half
the cost? Call us today!

www.ameracanequipment.com
855/669-9108
303/669-9108

GLASS FABRICATION MACHINERY
Top selection of:
• Glass Tempering Furnaces
• CNC Water Jets
• Edging/Beveling
• EVA/PVB Laminating
• CNC Glass Cutting Tables
• CNC Milling/Routing
• Automatic Drilling
• Glass Handling
• Glass Washing
• Used equipment
Your complete source for true
“value” with over 700 ma-
chines currently in operation.

www.ervinsales.com
Ph: 916/933-8367

FOR SALE

9-year-old UCS90 pusher saw
with tables, computer, vacu-
um, and extra saw blade. Runs
on Partner Pack or Glaziers
Studio now. $15,000. Email:
jeremiah@alpineglassgj.com

FOR SALE

ALL MACHINES IN STOCK
Flat edgers. 4-spindle, 8-spindle and 9-spindle edg-
ers/mitter. 8-spindle beveler.
Shape edgers. Horizontal drill
w/tables. CNC water jets with
USA intensifiers. Horizontal
washers. Laminating ma-
chines non-autoclave for EVA,
PVB, Sentry PLC controlled.
Horizontal Low-E tempering
furnaces. Prices EXW Miami,
includes free installation/
training/spare parts. In-house
technical support. Over 600
machines sold and running.
Great inventory of parts in Mi-
ami. Free tech support for life
of machine. Only from Jordon
Glass. www.jordonglass.com
Ph: 800/833-2159 Email:
sales@jordonglass.com

AMERACAN EQUIPMENT CORP.

WE BUY AND SELL
USED GLASS & WINDOW
MACHINERY.
CONTACT US TODAY!

Call: (303) 669-9108 or
(855) 669-9108
Email: Dave@AmeracanEquipment.com
www.ameracanequipment.com

Glass Magazine
Employment Center

Post Your Resume
Confidential posting options allow you to control what
information can be accessed and searched by employers

Apply for Jobs
See exactly what employers see when previewing your
application before you apply

Get Job Alerts
Set the criteria for your ideal position and receive daily
updates when matching jobs are posted

SIGN UP NOW
Suppliers Guide

RAY-BAR
California, USA
Fastest Fire Glass Available
Phone: 800/444-9729
Fax: 800/333-9729
E-mail: sales@raybar.com
www.raybar.com

SAFTI FIRST
SAFTI FIRST® Fire Rated
Glazing
100 N. Hill Dr. Ste. 12
ADV
SGCC
888/653-3333
Fax: 415/824-9000
E-mail: info@safti.com
www.safti.com

McGRORY GLASS
McGrory Glass Inc.
1400 Grandview Ave.
Paulsboro, NJ 08066
Phone: 877/996-8065
Fax: 877/996-8065
E-mail: sales@mcgrory.com
www.mcgrory.com

Glassopolis
We Put Glass Contractors First
Fast Quotes. Fast Delivery
Phone: 800/262-9600
Fax: 800/872-9601
E-mail: sales@glassopolis.com
www.glassopolis.com

HANDRAILS
Precision Glass Bending
Precision Glass Bending Corp.
PO. Box 1970
3811 Hwy. 10 West
Greenwood, AR 72937-1970
US: 800/543-8796
E-mail: info@ebentglass.com
www.e-bentglass.com

HEAT STRENGTHENED

PATTERNED

LOW-EMISSIVITY

LOW IRON

PRIVACY, ELECTRICALLY SWITCHABLE

SECURITY

Innovative Glass Corp.
Smarter Glass Solutions
For Every Industry
Plainview, NY 11803
Phone: 516/777-1100
Fax: 516/777-1106
E-mail: info@innovativelglascorp.com
www.innovativelglascorp.com

Dlubak Specialty Glass Corp.
520 Chestnut St.
Blairsville, PA 15717
US: 800/336-0562
Phone: 724/459-9540
Fax: 724/459-0866
E-mail: mkearns@dlubakscg.com
www.dlubakglass.com

Dlubak

Glassopolis
We Put Glass Contractors First
Fast Quotes. Fast Delivery
Phone: 800/262-9600
Fax: 800/872-9601
E-mail: sales@glassopolis.com
www.glassopolis.com

McGRORY GLASS
McGrory Glass Inc.
1400 Grandview Ave.
Paulsboro, NJ 08066
Phone: 800/220-3749
Fax: 856/579-9857
E-mail: sales@mcgrory.com
www.mcgrory.com

