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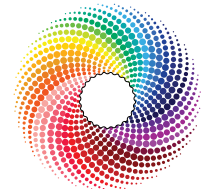
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Dressed to Impress at Faour Glass

On the cover: 777 Aviation in El Segundo, California, recently underwent a major retrofit, led by Skidmore, Owings & Merrill, som.com. The rehabbed building features extensive interior glass railings from C.R. Laurence – U.S. Aluminum, srl-arch.com. Read more about this project, and about design trends, performance and health benefits, glazing guidelines and code changes for interior glass in Glass and Metals 301: A guide to the interior, beginning on page 34. Photo by Geoff Captain.



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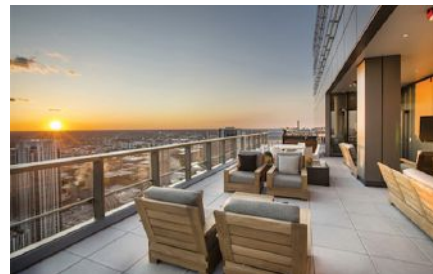


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Prepare Your Talking Points, the Battle for Glass is Back

By Katy Devlin

Are architects turning their backs on glass skyscrapers? This was the question posed in a recent CNN piece that interrogated the sustainability and energy performance of glass. The article, through interviews with several architects and other building industry officials, seemed to posit that glass buildings stand in the way of green building. “I think (glass) is a symbol for energy-guzzling buildings, and we need to move to a much more energy-conscious environment to try and save resources,” said famous British architect Ken Shuttleworth in the article.

Unsurprisingly, the article sparked conversation among many in the glass

in the upcoming code and standard cycles.

So, what can those in the industry do to better fight back against claims that glass is a poor performer? And, equally important, what can the industry do to promote its energy-saving solutions and ensure that the right products are used in buildings in the right way? Below are several recommendations that I pulled from these conversations.

Promote balance.


Blanket calls for less glass aren't the solution. Glass is a critical material in creating buildings that promote energy efficiency and occupant comfort. But, simply calling for more glass

pages 34-44). Achieving a more comfortable building requires careful consideration for indoor temperature control, airflow, access to views and the right amount of daylighting—and this means glass. Several industry representatives at IGMA say the industry needs to do more to promote the necessity of human comfort in the built environment.

Promote solutions.

The glass industry offers an ever-growing collection of product solutions that can help ensure buildings achieve stated performance goals. Consider some recent advancements in high-performance glazing: triple- and quad-insulating glass units, fourth-surface low-emissivity coatings, dynamic glasses, automated blinds, sunshade systems and more. The solutions are available (and many, such as electrochromic glass, have been available for decades). The industry must continue to invest in education to ensure that architects know the right products for the right applications.

Promote investment.

“We have the products, but owners or architects won't pay the additional cost.” “We get these products into the specs, but they are value engineered out.” These were two common sentiments I heard from industry reps in Tucson. The key is educating architects and building owners that the extra cost of the higher performance products will pay off in terms of energy savings and occupant comfort. 

Misconceptions over glass performance continue, and the industry could face yet another push to limit glass use in buildings in the upcoming code and standard cycles.

industry. I was able to engage in a few of these conversations about the article and the topic in general at the Insulating Glass Manufacturers Alliance, igmaonline.org, Winter Conference in Tucson, Arizona, in February.

Many of the industry representatives I spoke to were not surprised at the reemergence of this now-familiar argument from some in the building industry—the argument that glass is simply a poor energy performer. The industry has fought back against this take before, including during two recent code cycles that led to the creation of the term, the “battle for the wall.” Despite emerging successful during those battles, misconceptions over glass performance continue, and the industry could face yet another push to limit glass use in buildings

isn't the answer either. The wrong type of glass or glazing system, or too much glass on certain orientations of a building can hinder energy and thermal performance.

Promote people.

Building performance means so much more than energy. Human comfort and wellness should factor every bit as much into considerations of building performance as sustainability and energy. Study after study shows that occupants in buildings that are designed for comfort and wellness are healthier, happier and more productive. Employers report less absenteeism and hospitals see faster healing. (Read more about such research in Glass and Metals 301: A Guide to the Interior on





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Float Line Repairs Result in Glass Leak at AGC's Tennessee Plant

The Kingsport Times News reported a glass leak at AGC Glass North America's, agcglass.com, Church Hill, Tennessee, plant on Feb. 5, which resulted in firefighters being called to the scene. One employee was transported to the hospital after sustaining injuries including heat exhaustion and minor burns. Tom Segelhorst, AGC human resources manager, says the leak was caused when the No. 2 float line was being drained in preparation for rebuilding. During the process, a leak occurred in another part of the tank, according to Segelhorst's statement.

Southern Stretch Forming Acquires Dlubak Metal Bending

Southern Stretch Forming, south-

ernstretch.com, acquired assets and process knowledge of Dlubak Metal Bending, located in Cowansville, Pennsylvania. Dlubak's operation will remain in Cowansville temporarily, says David Arthur, president of Southern Stretch Forming, with plans to move the company's equipment to Southern Stretch Forming's Butler, Pennsylvania, facility.

AIG to Open New Location in Alabama

American Insulated Glass LLC, ai-glass.com, will open a new fabrication and wholesale distribution facility in Birmingham, Alabama. The facility is the company's third location and will serve customers in the southeastern part of the United States. It will be equipped with a new commercial Lisec, lisec.com, insulating glass line,

Hegla, hegla.de, cutting table with retrieval system, and a new HHH Tempering, hhhtempering.com, supported full convection tempering oven.

Giroux Glass Invests in New Fabrication Equipment

Giroux Glass Inc., girouxglass.com, installed a new RhinoFAB 1100 machining center in its San Bernardino, California, plant. Manufactured by DeMichele Group, demichelegroup.com, this machinery provides a solution for cutting, drilling and light routing for storefront and curtain wall systems, increasing efficiency in the shop and the field, Giroux officials report. By receiving materials more quickly, field workers can complete projects earlier than they did previously, with shorter wait times to receive necessary components, say company officials.

My Shower Door Opens New Showroom

My Shower Door, myshowerdoor.com, added an additional showroom in Naples, Florida. The new location will give My Shower Door the ability to serve the residents of the City of Naples, Marco Island, South Naples and East Naples with a more convenient location.

Crystal Window & Door Adds New Glass Line

Crystal Window & Door Systems, crystalwindows.com, recently added a new insulating glass unit fabrication line at its Benton Township, Pennsylvania, factory. The new equipment provides automated assembly of triple-pane insulating glass units and reportedly has greatly increased capabilities and capacity for the manufacturer. The new glass line includes several cutting, washing, spacer, IGU, gas filling and grid fabrication components.

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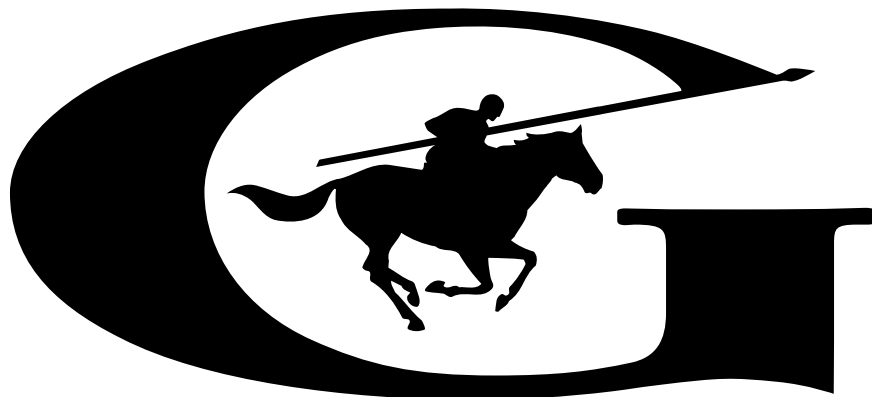
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News to Know

CRL-U.S. Aluminum Breaks Ground on Los Angeles Facility Expansions

C.R. Laurence Co., crlaurence.com, broke ground on multiple facility expansions at its corporate headquarters in Los Angeles. Construction will be completed early this summer. Together, they will add an additional 120,000 square feet of space to CRL-U.S. Aluminum's existing one million-plus-square-foot manufacturing and distribution footprint in Los Angeles.

Patriot Armor Expands Facility, Equipment

Patriot Armor, pasarmor.com, a manufacturer of specialty and architectural glass, purchased a Yuntong Glass, yuntongglass.com, tempering and bending furnace, which went online in December. The capital investment is part of the company's expansion. Patriot Armor invested \$1 million last year to complete a 20,000-square-foot addition to its plant in Lenox Dale, in western Massachusetts. The company produces bullet-proof, bullet-resistant and safety glass.

HHH Announces World's Largest Tempering Furnace, from NorthGlass

Officials from HHH Tempering Resources, hhhtempering.com, announced that the company's tempering furnace partner, NorthGlass, northglass.global, has built the world's largest full-convection, flat glass furnace. The furnace pushes

the limits of oversized glass and furnace technology by processing 3 1/2-by-20-meter glass. NorthGlass sold the furnace to German-based glass processor, sedak/seele, sedak.com.

Judge Grants Workers Class-Action Status in Fuyao Suit

According to the Dayton Daily News, a federal judge granted workers and former workers at Fuyao Glass America, fuyaousa.com, class-action status in their ongoing lawsuit against the company. The workers currently suing the company have alleged that employers failed to pay workers for overtime and did not grant meal breaks and off-duty time appropriately.

Largest Float Glass Plant in Central Asia Opens in Turkmenistan

Turkmen Glass Products opened a new glass manufacturing enterprise in the city of Ovadandep, Turkmenistan, according to reporting by AzerNews. The \$375-million plant is the largest in the Central Asia region, and will produce 42 million square feet of flat glass, as well as 3.2 million square feet of tempered glass and 1 million square feet of laminated glass. 

**From Jan. 25, 2018, to press time, Feb. 28, 2018. To read these stories, and others, in their entirety, visit GlassMagazine.com*

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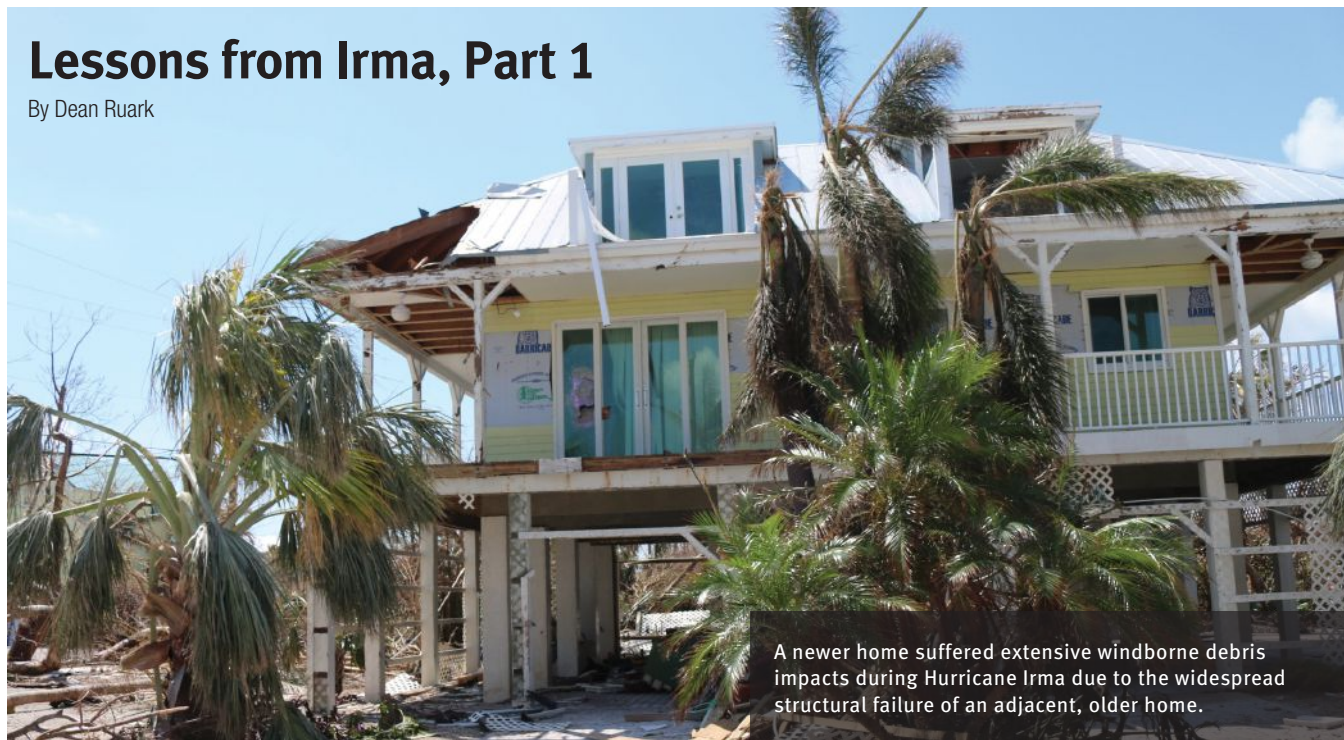
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Lessons from Irma, Part 1

By Dean Ruark



Editor's Notes: This article is based on a presentation Dean Ruark delivered at the American Architectural Manufacturers Association 2017 Fall Conference in Greenville, South Carolina. For more information, visit aamanet.org.