Glassopolis
We Put Glass Contractors First
Fast Quotes. Fast Delivery
Phone: 800/262-9600
Fax: 800/872-9601
E-mail: sales@glassopolis.com
www.glassopolis.com

Handy Glass

Handy Glass

Handy Glass
PAINTED

GGI
101 Venture Way
Secaucus, NJ 07094
US: 800/431-2042
Phone: 214/614-9650
Fax: 214/614-9650
E-mail: sales@glassopolis.com
www.glassopolis.com

BIFOLD
NanaWall Systems Inc.
100 Meadowcreek Dr., Ste. 250
Corte Madera, CA 94925
US: 800/873-5673
Phone: 415/383-4972
Fax: 415/383-0312
E-mail: info@nanawall.com
www.nanawall.com

BUMPERS
JLM Wholesale Inc.
3095 Mullins Ct.
Oxford, MI 48371
US: 800/522-2940
Phone: 248/628-6440
Fax: 800/782-1160
E-mail: sales@jlmwholesale.com
www.jlmwholesale.com

CLOSING DEVICES
JLM Wholesale Inc.
3095 Mullins Ct.
Oxford, MI 48371
US: 800/522-2940
Phone: 248/628-6440
Fax: 800/782-1160
E-mail: sales@jlmwholesale.com
www.jlmwholesale.com

DEADBOLTS
JLM Wholesale Inc.
3095 Mullins Ct.
Oxford, MI 48371
US: 800/522-2940
Phone: 248/628-6440
Fax: 800/782-1160
E-mail: sales@jlmwholesale.com
www.jlmwholesale.com

HINGES
JLM Wholesale Inc.
3095 Mullins Ct.
Oxford, MI 48371
US: 800/522-2940
Phone: 248/628-6440
Fax: 800/782-1160
E-mail: sales@jlmwholesale.com
www.jlmwholesale.com

LATCHES
JLM Wholesale Inc.
3095 Mullins Ct.
Oxford, MI 48371
US: 800/522-2940
Phone: 248/628-6440
Fax: 800/782-1160
E-mail: sales@jlmwholesale.com
www.jlmwholesale.com

OPENING DEVICES
JLM Wholesale Inc.
3095 Mullins Ct.
Oxford, MI 48371
US: 800/522-2940
Phone: 248/628-6440
Fax: 800/782-1160
E-mail: sales@jlmwholesale.com
www.jlmwholesale.com

DOORS & RELATED PRODUCTS

BIFOLD
NanaWall Systems Inc.
100 Meadowcreek Dr., Ste. 250
Corte Madera, CA 94925
US: 800/873-5673
Phone: 415/383-4972
Fax: 415/383-0312
E-mail: info@nanawall.com
www.nanawall.com

BUMPERS
JLM Wholesale Inc.
3095 Mullins Ct.
Oxford, MI 48371
US: 800/522-2940
Phone: 248/628-6440
Fax: 800/782-1160
E-mail: sales@jlmwholesale.com
www.jlmwholesale.com

CLOSING DEVICES
JLM Wholesale Inc.
3095 Mullins Ct.
Oxford, MI 48371
US: 800/522-2940
Phone: 248/628-6440
Fax: 800/782-1160
E-mail: sales@jlmwholesale.com
www.jlmwholesale.com

DEADBOLTS
JLM Wholesale Inc.
3095 Mullins Ct.
Oxford, MI 48371
US: 800/522-2940
Phone: 248/628-6440
Fax: 800/782-1160
E-mail: sales@jlmwholesale.com
www.jlmwholesale.com

HINGES
JLM Wholesale Inc.
3095 Mullins Ct.
Oxford, MI 48371
US: 800/522-2940
Phone: 248/628-6440
Fax: 800/782-1160
E-mail: sales@jlmwholesale.com
www.jlmwholesale.com

LATCHES
JLM Wholesale Inc.
3095 Mullins Ct.
Oxford, MI 48371
US: 800/522-2940
Phone: 248/628-6440
Fax: 800/782-1160
E-mail: sales@jlmwholesale.com
www.jlmwholesale.com

OPENING DEVICES
JLM Wholesale Inc.
3095 Mullins Ct.
Oxford, MI 48371
US: 800/522-2940
Phone: 248/628-6440
Fax: 800/782-1160
E-mail: sales@jlmwholesale.com
www.jlmwholesale.com

Doors & Related Products

GENERAL

Oldcastle BuildingEnvelope®
Over 77 Manufacturing Locations Throughout North America
US: 866-OLDCASTLE
(633-2278)
www.oabe.com

ALUMINUM

Oldcastle BuildingEnvelope®
Over 77 Manufacturing Locations Throughout North America
US: 866-OLDCASTLE
(633-2278)
www.oabe.com

BALCONIES: HIGH-RISE BUILDINGS

Oldcastle BuildingEnvelope®
Over 77 Manufacturing Locations Throughout North America
US: 866-OLDCASTLE
(633-2278)
www.oabe.com

ENTRANCE SYSTEMS: METAL

Oldcastle BuildingEnvelope®
Over 77 Manufacturing Locations Throughout North America
US: 866-OLDCASTLE
(633-2278)
www.oabe.com

FIRE-RATED

Oldcastle BuildingEnvelope®
Over 77 Manufacturing Locations Throughout North America
US: 866-OLDCASTLE
(633-2278)
www.oabe.com

Stybul Industries
2006 Elwood Ave, Building 102
Sharon, PA 15077-0767
US: 800/352-8080
Phone: 610/534-3200
Fax: 610/534-3202
E-mail: cservice@stybul.com
www.stybul.com

ACCESS CONTROL

JLM Wholesale Inc.
3095 Mullins Ct.
Oxford, MI 48371
US: 800/522-2940
Phone: 248/628-6440
Fax: 800/782-1160
E-mail: sales@jlmwholesale.com
www.jlmwholesale.com

Barn Door Hardware

GGI
101 Venture Way
Secaucus, NJ 07094
US: 800/431-2042
Phone: 214/614-9650
Fax: 214/614-9650
E-mail: sales@glassopolis.com
www.glassopolis.com

82 Glass Magazine® • March 2018
SAFTI FIRST™ Fire Rated Glazing
100 N. Hill Dr., Ste. 12
Brisbane, CA 94005-1010
US: 888/873-5673
Phone: 415/383-4972
Fax: 415/383-0312
E-mail: info@nanawall.com
www.nanawall.com

STOREFRONTS & ENTRANCES
Oldcastle BuildingEnvelope®
Oldcastle BuildingEnvelope® Over 77 Manufacturing Locations Throughout North America
US: 666-OLDCASTLE (653-2278)
www.abe.com
Vetrotech Saint-Gobain Fire-Rated Glass and Framing
2108 S. NW. Ste. 110
Auburn, WA 98001
US: 888/803-9533
E-mail: vetrotech.sales@saint-gobain.com
www.vetrotechnusa.com

GLASS HANDLING, PACKAGING & STORAGE
GLASS HANDLING, PACKAGING & STORAGE

glass
with
high,

set

2000

lb.

The GM 2000-26

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLASSLINE

GLAS...
POLYCARBONATE LAMINATES

Global Security Glazing
616 Sellefield Rd.
Selma, AL 36703
US: 800/633-2513
Phone: 334/875-1900
Fax: 334/875-2704
E-mail: csnyder@security-glazing.com
www.security-glazing.com

MACHINERY & EQUIPMENT

GENERAL

Casso-Solar Technologies LLC
506 Airport Executive Park
Nanuet, NY 10954
Phone: 845/354-2010
Fax: 845/547-0328
E-mail: sales@cassosolartechnologies.com
www.cassosolartechnologies.com

Erman Automation
1603 S. 14th Ave.
Princeton, MN 55371
Phone: 866/776-6177
Fax: 763/389-9757
E-mail: eac@ermanautomation.com
www.ermanautomation.com

ASSEMBLY

Mueller TB Technologies AG
Laubsacherstrasse 72
CH-8712 Stafel
Switzerland
Phone: 905/247-3400
Fax: +41.44-926-6774
E-mail: info@mueller-ag.ch
www.mueller-ag.ch

BENDING

Casso-Solar Technologies LLC
506 Airport Executive Park
Nanuet, NY 10954
Phone: 845/354-2010
Fax: 845/547-0328
E-mail: sales@cassosolartechnologies.com
www.cassosolartechnologies.com

BEVELING

Casso-Solar Technologies LLC
506 Airport Executive Park
Nanuet, NY 10954
Phone: 845/354-2010
Fax: 845/547-0328
E-mail: sales@cassosolartechnologies.com
www.cassosolartechnologies.com