See the May issue of Glass Magazine for Lessons from Irma, Part 2, an account of post-storm damage from Paul Beers, CEO of GCI Consultants LLC, gciconsultants.com.

Hurricane Irma made landfall in Florida on Sept. 10, 2017. It hit the Florida Keys as a Category 4 hurricane with 130 miles-per-hour winds before moving slowly up the Florida peninsula as it weakened in intensity. Loss estimates for the storm range from \$25 billion to \$65 billion, according to a November article in the Insurance Journal, insurancejournal.com.

Last fall, I joined PGT Innovations, pgtinnovations.com, engineers Lynn Miller, Robert Beaird and Erin Koss to assess structural damage caused by Hurricane Irma, with a focus on windows and doors. We toured heavily impacted areas

in the Florida Keys on two occasions, as part of a study led by the University of Florida, to examine the impact of Irma on buildings and infrastructure throughout the state, and visited the area a third time with FEMA for additional analysis.

It's never an easy task to survey damage after a hurricane, especially one of the magnitude and intensity of Hurricane Irma. The damage can feel overwhelming. Many structures collapsed—many of which were wood-framed homes that couldn't withstand the wind and windborne debris. For the structures where there is very little left, it is hard to understand the root cause of the failure.

As we spent more time in the area, news traveled around that we were looking into damage—particularly damage to windows and doors. We began taking calls from homeowners with reports of damage as well as testimonials of success. We also received calls from other engineers working on damage assessments, which pointed us to areas with fenestration damage that enabled us to gather useful data on the types of failures seen in some of the heaviest hit areas. We brought these

findings and our data into conversations about codes and standards, and into our development of even better performing products for our industry. This article offers some key findings from our assessments.

The codes work

The assessment of post-Irma damage demonstrates clearly that hurricane codes, coupled with strong enforcement, work. Newer structures fared well, seeming untouched in some locations, while older construction experienced significant damage.

We have come a long way since Hurricane Andrew. When Andrew hit in 1992, there was a lack of solid building code in Florida. The code wasn't strong enough, there was little enforcement of the code that was present and there was an absence of resources for disaster recovery following a storm. Following Andrew, Dade and Broward Counties developed and adopted the most stringent and enforced code in the country.

Irma was a devastating storm, and we can't minimize the amount of damage. However, we could clearly see that



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Top left: During Irma, a large piece of windborne debris penetrated the door frame at this home in the Florida Keys. **Top right:** A window sustained multiple impacts from windborne debris during the storm. **Bottom:** Debris lines a heavily damaged street on Little Torch Key.

the newer housing stock did far better than homes built before Andrew. Additionally, the communication and outreach before, during and immediately after the storm were solid. There were massive resources available for people who did lose their homes. They had shelter, food and insurance representatives lined up and ready to help.

New ASTM criteria should be revisited

ASTM recently loosened impact test standards and protection requirements for the Florida Keys. Until mid-2014,

ASTM E1996 required that areas in Wind Zone 4, including the Keys, meet the same strict requirements in the High Velocity Hurricane Zone that covers Miami-Dade and Broward counties. These stricter requirements demand that windows be tested for multiple large missile impacts—a center-of-glass impact as well as a corner impact—and for large missile impacts to the framing.

The recent changes to the ASTM standard makes these requirements nonmandatory. However, we saw real-world results in Hurricane Irma's

aftermath in the Florida Keys where windows and doors took major debris impacts to window framing members as well as multiple debris strikes to the glazing. We saw types of impact that pushed beyond the way that most windows are tested. (See photos above.)

We will share our findings and our post-Irma data with the industry, researchers and regulators, and ensure we discuss impact and pass/fail criteria in vulnerable areas like the Florida Keys. We also recommend specifying and



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Closer Look



All building products on this new construction home on Sugarloaf Key are certified with Miami-Dade Notices of Acceptance and tested for multiple large missile impacts to both the glass and framing members. No structural or water damage was reported at the home following Irma.

choosing products that adhere to Miami-Dade County protocols, which require doors and windows to be tested for multiple impacts, both glazing and framing.


It's time to look at water intrusion

In homes that survived and fared well structurally, the biggest issue reported was water intrusion that caused damage to the inside. The impact windows and doors performed as intended against wind and windborne debris. However, Irma's driving winds and rains penetrated.

Residential windows and doors are tested for water performance to 15 percent of the positive design pressure. That water performance rating is not impenetrable to hurricane force winds and driving rains.

Our industry needs to look at the opportunities from a product, testing, certification and installation standpoint for better performance in

resisting wind-driven rain. This is the next step in the evolution of hurricane products. First, we made products to keep the home safe—to protect the occupants and the structure. Now we need to look at the secondary priorities and face the next set of challenges.

As we come together once again to rebuild, we must continue to collaborate to generate new and better ways to prepare for the next storm. It has been gratifying to see how impact-resistant windows and doors helped limit windborne debris destruction. However, our work is far from over. 



Dean Ruark is vice president, engineering and product management for PGT

Innovations, pgtinnovations.com, and president of the Southeastern Region of the American Architectural Manufacturers Association, aamanet.org. Ruark is also a licensed professional engineer.

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A New Era of BIM

By Matt Johnson

Building Information Modeling has been a large part of the architecture, engineering and construction communities since the early 2000s. It has been heralded as a hallmark of systems integration and simplification. It has also been challenged for increasing the risk imposed on design professionals and for being overly complex. Many full-service glass companies might not bother seeking out the tools to respond to an architect's RFP for a project involving BIM. But it might be time to change that.

In mid-2017, the American Institute of Architects, aia.org, released revisions to its design and construction forms. AIA E203-2013 is the Building Information Modeling and Digital

Exhibit. E203 requires that parties create a data protocol if BIM is being used on a project. The 2017 revisions to General Conditions of the Contract for Construction, A201, now require that the parties agree on the protocols set forth in E203 and its forms. E203 also announces if the parties cannot agree on the use and reliance of BIM, any party using it does so at their own risk. This downstream waiver may equally extend to trades like glaziers.

This change at the AIA reflects an increasing comfort with BIM and some of the risks that required balancing as it entered the marketplace. When BIM first appeared, there were many risk exposure questions regarding ownership of the dataset, completeness of

the constituent functional parts, and control over revisions and common access. As technology has improved, many of these practical concerns have been addressed through software. In addition, and as the recent AIA amendments show, increased experience with the process has identified early negotiation points that can help ensure that issues in the BIM process do not need to immediately result in change-order battles or litigation.

These growth factors for BIM are not surprising because the practical goals for its use remain the same as they have always been. Increased efficiencies in design, evaluation of interfaces, project sequencing, elimination of waste and even the ability to simulate performance before construction have real, hard-dollar benefits.

However, when looking to projects using BIM, do not lose sight of the fact that the model assumes perfection—

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perfect manufacturing, perfect installation, perfect sealants. Humans still put the buildings together and mistakes can happen. So, when submitting a bid on a BIM project, acknowledge that the digital model, while close, might not necessarily be identical to the final product.

Many full-service glass companies might not bother seeking out the tools to respond to an architect's RFP for a project involving BIM. But it might be time to change that.

BIM's spread into smaller projects also remains strong. Owners are always looking to increase efficiencies to keep project costs down. Builders, especially those dealing with a shortage of skilled labor, are looking to allocate resources in the most efficient way. BIM can help achieve those goals. Consider too

that, as modular construction methods begin phasing into traditional site-built practices, the ability of BIM to model and plan those integrations will be key to all trades, including glaziers.

In addition to increased efficiency, glass companies who use BIM can help manage their legal risk. For ex-

ample, during bidding, BIM can assist with takeoffs and ensure count accuracy. Required product ratings and specifications are often also embedded within the model, so there is less opportunity to miss something.

BIM can also help scheduling. A detailed schedule based on the model can

be used to clearly establish upcoming expectations of performance, delivery and workforce allocation needs. Careful management of these items can help limit delay and the potential cost-exposure that comes with it.

Communication between trades and builders can also be improved through BIM. Status reports, scheduling and even RFI/CO responses can be built in so the status of the project is known and surprises are avoided.

None of this is to say that BIM is without its problems. But as BIM does not show any signs of going away, it might be time for glaziers of all sizes to revisit how they can benefit from its use. **g**



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.

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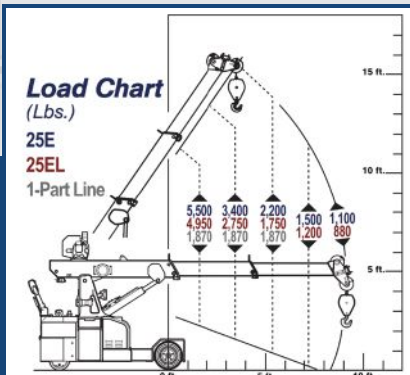
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A Change of Plan

Glaziers' roadmap to successful substitution requests

By Joe Schiavone



C.R. Laurence Co., crlaurence.com, coordinated with Stantec, stantec.com, on the specification and subsequent substitutions for the glass and glazing system at iFLY Orlando Indoor Skydiving Facility. The project features a full-height glass partition comprised of CRL Cascade Series Glass Wall Office System that allows the interior space to be isolated from the exterior when the adjacent folding glass wall is opened.

Photo by Tom Hurst Photography, courtesy of Stantec.

Architects regularly look for ways to reduce lead times and costs, while improving performance and aesthetics. To help architects meet these goals, contract glaziers can look to substitution requests—proposed changes in products, equipment or methods of construction from those that are specified by the architect.

Substitution requests are prevalent in construction projects of all scales, and they can offer benefits to glazing contractors. With every successful substitution request, a glazing contractor builds a stronger reputation because they've shown they can add value to projects. As a result, they have the opportunity to establish favorable relationships and increase the likelihood of repeat business. However, there is a

right way and a wrong way to submit substitution requests.

The basics

A firm understanding of the procedures involved in substitution requests can increase the likelihood of the product being accepted. Glaziers should be aware of timing demands, substitution requirements and collaboration recommendations.

The most opportune time in the project lifecycle to submit a substitution request is during the bid phase when the general contractor is seeking out a glazing contractor. This creates a level playing field amongst bidders. It's possible to submit a substitution request during construction, but the process can be more complicated and

should only be pursued when certain issues arise, such as unavailability of materials, excessive lead times or a change in code requirements.

There are several scenarios where substitutions are practical and feasible, such as lower cost, higher quality or better warranty. The substitution should add value and present clear advantages to the architect, and ultimately, the owner. It must also be equal or superior to the specified product and cannot adversely impact the project cost or schedule.

When submitting a substitution request, glazing contractors and product manufacturers should work directly with the bidding general contractor. Not doing so can be detrimental to the team dynamic and slow the project's

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progress. Although contacting the architect is possible, glazing contractors or product manufacturers risk immediate rejection. They also risk building a negative reputation for not following established protocol, which can cost them future work.

Submitting a substitution request

The best way to submit a substitution request is by reviewing the contract document and following the procedures set forth in Section 01 25 00 of Division 01. This includes filling out a Substitution Request Form, such as CSI Form 1.5C. If the general contractor does not readily provide the contract document at bid time, be sure to request it.

Substitution request procedures vary from project to project, especially during the construction phase. Some don't allow substitutions altogether. It's critical to read the procedures in Section 01 25 00 carefully to avoid incomplete or inapplicable submissions.

These are some of the most common substitution request deliverables:

- The Substitution Request Form.
- A detailed comparison between the substitution and the specified product that clearly outlines advantages in performance, quality, aesthetics, sustainability, installation, lead time, etc.
- Product data including manufacturer name, test reports, drawings, and fabrication and installation procedures. This information should clearly show that the substitution meets specs. The test reports must verify that the product complies with local codes. In some jurisdictions, it may be beneficial to review substitutions with the Authority Having Jurisdiction.
- A list of contract document revisions needed to accommodate the proposed substitution. Note, the fewer revisions needed the better.
- A list of completed projects where the substitution was used. Projects should be similar to the

one in question.

- Warranty and service information from the manufacturer. Must be equal to current specification.

A substitution request is an involved process, which is why it becomes necessary to seek the assistance of a product manufacturer representative. An experienced representative will quickly respond to questions and can supply all the documentation needed for the substitution request. This includes test reports, drawings, fabrication and installation details, performance data, LEED Statements, costs and lead times.

The architect's perspective

The purpose of a substitution request is to convince the project architect or architects to accept a different product. In order to do so, the contract glazier or product supplier must understand what the architect is looking for.

According to architects, the top priority is clarity. Substitution requests should be thorough, concise, accurate and clear. They should explain exactly how the product meets specs and provide supporting documentation. If the architect does not have enough information to evaluate the substitution, or if the information is poorly organized, the request will be rejected.

"Making the comparison of products as easy and straightforward as possible for the architect increases your chances of approval," says Brian McClure, associate at Stantec, stantec.com. "The information provided should be complete and presented in an orderly fashion. Avoid conflicting test data because it makes it more difficult to determine equivalency between products."