CENTRIFUGE

Glassline Corp.
28905 Glenwood Rd.
PO. Box 147
Perrysburg, OH 43552
Phone: 419/666-5942
Fax: 419/666-1594
E-mail: sales@glassline.com
www.glassline.com

Drilling

Glassline Corp.
28905 Glenwood Rd.
PO. Box 147
Perrysburg, OH 43552
Phone: 419/666-5942
Fax: 419/666-1594
E-mail: sales@glassline.com
www.glassline.com

COATING

Casso-Solar Technologies LLC
506 Airport Executive Park
Nanuet, NY 10954
Phone: 845/354-2010
Fax: 845/547-0328
E-mail: sales@cassosolartechnologies.com
www.cassosolartechnologies.com

CUTTING

Glassline Corp.
28905 Glenwood Rd.
PO. Box 147
Perrysburg, OH 43552
Phone: 419/666-5942
Fax: 419/666-1594
E-mail: sales@glassline.com
www.glassline.com

DECORATING

Casso-Solar Technologies LLC
506 Airport Executive Park
Nanuet, NY 10954
Phone: 845/354-2010
Fax: 845/547-0328
E-mail: sales@cassosolartechnologies.com
www.cassosolartechnologies.com

DRILLING

Glassline Corp.
28905 Glenwood Rd.
PO. Box 147
Perrysburg, OH 43552
Phone: 419/666-5942
Fax: 419/666-1594
E-mail: sales@glassline.com
www.glassline.com

DRIYING

Glassline Corp.
28905 Glenwood Rd.
PO. Box 147
Perrysburg, OH 43552
Phone: 419/666-5942
Fax: 419/666-1594
E-mail: sales@glassline.com
www.glassline.com

EDGING

Glassline Corp.
28905 Glenwood Rd.
PO. Box 147
Perrysburg, OH 43552
Phone: 419/666-5942
Fax: 419/666-1594
E-mail: sales@glassline.com
www.glassline.com

FURNACES

Casso-Solar Technologies LLC
506 Airport Executive Park
Nanuet, NY 10954
Phone: 845/354-2010
Fax: 845/547-0328
E-mail: sales@cassosolartechnologies.com
www.cassosolartechnologies.com

GRINDING & POLISHING

Cassosolar Technologies LLC
506 Airport Executive Park
Nanuet, NY 10954
Fax: 845/547-0328
Phone: 845/354-2010
E-mail: sales@cassosolartechnologies.com
www.cassosolartechnologies.com

HEATING ELEMENTS

Cassosolar Technologies LLC
506 Airport Executive Park
Nanuet, NY 10954
Fax: 845/547-0328
Phone: 845/354-2010
E-mail: sales@cassosolartechnologies.com
www.cassosolartechnologies.com

INSPECTION SYSTEMS

Cassosolar Technologies LLC
506 Airport Executive Park
Nanuet, NY 10954
Fax: 845/547-0328
Phone: 845/354-2010
E-mail: sales@cassosolartechnologies.com
www.cassosolartechnologies.com

INSULATING GLASS

Cassosolar Technologies LLC
506 Airport Executive Park
Nanuet, NY 10954
Fax: 845/547-0328
Phone: 845/354-2010
E-mail: sales@cassosolartechnologies.com
www.cassosolartechnologies.com

LASERS: MARKING

Cassosolar Technologies LLC
506 Airport Executive Park
Nanuet, NY 10954
Fax: 845/547-0328
Phone: 845/354-2010
E-mail: sales@cassosolartechnologies.com
www.cassosolartechnologies.com

LEHRS

Cassosolar Technologies LLC
506 Airport Executive Park
Nanuet, NY 10954
Fax: 845/547-0328
Phone: 845/354-2010
E-mail: sales@cassosolartechnologies.com
www.cassosolartechnologies.com

PAINTING

Cassosolar Technologies LLC
506 Airport Executive Park
Nanuet, NY 10954
Fax: 845/547-0328
Phone: 845/354-2010
E-mail: sales@cassosolartechnologies.com
www.cassosolartechnologies.com

PHOTOVOLTAIC PANEL EQUIPMENT MFG. SYSTEMS

Cassosolar Technologies LLC
506 Airport Executive Park
Nanuet, NY 10954
Fax: 845/547-0328
Phone: 845/354-2010
E-mail: sales@cassosolartechnologies.com
www.cassosolartechnologies.com

SANDBLASTING

Cassosolar Technologies LLC
506 Airport Executive Park
Nanuet, NY 10954
Fax: 845/547-0328
Phone: 845/354-2010
E-mail: sales@cassosolartechnologies.com
www.cassosolartechnologies.com

SCREEN PRINTING

A.W.T. World Trade Inc.
321 N. Kress Ave.
Chicago, IL 60641
Phone: 773/777-7100
Fax: 773/777-2099
E-mail: sales@awt-gpi.com
www.awt-gpi.com

(See our ad on page 84)
**SUPPLIERS GUIDE**

**TEMPERING**

Jordon Glass Machinery
6320 NW 99th Ave.
Doral, FL 33178
US: 800/835-219
Phone: 305/482-0116
Fax: 305/482-0119
www.jordonglass.com

---

**METAL PRODUCTS**

**GENERAL**

Niles Aluminum Products
1434 S. 9th St.
PO. Box 607
Niles, MI 49120-0607
Phone: 269/683-1191
Fax: 269/683-8664
E-mail: nilesaluminum@bbglobal.net
www.nilesaluminum.com

---

**METALS: CURVING**

Rimac Metal Curving Specialists
265 Applewood Crescent
Concord, ON L4K 4E7
Canada
US: 800/361-4012
Phone: 905/669-6963
E-mail: rimac@metalcurving.com
www.metalcurving.com

---

**EXTRUSIONS**

**ALUMINUM**

Rimac Metal Curving Specialists
265 Applewood Crescent
Concord, ON L4K 4E7
Canada
US: 800/361-4012
Phone: 905/669-6963
E-mail: rimac@metalcurving.com
www.metalcurving.com

---

**METALS: PAINTING**

Linetec
7500 Stewart Ave.
Wausau, WI 54401
US: 888/717-1472
Phone: 715/843-4100
Fax: 715/843-4121
E-mail: sales@linetec.com
www.linetec.com

---

**METALS: ARCHITECTURAL**

Niles Aluminum Products
1434 S. 9th St.
PO. Box 607
Niles, MI 49120-0607
Phone: 269/683-1191
Fax: 269/683-8664
E-mail: nilesaluminum@bbglobal.net
www.nilesaluminum.com

---

**WASHING**

Marc Prevost Machinery
3875 St. Jean Baptiste Blvd.
Montreal, QC H1B 5V4
Canada
Phone: 514/640-4040
Fax: 514/640-5454
E-mail: info@mpm.ca
www.mpm.ca

---

**VACUUM TABLE HOLDDOWN**

A.W.T. World Trade Inc.
4211 N. Knox Ave.
Chicago, IL 60641
Phone: 773/777-7100
Fax: 773/777-0909
E-mail: sales@awt-gpi.com
www.awt-gpi.com

---

**SEAMING**

Glassline Corp.
28905 Glenwood Rd.
PO. Box 147
Perrysburg, OH 43552
Phone: 419/666-5942
Fax: 419/666-1549
E-mail: sales@glassline.com
www.glassline.com

---

**METALS: CANDY**

Niles Aluminum Products
1434 S. 9th St.
PO. Box 607
Niles, MI 49120-0607
Phone: 269/683-1191
Fax: 269/683-8664
E-mail: nilesaluminum@bbglobal.net
www.nilesaluminum.com

---

**GASSOLAR TECHNOLOGIES**

Casso-Solar Technologies LLC
506 Airport Executive Park
Narurt, NY 10954
Phone: 845/354-2010
Fax: 845/547-0328
E-mail: sales@cassosolaretechnologies.com
www.cassosolaretechnologies.com

---

**ANCIENT**

Stylmark Inc.
6536 Main St. NE
Minneapolis, MN 55432
US: 800/328-2495
Phone: 763/574-7474
Fax: 763/574-1415
E-mail: info@stylmark.com
www.stylmark.com

---

**WARDROBE DOORS**

Stylmark Inc.
6536 Main St. NE
Minneapolis, MN 55432
US: 800/328-2495
Phone: 763/574-7474
Fax: 763/574-1415
E-mail: info@stylmark.com
www.stylmark.com

---

**STYLING**

Stylmark Inc.
6536 Main St. NE
Minneapolis, MN 55432
US: 800/328-2495
Phone: 763/574-7474
Fax: 763/574-1415
E-mail: info@stylmark.com
www.stylmark.com