Glaziers should also become familiar with the most common questions from architects regarding substitution requests. (See sidebar at right.) Affectively addressing the questions an architect asks will help a glazing contractor put together an effective substitution request. Remember that


When reviewing a substitution request, architects typically ask:

- Does the product manufacturer have a good reputation?
- Does the product comply with contract documents?
- Will there be any issues with schedule or installation?
- Are the warranty and service comparable?
- Does it meet sustainability objectives and codes?
- Is the product compatible with other trades?

the less time consuming it is to review, the more likely it will be approved.

Architects also face a limited time-frame to review substitutions. That's why it shouldn't be left up to the architect to research the product. The burden of proof lies with the submitter, and they must ensure that their submittal is clear and concise to give architects enough time to make informed decisions.

"We don't have much time to review substitution requests because of demanding schedules," says Cherise Lakeside, specification writer, LSW Architects, lswarchitects.com, and co-founder of letsfixconstruction.com. "If you submit a side-by-side comparison of the products with your request, it will save us valuable time and significantly increase your chances of getting the approval."

Additionally, glaziers should be aware that substitution requests often translate to additional services and billable hours on behalf of the architect. Because of this and strict schedules, it isn't possible for the architect to research every substitution to determine if it can be used in the project. 



Joe Schiavone is director of sales for C.R. Laurence Co. Inc., crl-arch.com, crlaurence.com. If there is a specific topic you would like him to address in his article series, write him at joe_schiavone@crlaurence.com.

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Keys to Successful Communication

How to present an argument in business

By Carl Tompkins

There is a phrase that I coined, “Right or wrong is not the controlling issue; it’s how you present your case that counts.” Being right is important, but equally important is pre-

sending one’s position and recommendations in a manner that is acceptable to the audience. This successful communication is key to bettering relationships and improving odds of business success.

What follows are tips to presenting an argument in business.

1

Know your stuff.

To successfully express an argument or perspective, a person must have all the facts and be prepared to adequately share them. In other words, “do your homework!” Unsubstantiated opinions and positions are the first to be discarded. Consider the facts as the foundation of a position. Even for the boss, the facts are required.

2

Control the emotion.

Passion is a great thing and, when used in the right amounts at the right time, can be very motivating. However, passion and emotions can be viewed negatively when used in excess. Audiences, whether one person or many, consider emotion an unacceptable replacement for logic because they assume that excessive emotion is only used by people when they hold a weak position on a topic.

A strong argument should be based on rationality, and the proper use of emotion should be considered the spice of the recipe, not the main ingredient. I recommend using passion and emotions as a way to demonstrate commitment but never as a tool of persuasion.

3

Teach to the future, not the past.

I heard a story of a great orchestra conductor who took an innovative teaching approach when leading a city youth orchestra that was struggling with a difficult piece of music. The conductor never once corrected the orchestra by stating what was wrong or bad about their performance, instead, he

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demonstrated how the performance would sound if performed correctly. This form of teaching avoided negative criticism while setting a positive example for the students.

This must also occur in business. Instead of ridiculing mistakes made in the past, make sure the positive outcome of potential future changes is emphasized. In essence, instead of telling people the wrongs they've com-

mitted, share the good that can come by making recommendations.

4

Be succinct.

Too many words can be damaging in making a case. The fewer the words, the better a message will be received. From the world of selling, don't oversell a position. Listen well and speak little; be to the point using few, but valuable, words.

5

Stay on point.

When presenting an argument or position, stay off unwanted soap boxes. In other words, don't wander off the subject at hand and pontificate on unrelated topics. Such wandering is a quick way to have an audience begin yawning and rolling their eyes.


6

Let it go.

State your case and then let it go. All too often, people have a tendency to hang onto things beyond the welcomed time limit and long after the decision has been made. Through my own experiences, one very great boss encouraged me to keep on teaching but be willing to let people make a few mistakes on the way. My problem was that I wouldn't let people take the chance of failing, which could be the best way of validating my lesson. No matter how convincing an argument, it is possible that not everyone is going to accept the recommendation. These are the lessons learned the hard way, but they will listen next time.

7

Check for agreement and then deliver.

When presenting ideas, the presenter should make sure to always confirm with an audience that they are on an acceptable track of work. They should not take off on projects without approval by those whom the project may affect, as this can lead to negative feelings and potentially hinder the effectiveness of an argument. When the scope of an activity matches up with audience expectations, then a presenter can be sure that a message will be heard. 



Carl Tompkins is national flat glass sales manager for Sika Corp., and the author of the book "Winning at Business." He can be reached at tompkins.carl@sika-corp.com.



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Tax Cuts and Jobs Act

The rate changes, investment deductions and more that might affect glass industry companies

By Joe Bazzano



The Tax Cuts and Jobs Act, which became law on Jan. 1, 2018, has many provisions that stand to change the way both individuals and business owners plan for future tax filings and run their businesses. Here, we'll review some of the provisions as they relate to business owners in the glass industry and provide some guidance on changes that may be appropriate for the exiting owner.

Drop in tax rates

First and foremost, it will be less expensive to operate a business in 2018 than it was in 2017. Aside from various provisions, one key element is that tax rates have dropped. C corporations will see the greatest benefit as rates dropped from 34 percent to 21 percent. Pass-through entities (sole proprietors, partnerships, S Corporation and Trusts and Estates) will still be taxed at individual income tax rates. However, there are provisions that can effectively eliminate



Online Only: Visit GlassMagazine.com/April2018 for additional notable provisions from the Tax Cuts and Jobs Act

20 percent of the income from being taxed (such as 199A deductions, which are discussed later in this article).

Individual rates will still have seven brackets, but each bracket has been reduced by 2 to 4 percentage points. And, the income brackets have been slightly increased, so it will take more taxable income for an individual to move into the next highest bracket.

Capital assets and investments

A provision that provides a benefit to a business owner's tax situation is the increase of the Section 179 deduction, which allows a business owner to fully expense the cost of a capital asset in the year it was placed in service. The previous deduction provided for a \$500,000 limit on expensing, now raised to \$1

million, and the phase-out also increased from \$2million to \$2.5 million.

Where the new provision can really help commercial contractors increase revenue, though, is in the expansion of the definition of "eligible property." Qualified real property eligible for Section 179 expensing now includes improvements to non-residential real property placed in service after the date such property was first placed in service. This expanded definition includes roofs, heating, ventilation, air conditioning property, fire protection, and alarm and security systems.

In addition to the Section 179 deduction, the bonus depreciation rules are also expanded. This is one of the few changes that affect 2017 tax computations, as the provision allows for property acquired after Sept. 27, 2017, and placed in service prior to Dec. 31, 2022, to expense 100 percent of the cost. Where it previously only allowed for expensing of new equipment, the new law expands the definition to include used equipment. The Act rewards business owners making capital investments.

Pass-through entities

The other key provision in the Act affects the pass-through entities, which were also granted a further reduction to compete with the C corporation tax break. The specific provision in the Act, called the Section 199A deduction, provides for a 20 percent deduction for owners of pass-through entities. While a straight 20 percent exclusion of income sounds great and would certainly follow this administration's goal of tax simplification, this is not what has been accomplished with this law.

The general 20 percent deduction is applicable for single taxpayers



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with taxable income under \$157,500. Joint filers with taxable income under \$315,000 will also generally get the full 20 percent deduction. However, as income levels increase above these limits, the formula deduction looks at W-2 Wages paid to employees and at the depreciable property held by the pass-through entity.

For these high-income taxpayers, the deduction is in some cases limited to 50 percent of the W-2 wages paid by the entity, or 25 percent of the wages paid by the entity plus 2.5 percent of the qualified property's original cost. For the property to qualify, it cannot be greater than 10 years old or past its last full year of depreciation. Income levels between the upper and lower limits are allowed a phase-in of the W-2 and property requirements. So much for simplification.

Those who conduct business in the personal service industry, such as accountants, attorneys and consultants,


will lose the deduction altogether once their income exceeds the upper limits. There is an exception, however—engineers and architects do not fall under the exclusion and would follow the ordinary business definition for application of the 199A deduction.

The fundamental question here is, why not convert the pass-through entity to a C corporation. On the surface, it seems a wise decision. However, it is important to note that anytime income is taken out of a C corporation, there is generally a second layer of tax. I say generally, because there could be some good opportunities for an exiting owner to utilize a C corporation to eliminate capital gains on the transaction while benefiting from a lower annual income tax rate.

Evaluate the changes

While I've attempted to highlight some of the key items within the many new changes to the tax laws,

it's important to look at how these changes will affect your business going forward. It may be necessary to make changes in financial and legal strategies such as operating agreements, income allocation, wage and income distributions, and estate tax documents.

It is also important to understand that, similar to previous tax bills that were enacted into law, there are sunset provisions (i.e. expirations) to consider. With the exception of the C corporation tax rates, many of the provisions of this law will sunset, or expire, on Dec. 31, 2025. 



Joe Bazzano is COO of Beacon Exit Planning LLC, beaconexitplanning.com, a firm that provides the services and tools needed to effectively navigate the succession and exit planning process. He can be reached at jbazzano@beaconexitplanning.com.

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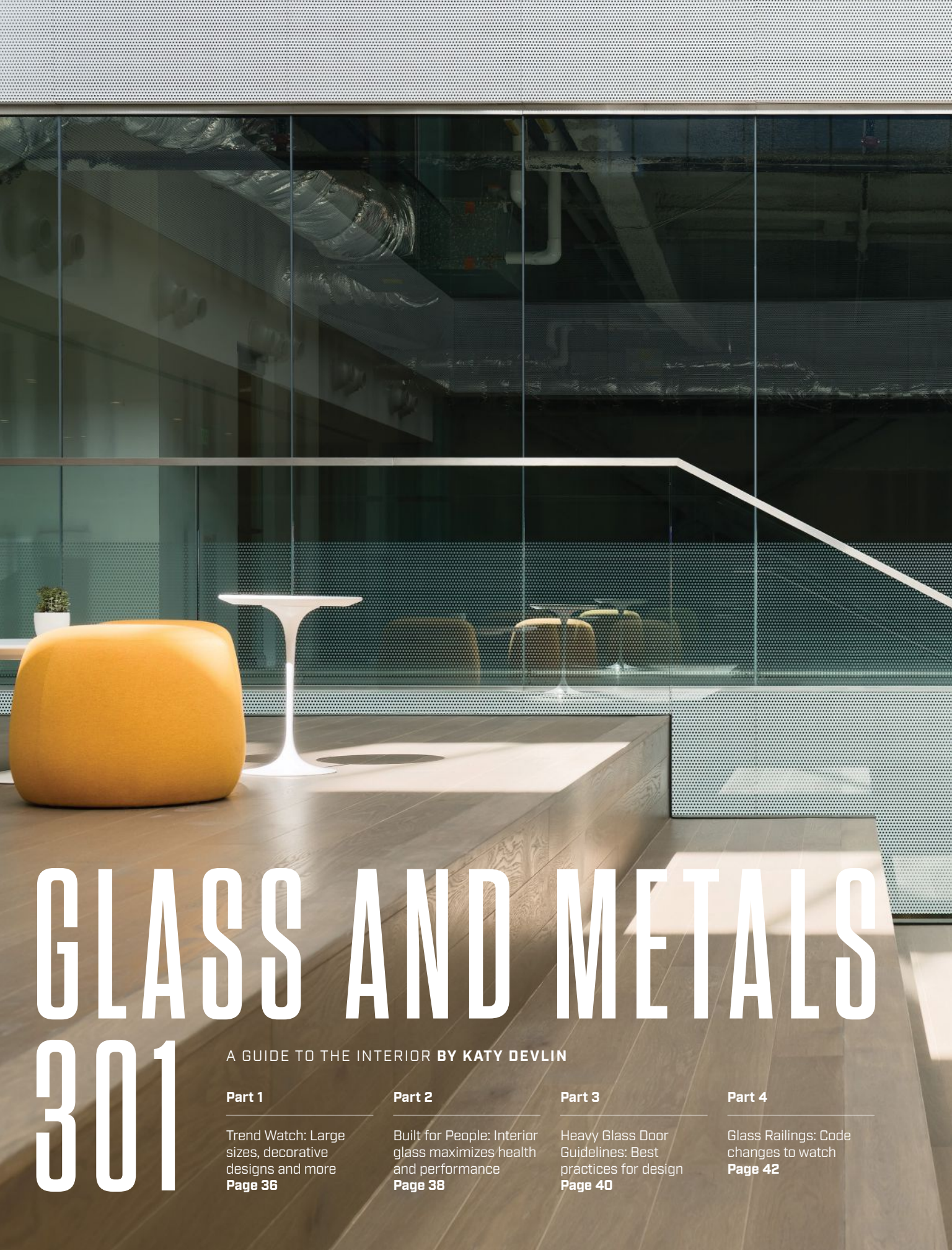


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GLASS AND METALS

301

A GUIDE TO THE INTERIOR **BY KATY DEVLIN**

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C.R. Laurence – U.S. Aluminum, crl-arch.com, supplied the CRL GRS TAPER-LOC Glass Railing System and CRL Crisp Corner Cap Rail for the interior of 777 Aviation in El Segundo, California, as part of a major retrofit of the building led by architect Skidmore, Owings & Merrill, som.com. CRL also provided the curtain wall, doors and

entrance system. Triview Glass, triviewglass.com, and PRL Glass Systems, prlglass.com, handled the glass fabrication; Guardian Glass, guardianglass.com, was the glass manufacturer. Glazing Concepts, glazing-concepts.com, and Electrolurgy Manufacturing, electrolurgymfg.com, were the glazing contractors. Photo by Geoff Captain.

The last decade has seen an ever-widening array of interior glass solutions for doors, partitions, balustrades, stair treads and more in projects of all shapes and sizes. These applications are featured across a range of interiors, from board rooms to classrooms. At the same time, glass is being asked to multi-task in those applications, meeting aesthetic demands and performance requirements, while bringing natural light further into buildings, ensuring privacy, controlling sound and more.

“Advances in technology, environmental awareness, and effects of daylighting have brought glass to the forefront of building design,” says Dan Stachel, vice president of Trex Commercial Products, trexcommercial.com. “These initiatives allow both architects and glass fabricators to push the limits on options for specialty decorative glass.”

The multipurpose nature of interior glass makes it more than a simple building material, sources say. It connects people, improves energy performance and benefits occupant health, all while opening the door for near unlimited design expression.

“Interior glass creates a more collaborative, engaging environment where people can maintain a visual, social connection,” says Sarah Wansack, interiors segment manager, Guardian Glass, guardianglass.com. “It also provides a blank canvas to create inspiration and add color or texture, via back-painted glass or company branding, without blocking off spaces or limiting the footprint.”

The growing popularity of interior glass and glazing, combined with demands to push the envelope of system design and performance, make tracking trends, best practices and code requirements even more critical. Glass and Metals 301: A Guide to the Interior presents architects and specifiers with the most up-to-date information on interior glass usage.

Editor’s note: The six-part series “All About Glass and Metal: A Guide to Glazing for Architects and Specifiers” provides an in-depth look at specification and design for glass and glazing. The series begins with “Glass and Metals 101: An Introductory Guide to Glazing for Architects and Specifiers,” and continues through “Glass and Metals 601: The Architect’s Guide to Complex Façades.” The following pages present an update of part three of the series, “Glass and Metals 301: A Guide to Interior Glass.” To download the complete guide, which also addresses topics including specifications, protective glazing and complex façades, visit GlassMagazine.com/April2018.

01



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A downloadable list of common glass and metal standards and test methods

A glass and glazing industry resource guide.

TREND WATCH

Large sizes, decorative designs and more

Larger sizes

“Across the board, people want to see larger, cleaner lites and less hardware. ...They are trying to make glass the main attraction.”—Stephen Balik, director of architectural sales, GGI, generalglass.com.

➔ **TIP:** When working with large lites, determine transport and delivery logistics early in the process. This is particularly important in renovation projects. Industry representatives recommend early collaboration with the supplier and installer to assist in coordination.

Minimal hardware

“Everybody wants minimal hardware. We are trying to make things smaller, shrinking rails about as far as they can go. Suppliers have done things to hide all of the hardware, coming up with systems from below the floor and above the ceiling, so it’s just a piece of glass swinging.”—Scott Welch, director for hardware products, Bohle, bohle-america.com.

➔ **TIP:** Hidden hardware in the floor and ceiling requires additional site preparation and cost. Collaboration with the supplier and installer can ensure a smooth process.

Privacy

“It is a lot easier today than in recent years to customize glass for privacy. People can achieve that transparency and visibility, while ensuring privacy. We see digital frit printing solutions, and demand has picked up for specialty glass for privacy. We developed a product where you see a different kind of finish depending on where you’re standing. When looking directly at the glass, it is completely opaque. When



you’re looking at an angle, you see partial views.”—Balik.

“We’re also seeing more acid-etched glass ... in those applications when more privacy is required. Acid-etched glass is a happy medium, keeping the look and allowing for even dispersion of light—spaces seem to glow from within, especially when using low-iron glass—while adding some separation. This product is also durable and fingerprint-resistant, an added bonus for upkeep.”—Sarah



Left: GGI, generalglass.com, supplied three-ply laminated glass with Alice digital printing technology for The Ashland, a luxury residential tower in Brooklyn, New York. Different parts of the pattern were printed on each piece of glass in order to create a 3-D effect when laminated. The lead architect was FXCollaborative, fxcollaborative.com, formerly FXFowle, with SPAN Architecture, span-ny.com, handling the interior. Photo by Brett Beyer. **Above:** Bohle, bohle-group.com, developed the SlideTec Optima 150 Sliding Door System, capable of moving all-glass doors of up to 330 pounds. The ceiling-mounted system minimizes visible hardware and can handle laminated or tempered glass.

Wansack, interiors segment manager, Guardian Glass, guardianglass.com.

Decorative design

“Decorative glass allows the designer and end user to have personalized designs. Some people want [decorative glass] for purely stylistic reasons, some are trying to tie the glass in with the branding of the company. [The industry offers] as little or as much as you want.”—Balik.

➔ **TIP:** Many glass fabricators of-

fer decorative glass collections, allowing designers easy access to patterns, textures, colors and more. Several suppliers say that complete custom designs have been made more accessible with the emergence of digital printing on glass.

Low-iron glass

“Low-iron glass [helps] create uninterrupted views in office design ... [and] reduces the greenish cast of standard float glass for enhanced clarity.”—Wansack.

Acoustic control

“One of the biggest concerns we hear: how do we handle sound abatement? This is a growing concern. We are seeing more laminated systems for sound. Suppliers are coming up with new ways to control for sound, for example, in sliding door systems.”—Welch

02

Right: The Colorado State University Health and Medical Center in Fort Collins, Colorado, designed by Bennett Wagner Grody Architects, bwgarchitects.com, features curving glass railings on the spiral staircase and overlooks, in addition to a point-supported glass smoke baffle. Trex Commercial Products, trexcommercial.com, supplied its Vista railing system for the project. Glassshape North America LP, glassshape.com, was the glass fabricator, and ISEC-Colorado, isecinc.com, was the glazing subcontractor. Photo by Time Frame Images.

BUILT FOR PEOPLE

Interior glass maximizes health and performance

Numerous studies have been conducted in the last two decades to look at the relationship between windows and occupant health and performance. The findings offer a repeating theme: access to daylight and views improves occupant health and comfort.

“Studies have shown that daylight improves productivity. They have shown that views of nature reduce stress,” says Helen Sanders, strategic business development, Technoform Glass Insulation NA Inc., technoform.us.

In offices, this translates to increases in productivity and product output, and decreases in absenteeism and employee turnover. In hospitals, studies show decreases in stay and in use of pain medication. In schools, test scores and productivity improved.

Interior glass is critical to bringing natural light and access to views further into a space. “Incorporating interior glass means many occupants enjoy that benefit, not just the people on the perimeter,” says Sarah Wansack, interiors segment manager, Guardian Glass, guardianglass.com.

“Instead of putting up opaque walls, many offices are using glass. You can still have private offices on the outside perimeter of the building without stealing views and daylight from other spaces. Meeting rooms can still be in the core, with glass. They have access to some daylight and feel more open,” Sanders adds.

However, Sanders notes that the benefits of daylighting and views can be negated if thermal comfort is not addressed. “Recent studies have shown that thermal comfort is one of the most important factors of occupant comfort and wellbeing. If you’re cold, you can be more dissatisfied with the air quality and other factors,” she says.



WORKERS IN DAYLIT OFFICES

Work environments have been a key focus of daylighting studies. Workplace studies have investigated how access to daylighting and views affect overall occupant wellness in addition to productivity, attention and output.

“Natural light increases attention and alertness during the post-lunch dip and has shown to be helpful in

WORKPLACE BENEFITS OF DAYLIGHT AND VIEWS, BY THE NUMBERS

Increase in product output

25-28%

One manufacturer documented productivity and product output improvements when it moved to a new daylit facility. Productivity increased by more than 5 percent and product output increased 25 to 28 percent, “making the new building more cost effective than first predicted,” according to the study.

Decrease in absenteeism

15%

One California-based company reported a 15 percent decrease in employee absenteeism after moving to a daylit building.

Decrease in turnover

200%

An Iowa-based firm reported a 200 percent decrease in employee turnover in one of

its business groups after moving to a new daylit building. The group also received a record number of job applicants and an increase in transfer requests from employees at other buildings.

Processing time improvement

6-12%

Workers in a call center processed calls 6 to 12 percent faster when they had the best possible view.

Improved mental performance and memory

10-25%

Office workers performed 10 to 25 percent better on tests of mental function and memory when they had access to the best possible view.

Sources: National Renewable Energy Laboratory, nrel.gov, and Heschong Mahone Group, h-m-g.com, daylighting studies.



increasing alertness for boring or monotonous work” according to officials from the National Renewable Energy Laboratory in the 2002 report, A Literature Review of the Effects of Natural Light on Building Occupants. The studies also demonstrate an increase in employee absenteeism and worker retention.

“Having a better view out of a window, gauged primarily by the size of the view and secondarily by greater vegetation content, was most consis-

tently associated with better worker performance,” according to the executive summary of the 2003 Heschong Mahone Group Inc. report, Windows and Offices: A Study of Office Worker Performance and the Indoor Environment, from Heschong Mahone Group Inc. Read some findings from the NREL and HMG studies in the sidebar at right.

PART THREE



03

HEAVY GLASS DOOR GUIDELINES

Best practices for design

Source: Glass Association of North America Heavy Glass Door and Entrance Systems Design Guide, originally published in 1999. An updated version of the guide is set for release later this year, from GANA, now part of the National Glass Association, glass.org.

Door size

Door sizes need to be limited due to glass flexibility and hardware limitations. Closers and pivots have weight limitations. Doors that are too wide are difficult to control in windy conditions and may exceed hardware limits. Larger doors may be used when locked open or infrequently used. Full top and bottom rails are recommended for larger door sizes.



Self-closing hinges

A self-closing hinge eliminates the need for a separate closer. A patch lock, mid-panel lock or integral locking pulls are required to secure this style of door.

Floor closers

Floor closers can typically handle heavier and wider doors than a concealed overhead closer but may not be suitable due to floor condition limitations, such as slab thickness. Floor closers are used in conjunction with top pivots, either walking beam or surface-applied top pivots.



The Red Peak Offices in New York City feature doors and walls of ½-inch tempered Starphire glass with a white fade gradient, printed with Alice Digital Ceramic Printing, from GGI, generalglass.com. The gradient provides privacy while still allowing light to shine through and create a clean aesthetic. Vitro, [vitroglazings](http://vitroglazings.com), manufactured the low-iron Starphire glass; Raymond Glass, raymondglass.com, was the installer. Photo by Brett Beyer.

Top-hung doors

When the weight of a sliding door is supported by an overhead track, it is often referred to as “top hung.” Top-hung sliding systems are more versatile than floor-mounted systems. Top-hung sliding panels are easier to maintain because the operating hardware is located away from traffic areas.

Floor-mounted systems

Floor-mounted systems use rollers mounted into the bottom door rail and roll on a floor track. This type of sliding door operates on single or multiple parallel tracks, commonly used in double track or bi-parting configuration. Because the slider and the fixed sidelite are not on the same plane, acoustical and security issues need to be addressed.

Fail-safe handles

Fail-safe electric strike handles should not be specified for secure applications. Card readers and/or an exterior keyed cylinder are the only means of entry from the exterior while the lock is energized.

Drilled holes

Holes for door handles must be drilled in the glass prior to tempering. Because of the hole pattern or size, not all handles can be mounted to heavy glass. Designers should consult with the glass door manufacturer or hardware supplier as to the suitability of a particular handle for mounting onto heavy glass.

Maintenance

To ensure a long and useful life, a maintenance program should be established for the fully tempered or tempered laminated glass entrance system. This program should include adjusting hardware and periodic cleaning of the glass and metal parts. Aluminum and stainless-steel parts require periodic washing, but brass and bronze, being copper-based metals, need special care. Copper-based metals are very unstable and are subject to rapid oxidation, thus creating a tarnished appearance. Certain cleaners can damage glass surfaces; others can damage the metal finishes.