---

**STYLING**

Stylmark Inc.
6536 Main St. NE
Minneapolis, MN 55432
US: 800/328-2495
Phone: 763/574-7474
Fax: 763/574-1415
E-mail: info@stylmark.com
www.stylmark.com

---

**SPORTS & RELATED PRODUCTS**

**METALS: PAINTING**

Linetec
7500 Stewart Ave.
Wausau, WI 54401
US: 888/717-1472
Phone: 715/843-4100
Fax: 715/843-4121
E-mail: sales@linetec.com
www.linetec.com

---

**ANTIQUE**

GGI
101 Venture Way
Secaucus, NJ 07094
US: 201/533-2043
Phone: 201/533-1850
Fax: 201/533-1850
E-mail: sales@generallglas.com
www.generallglas.com

---

**RELATED PRODUCTS**

**METALS: PAINTING**

Linetec
7500 Stewart Ave.
Wausau, WI 54401
US: 888/717-1472
Phone: 715/843-4100
Fax: 715/843-4121
E-mail: sales@linetec.com
www.linetec.com

---

**ANCIENT**

Stylmark Inc.
6536 Main St. NE
Minneapolis, MN 55432
US: 800/328-2495
Phone: 763/574-7474
Fax: 763/574-1415
E-mail: info@stylmark.com
www.stylmark.com

---

**SPRAYING**

Cass-Solar Technologies LLC
506 Airport Executive Park
Narurt, NY 10954
Phone: 845/354-2010
Fax: 845/547-0328
E-mail: sales@cassosolaretechnologies.com
www.cassosolaretechnologies.com

---

**ASSISTING IN GLASS MACHINERY**

Jordon Glass Machinery
6320 NW 99th Ave.
Doral, FL 33178
US: 800/835-219
Phone: 305/482-0116
Fax: 305/482-0119
www.jordonglass.com

---

**ASSISTING IN GLASS MACHINERY**

Specializing in Glass Machinery
- Convection Tempering Furnaces
- Non-Auto clave Laminating (EVA, PVB, Sentry™)
- Flat Edge	s
- Miter Machines
- Horizontal/Vertical Glass Washers
- Horizontal Double Drills
- Bowers
- Water Jets
- Sand Blasters
- Glass Cutting Tables
- Chemical Glass Tempering
Large Inventory • Ready to Ship
Visit our showroom in Miami

---

**ASSISTING IN GLASS MACHINERY**

Phone: (800) 835-219
Fax: (800) 462-0119
www.jordonglass.com
<table>
<thead>
<tr>
<th>Advertiser</th>
<th>Page</th>
<th>Phone</th>
<th>Web site or e-mail address</th>
</tr>
</thead>
<tbody>
<tr>
<td>A.W.T. World Trade Inc.</td>
<td>84</td>
<td>773/777-7100</td>
<td>awt-gpi.com</td>
</tr>
<tr>
<td>Aluflam North America</td>
<td>8</td>
<td>562/926-9520</td>
<td>aluflam-usa.com</td>
</tr>
<tr>
<td>Apex Façade Systems</td>
<td>6</td>
<td>866/970-5948</td>
<td>apexfacades.com</td>
</tr>
<tr>
<td>Bacon &amp; Van Buskirk</td>
<td>87</td>
<td>800/747-6471</td>
<td>bamuntins.com</td>
</tr>
<tr>
<td>Bohle America Inc.</td>
<td>63</td>
<td>877/678-2021</td>
<td>bohle-america.com</td>
</tr>
<tr>
<td>C.R. Laurence</td>
<td>7</td>
<td>800/421-6144</td>
<td>Email: <a href="mailto:crl@crlaurence.com">crl@crlaurence.com</a></td>
</tr>
<tr>
<td>Calusa Glass Industries</td>
<td>82</td>
<td>800/759-9895</td>
<td>calusabarndoorhardware.com</td>
</tr>
<tr>
<td>Cristacurva</td>
<td>79</td>
<td>866/827-6049</td>
<td>cristacurva.com</td>
</tr>
<tr>
<td>Curved Glass Distributors</td>
<td>80</td>
<td>888/288-9129</td>
<td>curvedglasscreations.com</td>
</tr>
<tr>
<td>Dependable Glass Works</td>
<td>70</td>
<td>800/338-2414</td>
<td>dependableglass.com</td>
</tr>
<tr>
<td>Diamon-Fusion International Inc.</td>
<td>49</td>
<td>888/344-4334</td>
<td>dfisolutions.com</td>
</tr>
<tr>
<td>Dlubak Specialty Glass Corp.</td>
<td>80</td>
<td>800/336-0562</td>
<td>dlubakglass.com</td>
</tr>
<tr>
<td>dormakaba</td>
<td>55</td>
<td>800/523-8483</td>
<td>dormakaba.us</td>
</tr>
<tr>
<td>EDM Inc.</td>
<td>71</td>
<td>419/861-1030</td>
<td>edtm.com</td>
</tr>
<tr>
<td>Ergo Robotic Solutions</td>
<td>73</td>
<td>419/861-1030</td>
<td>ergorobotic.com</td>
</tr>
<tr>
<td>FeneTech Inc.</td>
<td>25</td>
<td>330/995-2830</td>
<td>fenetech.com</td>
</tr>
<tr>
<td>GDS Storefront Estimating</td>
<td>80</td>
<td>858/538-4375</td>
<td>gdestimating.com</td>
</tr>
<tr>
<td>GGI</td>
<td>67</td>
<td>800/431-2042</td>
<td>generalglass.com</td>
</tr>
<tr>
<td>GlassBuild America</td>
<td>15</td>
<td>866/342-5642 ext. 300</td>
<td>glassbuildamerica.com</td>
</tr>
<tr>
<td>Glassfab Tempering Services</td>
<td>65</td>
<td>800/490-3860</td>
<td>glassfabtempering.com</td>
</tr>
<tr>
<td>GlassKote USA</td>
<td>77</td>
<td>866/664-5683</td>
<td>glasskoteusa.com</td>
</tr>
<tr>
<td>Glasswerks</td>
<td>66</td>
<td>888/789-7810</td>
<td>glasswerks.com</td>
</tr>
<tr>
<td>Groves Inc.</td>
<td>52</td>
<td>800/991-2120</td>
<td>groves.com</td>
</tr>
<tr>
<td>GuangDong Kin Long Hardware</td>
<td>21</td>
<td>86-769-8216666 ext. 83139</td>
<td>E-mail: <a href="mailto:mail@kinlong.com">mail@kinlong.com</a></td>
</tr>
<tr>
<td>Guardian Glass</td>
<td>27</td>
<td>518/799-2179</td>
<td>guardianjumboglass.com</td>
</tr>
<tr>
<td>HHH Tempering Resources Inc.</td>
<td>29</td>
<td>724/472-4319</td>
<td>hhhtempering.com</td>
</tr>
<tr>
<td>Indital USA</td>
<td>22</td>
<td>800/772-4706</td>
<td>indital.com</td>
</tr>
<tr>
<td>Intermac USA</td>
<td>73</td>
<td>800/772-4706</td>
<td>intermac.com</td>
</tr>
<tr>
<td>J.E. Berkowitz LP</td>
<td>15</td>
<td>800/772-2523</td>
<td>cghinc.com/wp/companies</td>
</tr>
<tr>
<td>JLM Wholesale</td>
<td>51</td>
<td>800/522-2940</td>
<td>jlmwholesale.com</td>
</tr>
<tr>
<td>Jordon Glass Machinery</td>
<td>86</td>
<td>800/833-2159</td>
<td>jordonglass.com</td>
</tr>
<tr>
<td>Liberty Glass &amp; Metal Industries</td>
<td>88</td>
<td>800/843-2031</td>
<td>lgminc.net</td>
</tr>
<tr>
<td>Marine Fasteners Inc.</td>
<td>53</td>
<td>866/246-3916</td>
<td>marfas.com</td>
</tr>
<tr>
<td>Midwest Wholesale Hardware</td>
<td>17</td>
<td>800/821-8527</td>
<td>midwestwholesale.com</td>
</tr>
<tr>
<td>Modernfold</td>
<td>3</td>
<td>800/869-9685</td>
<td>modernfold.com</td>
</tr>
<tr>
<td>MyGlassTruck.com</td>
<td>12</td>
<td>800/254-3643</td>
<td>myglasstruck.com</td>
</tr>
<tr>
<td>NGA &amp; GANA</td>
<td>91</td>
<td>800/254-3643</td>
<td>glass.org</td>
</tr>
<tr>
<td>Petersen Aluminum</td>
<td>16</td>
<td>800/722-2523</td>
<td>pac-clad.com</td>
</tr>
<tr>
<td>Pilkington</td>
<td>23</td>
<td>800/221-0444</td>
<td>pilkinton.us</td>
</tr>
<tr>
<td>Portals Hardware</td>
<td>78</td>
<td>816/942-7413</td>
<td>portalshardware.com</td>
</tr>
<tr>
<td>Precision Glass Bending Corp.</td>
<td>24</td>
<td>800/543-8796</td>
<td>e-bentglass.com</td>
</tr>
<tr>
<td>Quattrolifts USA Ltd.</td>
<td>61</td>
<td>702/566-5841</td>
<td>quattrolifts.com</td>
</tr>
<tr>
<td>SAFTI First</td>
<td>5</td>
<td>888/653-3333</td>
<td>safti.com</td>
</tr>
<tr>
<td>Salem Flat Glass &amp; Mirror</td>
<td>9</td>
<td>800/234-1982</td>
<td>salemdist.com</td>
</tr>
<tr>
<td>SCHOTT North America Inc.</td>
<td>11</td>
<td>502/657-4439</td>
<td>us.schott.com/pyran</td>
</tr>
<tr>
<td>Schuco USA L.P.</td>
<td>19</td>
<td>800/847-5625</td>
<td>schuco-usa.com</td>
</tr>
<tr>
<td>Security Lock Distributors</td>
<td>69</td>
<td>800/847-5625</td>
<td>seclock.com</td>
</tr>
<tr>
<td>SGC International Inc.</td>
<td>77</td>
<td>866/802-8862</td>
<td>sgc-usa.com</td>
</tr>
<tr>
<td>Smiley Lifting Solutions/SPYDERCRANE</td>
<td>68</td>
<td>800/452-5011</td>
<td>mavlift.com</td>
</tr>
<tr>
<td>U.S. Horizon Mfg.</td>
<td>53</td>
<td>877/728-3874</td>
<td>ushorizon.com</td>
</tr>
<tr>
<td>Vitro Architectural Glass</td>
<td>92</td>
<td>888/774-4332</td>
<td>vitroglazings.com</td>
</tr>
<tr>
<td>Woonsocket Glass Fabricators</td>
<td>2</td>
<td>401/762-5953</td>
<td>woonglass.com</td>
</tr>
</tbody>
</table>
Here’s an Idea...