PART FOUR



04

GLASS RAILINGS

Code changes to watch

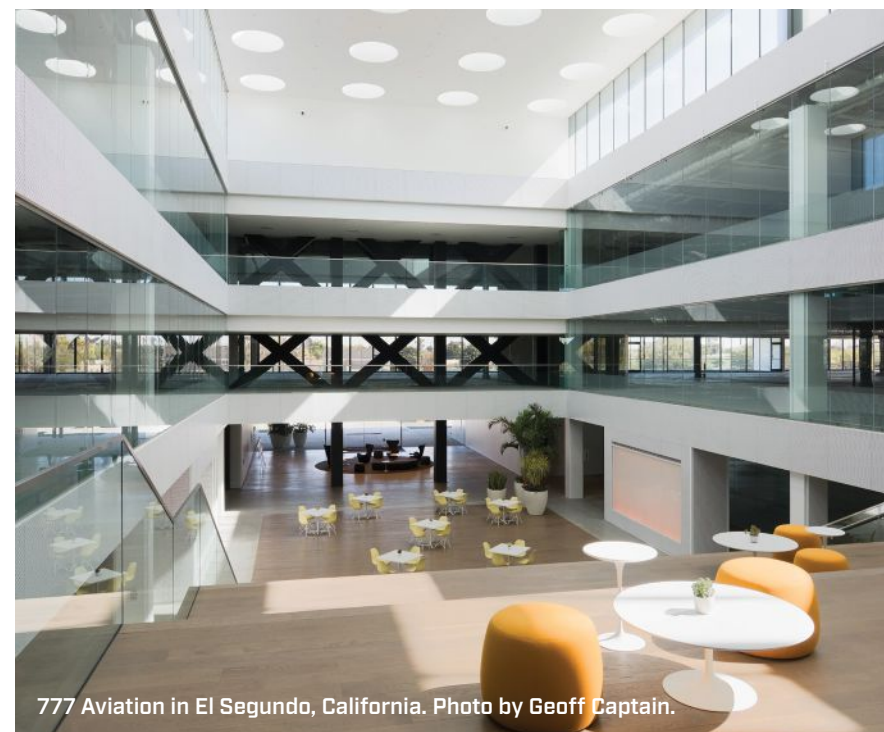
The 2015 and 2018 updates to the International Building Code included several provisions addressing glass railings.

“The biggest change came in 2015 when IBC Section 2407 was updated. It required that tempered laminated glass be used in all glass railing installations where there is a walking surface below. This occurs in over 90 percent of projects,” says Brian Clifford, director of architectural railings and metals, C.R. Laurence Co., crl-arch.com.

If there is no walking surface, or the walking surface is permanently protected from the risk of falling glass, monolithic tempered glass is acceptable so long as it’s accompanied by a handrail or cap rail, Clifford says.

The 2015 IBC also put forth updated requirements for minimum design load requirements for glass guardrails.

1607.8.1 Handrails and Guards.



777 Aviation in El Segundo, California. Photo by Geoff Captain.

Handrails and guards shall be designed to resist a load of 50 pounds per linear foot (plf) (0.73 kN/m) applied in any direction at the top, and to transfer this load through the supports to the structure.

1607.8.1.1 Concentrated Load.

Handrails and guards shall be able to resist a single concentrated load of 200 pounds (0.89 kN) applied in any direction at any point along the top, and to transfer this load through the supports to the structure.

1607.8.1.2 Intermediate Rails.

Intermediate rails (all those except the handrail), balusters and panel fillers shall be designed to withstand a horizontally applied normal load of 50 pounds (0.22 kN) on an area equal to 1 square foot, including openings and space between rails.

2407.1.1 Loads. The panels and their support system shall be designed to withstand the loads specified in Section 1607.8. A safety factor of four shall be used.

The requirements in the 2018 IBC continue to evolve, Clifford says. “Reviewing Section 2407.1.1 Loads, it appears 2018 IBC is combining verbiage used in 2012

IBC and 2015 IBC concerning the safety factor of four. All stakeholders should interpret this section carefully,” he says.

One change in the 2018 IBC alters the Exception Clause for structural glass baluster panels. The 2015 clause states “panels shall be designed to withstand the loads specified in Section 1607.8.” The 2018 version, however, states that “panels shall be tested to remain in place as a barrier following impact or glass breakage in accordance with ASTM E2353.”

“It appears the ICC may have concerns—as do I—about excluding a cap rail or handrail when the glass baluster panels are laminated glass comprised of two or more glass plies of equal thickness and of the same glass type,” Clifford says. “The cause for concern stems from interlayer variables not defined or specified in the code. Depending on the interlayer type, not all applications will remain as a barrier upon failure without a cap rail or handrail.”

FAQS



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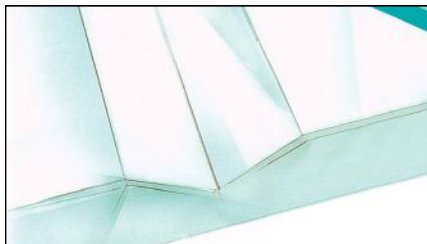


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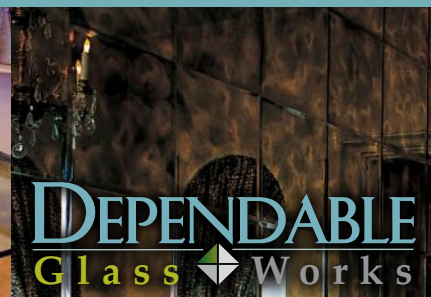
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Glass and Metals 301
A Guide to the Interior

FREQUENTLY ASKED QUESTIONS

What is the biggest misconception of interior glass railings?

“Many architects assume that if 1/2-inch tempered monolithic glass works for the project then so will 9/16-inch tempered laminated glass, since it's thicker. The reality is that 1/2-inch monolithic glass is roughly 30 percent stronger than 9/16-inch laminated glass.”— Brian Clifford, director of architectural railings and metals, C.R. Laurence Co., crl-arch.com.

What is often missed in the design of interior glass railings?

“The structural requirements for attaching a guardrail to a decorative stair are often overlooked. Cantilevered stair treads and narrow stair stringers create engineering challenges that may ultimately prevent the original stair design from being accomplished. It's important that architects consider the structural needs of the railing system.”— Dan Stachel, vice president, Trex Commercial Products, trexcommercial.com.

Is a cap rail needed to meet guardrail requirements for tempered monolithic glass?

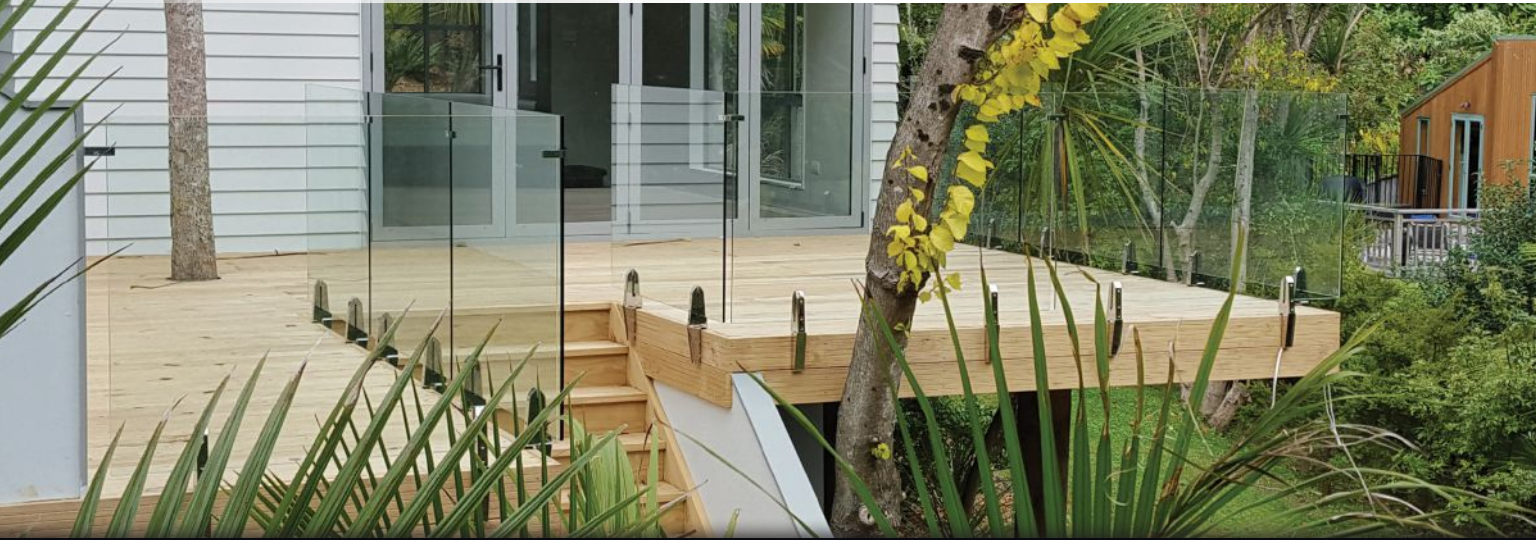
“If a cap rail is not being used, you will need to install a continuous handrail with two handrail brackets per glass lite. The continuous handrail must be of the heavy wall thickness variety, which equals a thickness of 0.125-inch or greater. That being said, we always recommend contacting the local code official for verification.”— Clifford.

What are the engineering requirements for railing hardware attachments?

“As a general rule of thumb, a railing will require no less than 2 1/2 inches of bearing surface for attachment.”— Stachel.

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FIRE-RATED GLAZING BREAKS BARRIERS

THREE CASE STUDIES DEMONSTRATE
FLEXIBILITY IN DESIGN AND
PERFORMANCE **BY NORAH DICK**

Fire-rated glazing, once synonymous with wired glass and tinted color, has diversified dramatically over the past few years to meet the challenges of higher code standards and evolving design specifications, as exemplified in the following case studies.

As a protective glazing, much of the change in fire-rated systems is code-driven. Code changes have required more fire-resistive glazing be incorporated on the exterior of buildings, say industry members, and

the 2012 International Building Code significantly raised performance standards for fire-rated products. The new standards require that fire-rated products pass testing based only on their own performance, unsupported by supplemental systems, such as sprinkler systems.

Rather than being a bar to development, Jeff Razwick, general manager, Technical Glass Products, fireglass.com, argues that these standards result in better products. "While fire-rated codes are constantly

evolving to keep fire and life safety at the forefront of building design, the good news is increased standards lead to increased innovation," he says.

Examples of this innovation include larger-sized glass, as well as combining fire-rated protection with other performance qualities. "We see an increasing focus on achieving multiple capabilities within the same glass," says Rob Botman, general manager, Glassopolis, glassopolis.com. "In addition to fire ratings, customers are demanding higher levels of security,

STC rating
46 DECIBELS

Fire rating
2 HOURS





Panel height
OVER 9 FEET

whether forced entry or ballistic, higher levels of impact safety, better thermal performance and solar control.”

Key to maximizing the product’s performance and design flexibility is early engagement with the glass supplier, industry officials say. “All too often these products are incorporated without a supplier’s involvement and there are negative impacts on both aesthetics and bottom line,” says Tim Nass, vice president of sales, Safti First, safti.com. “Our ability to recommend products coupled with design features make us invaluable

to ensuring the design and specifications meet code well within the owner’s budget.”

The three projects on the following pages demonstrate the performance and aesthetic qualities fire-rated glazing now offers. From a fire-rated system bringing needed daylighting to the collaborative workspace of a research facility, to the fire-rated glass protecting a historic staircase, glass suppliers are working with designers to change what fire-rated means, and to show what it can do.

JUNO THERAPEUTICS

Seattle

The basics: Researchers at Juno Therapeutics, a biopharmaceutical company developing innovative cancer treatments, can collaborate in a brightly lit environment thanks to floor-to-ceiling windows supplied by Vetrotech Saint-Gobain, vetrotech.com. The headquarters and research facility, which opened in September, brings together employees spread among three locations and is designed to enable teamwork. While a traditional research facility encloses and separates laboratories and office space, Juno features windows measuring over nine feet tall that separate the office area and labs.

The players: Architect, Flad, flad.com; general contractor, Skanska, skanska.com; contract glazier, Goldfinch Bros. Inc., goldfinchbros.com; fire-rated glass and glazing supplier, Vetrotech Saint-Gobain.

The glass and systems: Vetrotech Saint-Gobain and Goldfinch Bros. Inc. partnered together on lead time, space, storage and other logistics to create a fire-rated glazing solution that met project requirements and matched the architect’s design vision.

Vetrotech provided Contraflam Structure 120, a fire-rated seamless butt-glazed solution, to separate the labs from the conference and common rooms. In case of fire, Contraflam provides up to two hours of fire-resistant protection to help keep occupants safe from radiant heat transfer and gasses caused by smoke and flames. Contraflam Structure also provides needed sound reduction with an Sound Transmission Class rating of 46 decibels.

Vetrotech also supplied the project with its VDS framing and door systems, further allowing light into the tall, narrow building. *Photo by Hannah Rankin Photography.*

21C MUSEUM HOTEL

Nashville, Tennessee

The basics: Travelers staying at the 21c Museum Hotel can enjoy the complex's beautiful gallery spaces, whose featured contemporary works benefit from the natural daylighting provided by fire-rated lightwells. Located in the historic Printers Alley neighborhood of Nashville, Tennessee, the 21c Museum Hotel was completed in May 2017, and comprises a boutique hotel, complete with restaurant and spa, as well as 10,500 square feet of exhibition and event space, including a range of gallery space.