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

Winco Window Thinks Big with Micro-housing

As viewers of HGTV shows like “Tiny House Hunters” will know, tiny houses have been trending. Winco Window Co., wincowindow.com, recently contributed to Carmel Place micro-apartments in New York City, an urban expansion of the micro-housing trend. Winco’s successful collaboration on the project, designed by nArchitects, may serve as a model for how glass industry companies can take advantage of new and different construction opportunities, both big and small.

Carmel Place is a first in many ways, being the first micro-unit apartment building in New York City. The 55 loft-like units range in size from 260 to 360 square feet, and each comes equipped with a kitchenette, bathroom, bed and storage space. “For New Yorkers, and other major city dwellers, the economics of tiny, yet livable spaces make sense,” says Janet Ryan, marketing representative, Winco Window Co.

The project also represents Winco’s first collaboration on micro-unit construction. “This was Winco’s first project like this—our rep in NYC had an existing relationship with the architect, and that is how we got involved,” says Ryan.

Winco contributed its 6-by-8-foot sliding windows, chosen to help expand the perceived space, Ryan says. The large windows offer better views and daylighting, as well as ventilation, she explains. “Sliding windows are able to provide ventilation, without taking up any floor space,” says Ryan. “With such a small living space, this was key.”

The project required no extensive adaptation of Winco’s product. In fact, it found that the unique, modular construction of the build simplified the company’s involvement, Ryan says. “The units were assembled in New Jersey and trucked into New York City. Winco shipped the windows directly to the assembly site [and] pre-packaged all the window trim with each window unit, allowing for easy and accurate assembly,” says Ryan. Overall, “the modular offsite construction actually made things easier.”

Winco Window Thinks Big with Micro-housing
Now  ONE, UNIFIED VOICE
Accept no substitutes.

See the beauty—not the glass—only with Starphire® glass

Don’t accept imitations. Only Starphire Ultra-Clear® Glass by Vitro Architectural Glass (formerly PPG Glass) allows views so brilliant, you’ll forget the glass is even there. For interiors, exteriors as well as heavy and safety glass applications in thicknesses up to ¾ inch, no low-iron glass consistently maintains its transparency, color fidelity, vivid beauty and distinctive blue edge like Starphire® glass.

Request samples at www.starphireglass.com