The players: Architect, Deborah Berke Partners, dberke.com; Perfido Weiskopf

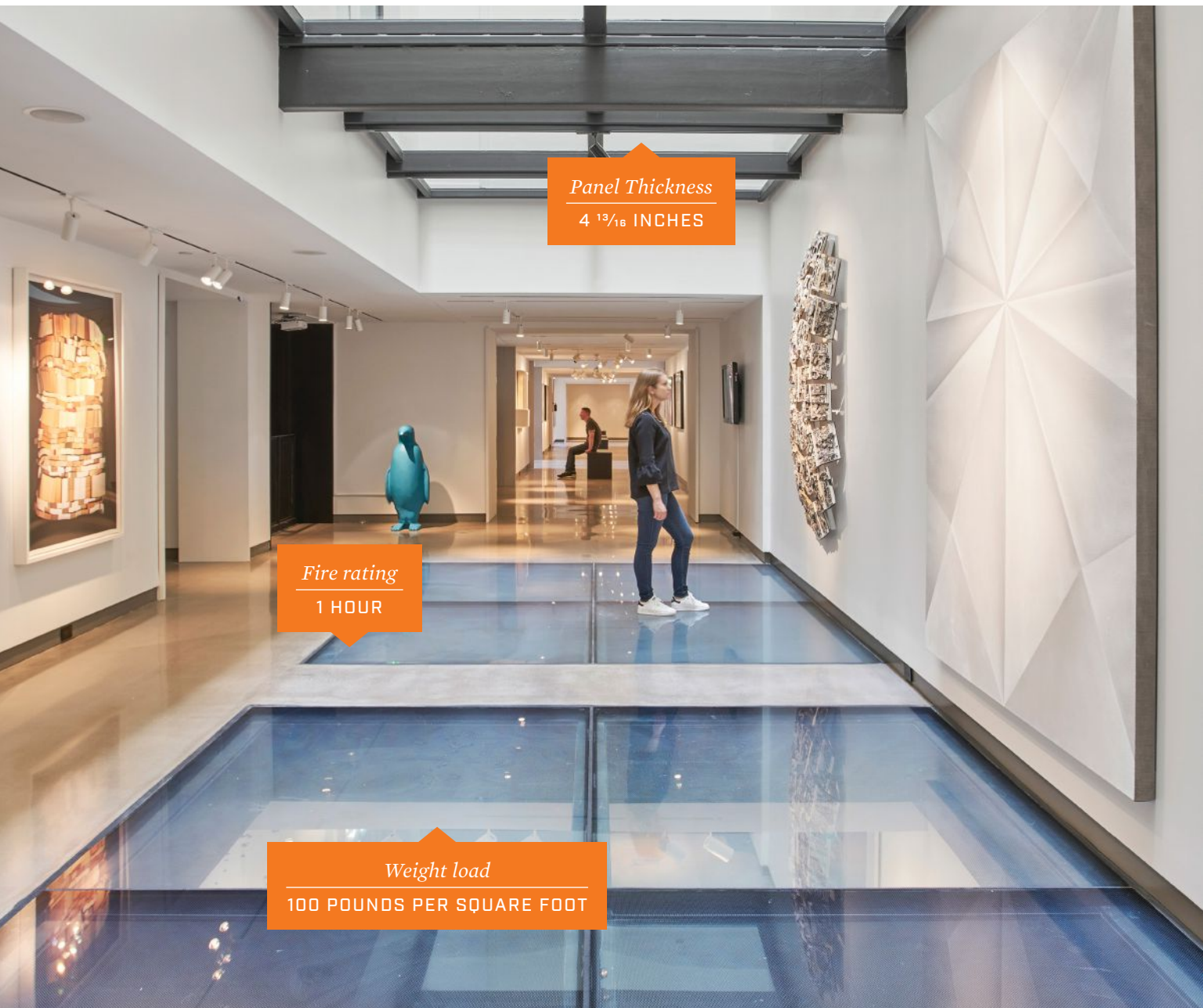
Wagstaff + Goettel Architects, pwwgarch.com; contract glazier, Wall Brothers Glass LLC, wallbrothersglass.com; fire-rated glass and glazing supplier, Safti First, safti.com; non-fire-rated glass manufacturer, Pilkington, pilkington.com; non-fire-rated glass fabricator, Oldcastle BuildingEnvelope, obe.com.

The glass and systems: Safti First supplied the gallery with its GPX FireFloor system, allowing the design team to incorporate lightwells and increase daylighting, while also complying with fire-rated code requirements. Safti helped to revise the initial specification,

proposing larger glass sizes as a solution that also reduced the amount of labor needed for installation.

The revised design specified two separate units, each comprised of four, 6-by-5-foot individual glass panels, which still met the required 100 pounds per square foot load standard. In total, the flooring constituted 240 square feet of space.

The glass in each unit is non-slip rated Starphire tempered laminated glass, with an overall thickness of 4 ¹³/₁₆ inches. The panels are covered in ⅛-inch non-skid white dots and insulated with custom SuperLite II-XL fire-resistive glazing, with a fire-resistive rating of one hour. *Photo by Mike Schwartz Photography.*



Panel Thickness

4 ¹³/₁₆ INCHES

Fire rating

1 HOUR

Weight load

100 POUNDS PER SQUARE FOOT

A large, curved glass structure, likely part of a modern building's atrium or entrance, made of Pilkington Optiwhite™ glass. The glass is exceptionally clear, reflecting the surrounding environment, which includes a green lawn, trees, and a brick building in the background. The interior of the structure shows a curved concrete floor and some modern, low-profile seating. A blue banner is overlaid on the lower part of the image.

Pilkington Optiwhite™

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Walking surface

TEMPERED AND
LAMINATED

Fire rating

2 HOURS

Framing system

HIGH-STRENGTH STEEL

LA CREMA ESTATE AT SARALEE'S VINEYARD

Windsor, California

The basics: Patrons of the La Crema Estate at Saralee's Vineyard, located in Windsor, California, will be treated to a view of the tasting room's historic staircase, thanks to the fire-rated system provided by Technical Glass Products, fireglass.com. Current fire-resistance requirements prescribed that the stairwell be enclosed by a barrier able to stop the spread of flames, smoke and heat transfer. The design team chose TGP's system for its performance, as well as its ability to blend with the beautiful wood panel-

ing, framing and hardwood flooring that defines the aesthetic of the space.

The players: Architect, BraytonHughes Design Studios, bhdstudios.com; contract glazier, Innovative Glass Solutions, igsnc.com; fire-rated glass and glazing supplier, Technical Glass Products; glass manufacturer, Pilkington North America, pilkington.com

The glass and systems: The project incorporated TGP's Fireframes TimberLine Series to surround the staircase. The fire-rated framing system is a high-strength

steel sub-frame, disguised with a real-wood veneered metal cover cap, specified in Domestic White Oak, which maintains the original wood aesthetic of the room. Fire-rated up to two hours, the system's clear sightlines are courtesy of Pilkington Pyrostop's fire-rated glass.

TGP's system also includes its Fireframes Heat Barrier Series door, as well as its Fireframes ClearFloor. The ClearFloor system, consisting of a steel framing grid, and a tempered and laminated walking surface, allows the system to draw light from the upper level down to the ground floor, as well as providing fire-resistance. *Photo courtesy of Technical Glass Products.*

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Starrett-Lehigh Building, New York City

ONE, UNIFIED VOICE

Why it's important
for the glass industry
and its companies

BY BETHANY STOUGH



ON FEB. 1, 2018, the National Glass Association, glass.org, and the Glass Association of North America, glasswebsite.com, merged to form the largest trade association serving the architectural glass and glazing supply chain, including glazing contractors, full-service glass companies, glass fabricators, primary glass manufacturers and suppliers to the industry. →

Trade associations reflect the industries they serve, and with ongoing consolidation among architectural glass and metal companies, combining two legacy member organizations was due for consideration.

"The boards, memberships and the professional staff of both organizations have taken a huge step forward for the industry," says Rod Van Buskirk, president, Bacon & Van Buskirk, bvbglass.com. "History teaches us the industry has constantly changed and evolved over decades, and so, too, have our trade associations. I look forward to how the newly combined association will grow and evolve yet again to better serve all of our various industry segments."

Combining NGA and GANA is a continuation of glass industry segment mergers that occurred over several decades, especially within GANA's history. "What this combination finally achieves



Left: The BEC Conference 2018, held March 4-6 in Las Vegas, hosted over 500 attendees. It was the first industry event from the now-combined National Glass Association and Glass Association of North America. **Below:** During GlassBuild America 2017, some members of the combined NGA board of directors, along with Nicole Harris, president and CEO of the NGA, announced the boards' unanimous decision to move forward with a member vote to combine.

“Technical advocacy has to be strengthened with this combination. The NGA has a stronger glazier orientation, versus GANA with its focus on manufacturers who drive development and output. I am hopeful that NGA will marry the strengths of both.”

**CHUCK KNICKERBOCKER,
CURTAIN WALL MANAGER,
TECHNICAL GLASS PRODUCTS,
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NGA BOARD OF DIRECTORS

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

- 3 glazing contractors
- 3 full-service glass companies
- 2 Window and Door Dealers Alliance 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

is the unification of the entire supply chain,” says Nicole Harris, president and CEO of the NGA.

It also allows two proud membership organizations to pool resources, volunteers and staff to better meet the needs of the industry they serve.

“GANA and NGA have supported each other in the past, but now, as a single organization, I am looking forward to the synergies among all segments of the glass industry,” says Valerie Block, architectural marketing consultant, Kuraray America Inc., kuraray.us.com.

COMBINED STRENGTHS

Members can expect more technical information, education, training, and other tools and resources to help them improve their businesses. There is also cost-savings for members and the association as a whole.

“You want to belong to as many organizations as you can, but it’s hard, because each has dues,” says Dustin Anderson, Anderson Glass & Mirror, andersonglasstexas.com. “NGA and GANA are two powerhouses, and the

beauty is, I don’t have to make that decision anymore. They’re coming together, sharing information. It’s quality, and on the same page.”

“By removing duplicative efforts, and redundant costs, members can expect a more efficient and beneficial industry experience,” agrees Chris Mammen, CEO, M3 Glass Technologies, m3glass.com.

It wasn’t lost on the leadership of either organization that NGA and GANA had similar mission statements focused on three principles: provide, promote and protect. The two organizations also shared strong legacies of committed volunteer participation.

“Both organizations have a well-established history of contributing to and promoting the glazing industry. Change is always difficult, but just think of what may be possible going forward with an expanded membership and additional resources to amplify the ‘Voice of the Industry,’” says Steve Marino, manager, technical services, Vitro, vitroglazings.com, who served on the GANA board and on the NGA-GANA Joint Task Force.



Left: The National Glass Dealers Association at the 16th Annual Convention and Trade Show in New York, 1966. **Above:** Right: GANA members during Glass Week.

“At the end of the day, we need to promote glass. We now have a unified voice with a strong technical base [and] the critical mass of a [fully integrated] membership. We have an opportunity to grow the entire organization for everyone to be more successful.”

REN BARTOE, DIRECTOR OF GLASS AND INDUSTRIAL TECHNOLOGIES FOR VESUVIUS, VESUVIUS.COM, AND INTEGRATION TASK FORCE MEMBER.

“This integration is a natural progression. It’s no different than years back with GANA’s consolidation. It’s a positive for the industry to combine strengths of two organizations into a larger organization and makes financial sense for the associations,” says Arthur Berkowitz, board member for Consolidated Glass Holdings, cghinc.com.

How best to structure the new combined association to be a powerful, purposeful voice for the industry is being scoped out now by the Integration Task Force. Made up of six representatives, three each from NGA and GANA, the ITF’s top priority is to ensure that the important GANA technical and advocacy work continues uninterrupted.

“Everyone involved in working on the combination and working to smooth out the wrinkles on the task force has the best interests of our industry in mind, and are seasoned veterans of the industry and [the associations],” says Gus Trupiano, director of sales, Building Products, AGC Glass North America, agcglass.com.

At the Annual Conference, in Napa,

California, April 26-28, the ITF will present to committee leadership and members. The new technical structure for the combined association will be announced at the Fall Conference preceding Glass-Build America, Sept. 12-14, in Las Vegas.

STRENGTHENING A LEGACY

In addition to combining the strengths of volunteers and staff, the new association combines resources to inform and promote the industry.

“We rely on the associations to be a voice for the industry on key advocacy issues and educate on technical matters,” says Helen Sanders, strategic business development, Technoform, technoform.com/us. “As these issues evolve over time, we need resilient structures to address changes in the market and built environment. By combining GANA and NGA, we will bring even more industry stakeholder voices together to create a unified and more influential advocacy platform.”

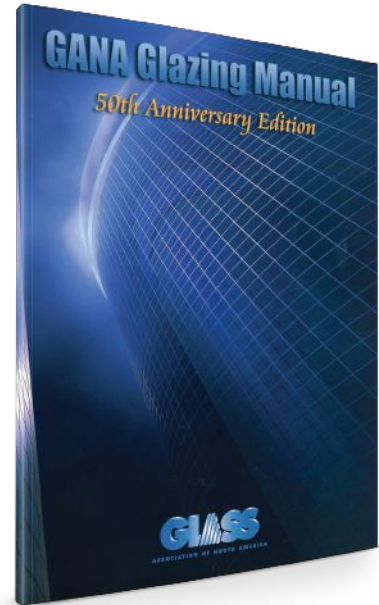
GANA had a long history of generating important technical documents and code advocacy. NGA provides

educational platforms and resources, North America’s largest trade show and an industry-specific magazine. Now, a much larger organization with additional resources can expand the work—produced by volunteers and executed by staff—that both organizations bring to the glazing industry.

“I hope the new combined association can be a strong voice of advocacy on issues that are important to the glass industry and the association membership,” says Chris Dolan, director, commercial segment for Guardian Glass, guardian.com. “Glass sometimes is maligned ... I hope the new organization can provide focus to become an advocate for glass use and all its possibilities.”

“When we don’t work together and introduce products that don’t work in the field, the industry gets a black eye,” agrees Berkowitz. “When you combine the expertise of glazier with a glass fabricator, it’s a positive to the industry and ensures our success and future.”

COMBINED RESOURCES: The following technical and informational resources were developed by NGA or GANA staff and dedicated member volunteers to meet the needs of an increasingly complex industry. Post-combination, the associations are working to maximize their reach and usefulness for members and the industry at large.



ADVOCACY

NGA/GANA code consultants advocate for the glass and glazing industry's interests among many different organizations, including these:

- ASTM
- ASHRAE
- ANSI Z97
- ICC
- IGCC
- GICC
- NGBS
- NIBS
- NFPA
- NFRC
- SGCC
- USGBC

TECHNICAL & INFORMATIONAL RESOURCES

The combined resources of NGA and GANA will be expanded across different platforms for greater distribution and ease of use. The combined associations now offer:

Manuals & Guides

- Laminated Glazing Reference Manual
- Heavy Glass Door Design Guide
- Engineering Standards Manual
- Glazing Manual
- Protective Glazing Manual
- Architects Guide to Glass
- Commercial Fenestration Systems Manual
- Decorative Glazing Reference Manual
- Guide to the Glass and Glazing Requirements of the Model Building Codes

- Employee Safety Guide
- Mirror Fabrication and Installation Guide
- All about Glass and Metal: Six Guides for Architects & Specifiers

Bulletins, White Papers & Presentations

- Glass Informational Bulletins
- Safety Bulletins
- White Papers
- Test Standards/Test Specifications, including Master-Spec and ASTM International
- AIA presentations

Online Education & Training

MyGlassClass.com has been relaunched on a new, interactive platform featuring 50+ training courses for contract glaziers and full-service glass companies. Work is in progress now to produce new curriculum, including for fabricators, using published technical manuals.

Coming Soon:

- *Glass & Glazing Estimating Essentials Course*

GlassBuild America 2017. Photo by Robb Cohen.



Magazines & Newsletters

- Glass Magazine
- GlassMagazineDigital.com
- e-glass weekly
- NGA Member Newsletter

Websites & Social Media

Through the transition and integration period, NGA has multiple websites to reference:

- glass.org
- glasswebsite.com
- glassmagazine.com
- glassbuildamerica.com
- myglassclass.com
- worldofglassmap.com
- NGA on Facebook

- @NatGlassAssoc on Twitter
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- @GlassMag on Twitter
- Glass Magazine on YouTube
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- GlassBuild on Facebook
- GlassBuild on YouTube

EVENTS

Combined, NGA/GANA offer more networking, business and education events for the entire industry.

- GlassBuild America: The Glass, Window & Door Expo
- Glazing Executives Forum
- Express Learning at GlassBuild America
- Building Envelope Contractors Conference
- Annual Conference
- Fall Conference
- Protective Glazing Workshop
- Thirsty Thursday webinars

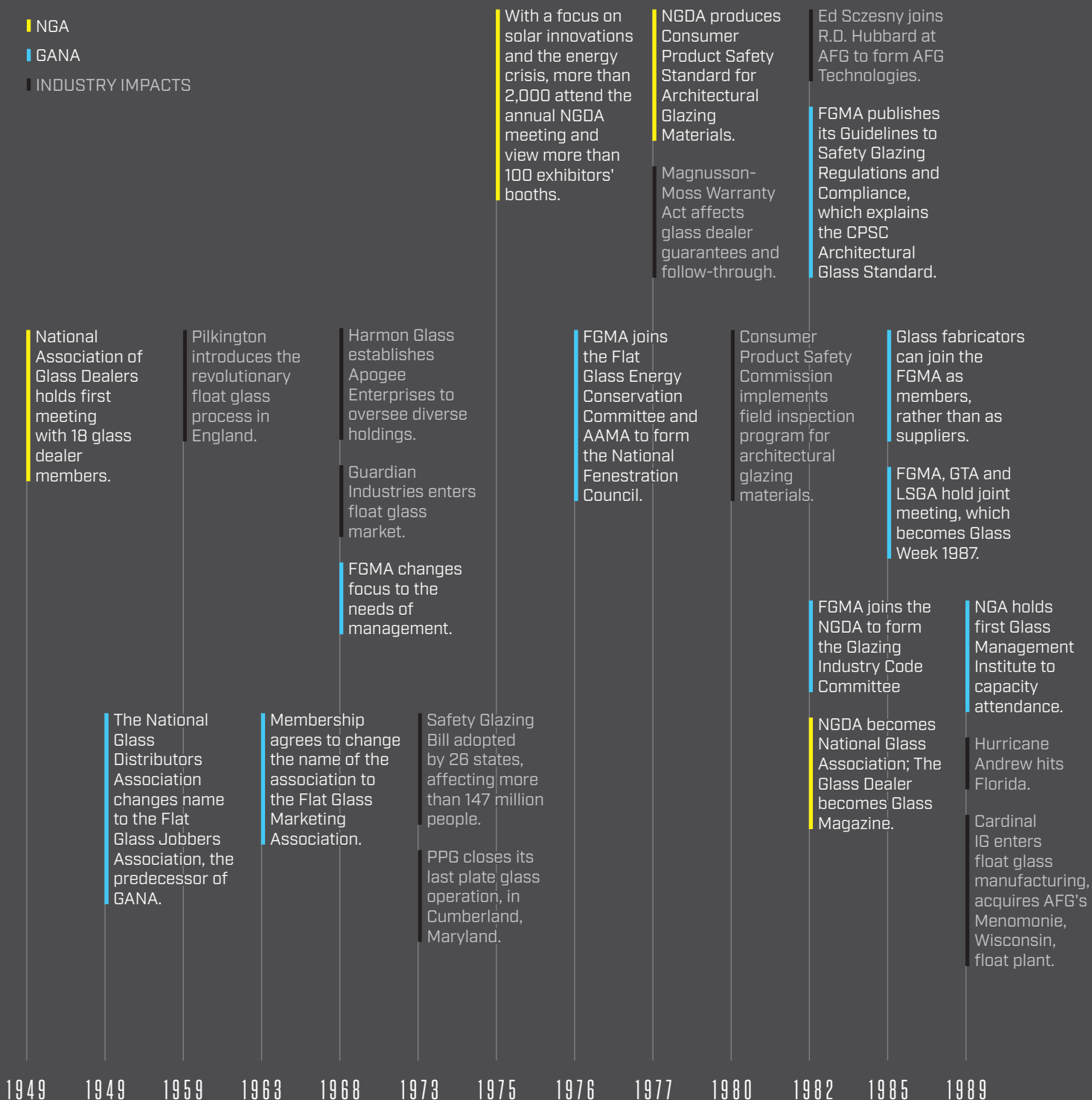
With more resources available to our new association, we can more powerfully promote glass as a high-technology product to building owners and architects”

ANGELO RIVERA, VICE PRESIDENT AND GENERAL MANAGER, FAOUR GLASS TECHNOLOGIES, FAOURGLASS.COM, AND NGA-GANA JOINT TASK FORCE AND INTEGRATION TASK FORCE MEMBER.

NGA AND GANA

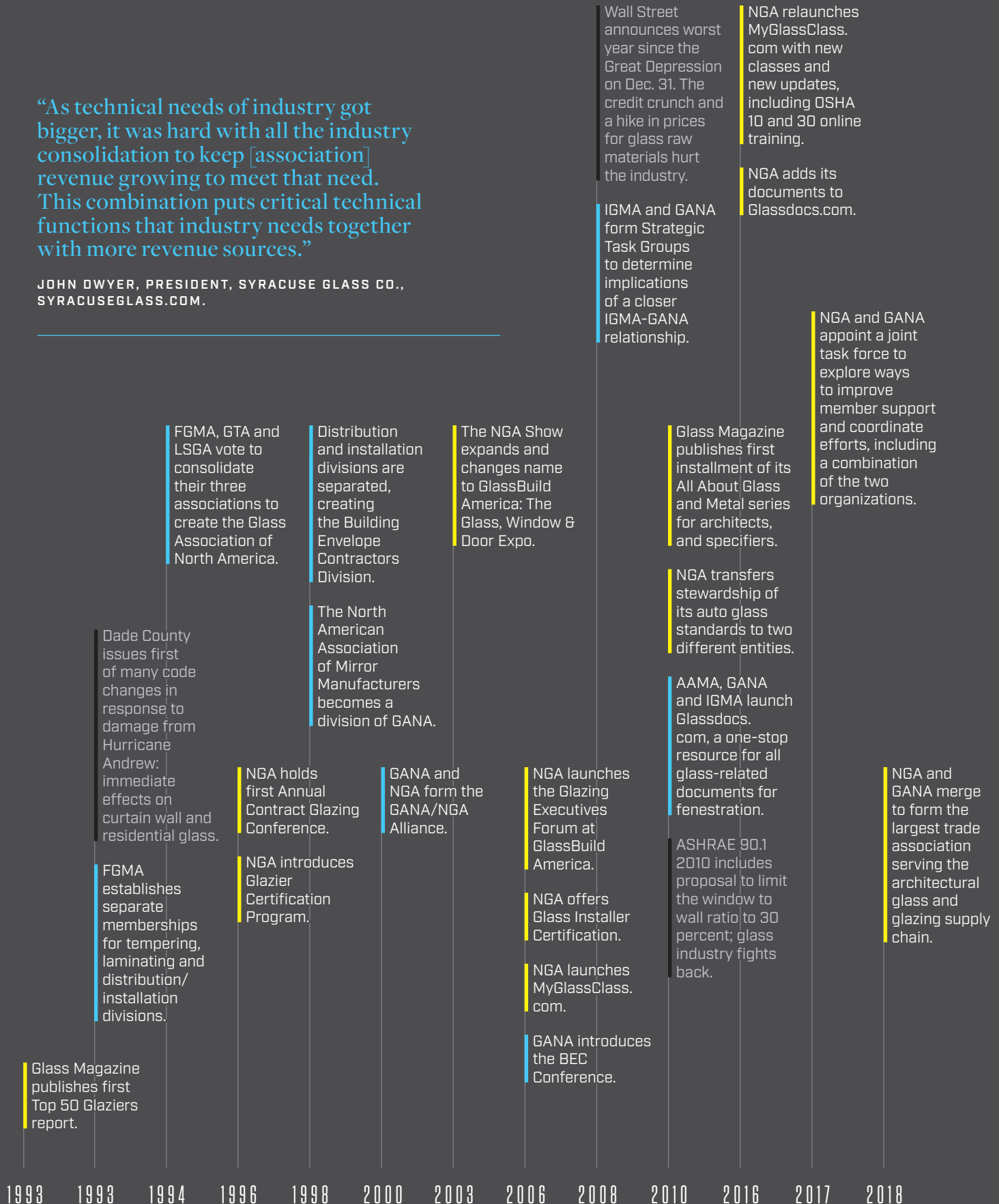
An historic look at the associations

■ NGA
■ GANA
■ INDUSTRY IMPACTS



“As technical needs of industry got bigger, it was hard with all the industry consolidation to keep [association] revenue growing to meet that need. This combination puts critical technical functions that industry needs together with more revenue sources.”

JOHN DWYER, PRESIDENT, SYRACUSE GLASS CO.,
SYRACUSEGLASS.COM.





Product Spotlight

StormDefend TTH600 Window System by Insulgard Security Products

Insulgard Security Products launched the StormDefend TTH600 window system, a fully glazed window system certified by UL to meet ICC 500-14 and FEMA P-361-15 requirements for use in tornado- and hurricane-safe rooms and shelters, including in a 250-miles per hour wind zone. The new standards require extensive testing to include an increased safety factor of 1.2 times the design wind pressure resulting in test pressures of +292/-368 pounds per square foot. The standards also require testing every available configuration with anchorage calculations for each.

The release of the TTH600 is part of an increased effort to build more tornado shelters, especially in schools and emergency response facilities, according to company officials.

"It was critical that we engineered a system meeting the criteria as described in the newest version of ICC-500, as its focus is to protect our most vital resources throughout the

emergency services sector—our first responders, 911 call centers, police, fire and rescue stations—during life threatening weather conditions. Protecting this critical infrastructure allows our first responders to communicate and continue their life saving efforts before, during and after the storm," says Cassie Schlosser, sales development, Insulgard. "Another primary objective we set out to meet was protecting children and educators throughout the K-12 school buildings during severe weather. Our society has witnessed devastating loss of life and injury due to tornadoes and hurricanes, and it is vital we protect the most innocent among us."

The TTH600 window system is designed to allow natural light into the safe room without the need for storm shutters that must be manually closed in the case of a storm event. This allows for shelters to be used as dual-purpose spaces, such as gymnasiums, cafeterias or classrooms.

The TTH600 assembly is also tested to UL752 level 3 standards for bullet

resistance. "It is unfortunate we must consider ballistic protection a necessity in our schools, but the escalation of active shooter events throughout the country demands our attention," says Schlosser. "We are continuously striving to develop economical protective solutions meeting both wind and impact, as well as ballistic, threats to our children and hope to bring additional products to market in the coming year."

In addition to the emergency service stations and educational facilities, the TTH600 system is also designed for use in community shelters, corporate headquarters and facilities providing safe rooms for employees. TTH600 systems are available exclusively through glazing contractors that are familiar with installation of Insulgard's security solutions, including both wind/impact systems and ballistic-resistant assemblies. "Installation is a critical aspect to properly securing each opening, so we depend on our contracting partners to assist us in providing optimal protection for each client," says Schlosser.

800/624-6315 | insulgard.com

Bath Enclosures



Shower doors

Tile Redi added Redi Door, a complete collection of glass shower enclosures, to its lineup of products. Redi Door models feature design elements that cater to a wide range of tastes and needs,

and are built with functionality that ensures smooth and reliable performance, according to the company. Customers may choose a pre-sized enclosure or have one built to their custom specifications. Redi Door enclosures are available in multiple styles, each of which has numerous models to choose from, and each enclosure is available with a choice of the most popular hardware finishes.

855/750-7334 | tileredi.com

Doors

Panel doors

G-Fittings introduced its panel door series modular partition wall system. The panel door series features a slim line appearance with frameless panels, a lightweight aluminum skeleton, metallic hardware and transparent glass. It has a flexible leveling system,



and its design leverages both recycled and recyclable materials, making it an environmentally conscious product, according to the company.

+(49) 0282-2962-0 | g-fittings.com

Slide-and-stack patio door system

Glass Expanse offers a flexible slide-and-stack patio door system that creates uninterrupted views when the panels are closed by eliminating vertical frames between panels, according to company officials. The system's panels slide along a single-track system and stack perpendicular to the opening. The flush-mounted lower track can be recessed into the floor. Glass Expanse offers two different glass thickness options, one for single-glazed units and



another for double-glazed insulating units. Tempered glass, lamination and low-emissivity coatings are available in all configurations.

254/534-9004 | glassexpanse.com

Machinery and Equipment



Anisotropy inspection systems

LiteSentry partnered with Stress Photonics to develop an anisotropy inspection system as an option for the Osprey distortion and flatness

inspection system, manufactured by LiteSentry. According to the company, integration of Stress Photonics technology into LiteSentry's Osprey 8+ will allow fabricators of tempered glass to scan for anisotropy online after the quench process and detect the maximum reflective iridescence for every lite temper. The product will also allow for real-time adjustments to the furnace to reduce the reflective iridescence caused by anisotropy, say company officials.

507/645-2600 | litesentry.com

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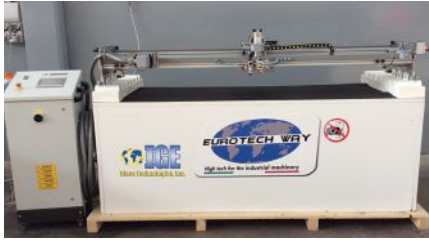
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Industry Products

Cleaning equipment

IGE Glass Solutions introduced RoboClean, a ceramic roller cleaner



available for all makes and models of glass tempering furnaces. The rotating tools perform cleaning on two rollers per cycle, moving automatically through the furnace after each cycle. The RoboClean automatically filters, vacuums and levels as it cleans utilizing constant adjustable pressure over the entire surface of the ceramic rollers.

800/919-7181 | igesolutions.com

Cutting table

Lisec released the SprintCut, an automatic flat glass cutting table. The SprintCut has a maximum acceleration of approximately 16 meters per second squared and a maximum speed of 310 meters per minute. The cutting pressure



control, grinding pressure control, the monitoring of the consumption of cutting oil and cutting wheel wear are automated and, as a preventive measure, the control system indicates pending replacements or fillings, thus reducing unplanned downtimes, according to the company.

+(43) 7477-4050 | lisec.com

Resources

Design app

Tecglass introduced the updated Vitro Design App for free download on iPhones, iPads and Android devices. The app was designed to make it easier for customers to create graphic designs and give real-life



demonstrations of those designs on glass. The app can display a number of examples of patterns, images and decorative effects, and guides the user towards the desired style and graphic format.

+(34) 9867-8762-7 | tecglassdigital.com



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AccessHardware.com

An isometric illustration of a city with numerous small, grey, rectangular buildings. In the center, a green square patch of land contains two large, blue, wavy, layered structures that resemble stacks of cookies or uniquely shaped buildings. The background is white.

Leave the cookie cutters at the bake sale.

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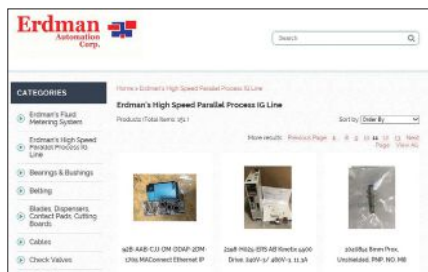
SCHÜCO



Industry Products

Online parts store

Erdman Automation Corp. created the Online Parts Shop. Erdman's Parts Shop services both standard and custom models of the company's equipment, with parts added daily. Custom, machine-specific components can be added to the store via customer request. The site accepts credit card payments and offers the option for payment to be made via purchase order for existing



Erdman customers.
763/389-9475 | erdmanautomation.com

Railings catalog

Viva Railing published a catalog for its stainless steel modular railing systems for interior and exterior commercial architectural railing applications. The



catalog features options from Viva's core line design range including: Blade, Visio, Tee, Circa, Sabre, Shoe, Fin, Cube, FSR, Solo, iRail, View, Eco and Panel. 972/353-8482 | vivarailings.com



Shower door catalog

C.R. Laurence Co. introduced the SD19, a catalog of frameless shower door systems, hardware, tools and accessories. The catalog includes

installation images and detailed product specifications about C.R. Laurence's newest hinges, sliding door systems, pulls, grab bars, towel bars and more. 800/421-6144 | crlaurence.com

Updated website

Acurlite Structural Skylights Inc. launched its revamped website to provide visitors with an interactive approach to learn about Acurlite's heavy-duty commercial skylight system. The redesigned website has a new look and improved functionality to ensure



an easier and more engaging experience for users, according to the company. It also includes an updated high-resolution photo gallery, rotating 3-D models, 3-D cut away details and expanded system capabilities and test reports. 570/759-6882 | acurlite.com

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Electrified door hinges are notorious for failing. When they do, they're a hassle to repair. Until now.

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Industry Products

Updated website

GGI refreshed its website with updated page layouts and product photography. The updated product photography displays detailed shots of the patterns and different effects of each glass type.



The refresh also includes updated product information and access to the company's standard inventory list on every product page. The new library page holds all of GGI's product information, warranties and specifications including Alice, antique mirror, back painted, Enduroshield, fire-rated, patterned, satin etched, satin mirror, tinted mirror and wired glass products. 800/431-2042 | generalglass.com

Virtual shower designer

Tile Redi developed the Redi Tech Pro, a one-page shopping solution with a virtual shower designer that allows builders, contractors, showrooms and wholesalers to select which products and features they want to showcase for each customer and in what order. Users can navigate through the interface to view choices of shower pans, enclosures, shelves, tile and other



accessories. Throughout the process, products can be previewed in a virtual bathroom. It also includes established pricing, as well as company branding and contact information.

855/750-7334 | tileredi.com



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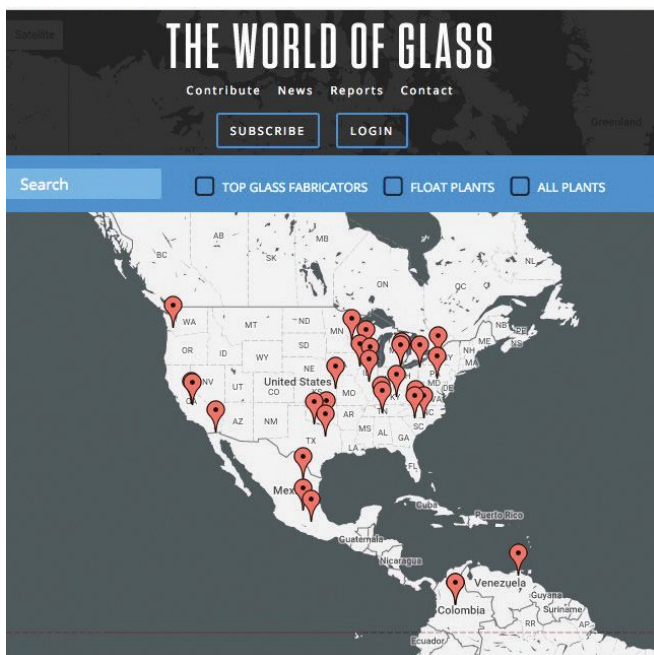
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Industry Products

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VG SmartGlass introduced smart glazing units with a blackout function that requires no power, strings, slats or wires. The completely sealed pre-built units are comprised of a frame that holds



two panes of glass with specialized film on the inside of the assembly, one of which moves to create the transparent and blackout views.

314/596-8258 | vgsmartglass.co

Transportation and Handling

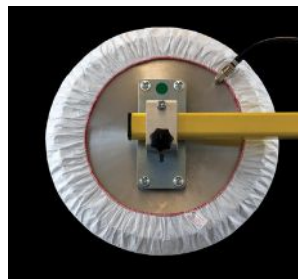


Lifter series

Wood's Powr-Grip features the MR4 lifter series with high-flow vacuum pumps and continuous 360-degree rotation. MR4 lifters can also be equipped with additional features, such as vacuum loss warning buzzers or individual pad shutoffs.

With standard capacities ranging from 500 to 700 pounds, the MR4 series is said to increase productivity without compromising safety, according to the company.

888/769-7474 | wpg.com



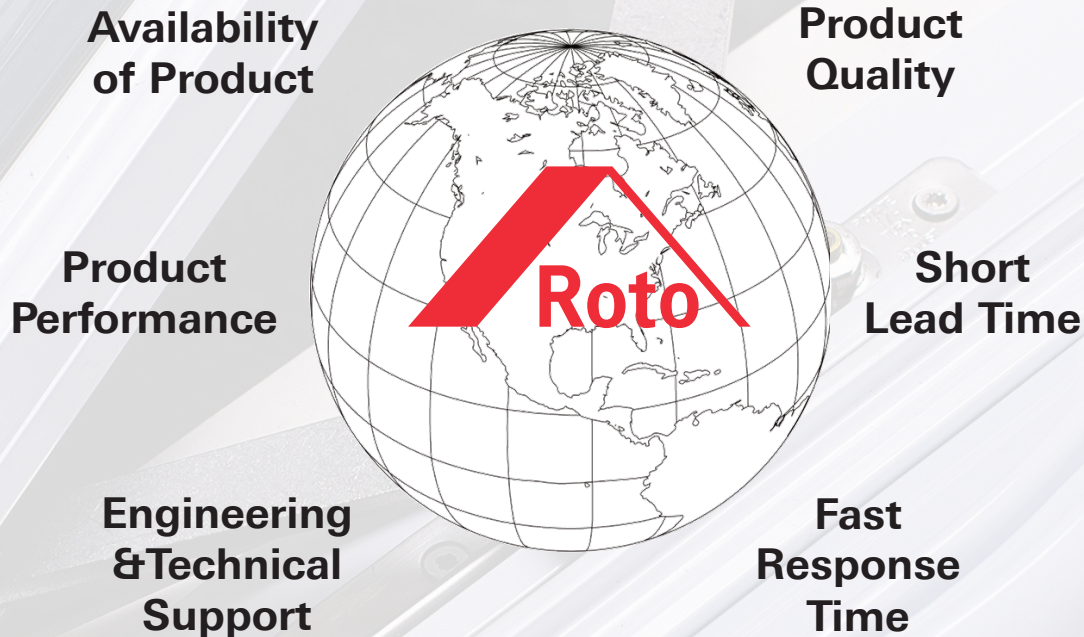
Suction plate covers

EuroTech Vertriebs GmbH introduced suction plate covers to prevent abrasion damage marks made by suction cups on sensitive glass surfaces. The covers are

made from an oil-free, silicone-free polyethylene and are tear-proof, flexible, breathable and anti-static. The covers do not produce lint and can be washed and sewn. Their integrated elastic band allows the suction plates to be pulled over the seals and remain in the correct position.

+ (49) 7433-9046-80 | euro-tech-vacuum.de

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People



Aftimos

Columbia Commercial Building Products

Columbia Commercial Building Products, ccbpwin.com, appointed Antonio Aftimos as vice president of sales and

marketing. In his new role, Aftimos will be responsible for leading CCBP's sales, estimating and project management personnel, and for integrating with

the sales teams across Consolidated Glass Holdings' family of companies. Aftimos has more than nine years of experience in the glass industry.



Mitchell

Wausau Window and Wall Systems

Wausau Window and Wall Systems, wausauwindow.com, hired Derik Mitchell



Garipay

and Edy Garipay as architectural sales representatives. They will both work with commercial building owners, architects and design professionals, contractors and construction teams

to assist with product selection for high-performance window and curtain wall systems. Based in Nashville, Tennessee, Mitchell will work on projects in Alabama, Arkansas, Kentucky, Louisiana, Mississippi and Tennessee. Garipay, who is based in Denver, will work in Colorado, New Mexico, Oklahoma and Utah.



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Johnson

Pulp Studio

Pulp Studio, pulpstudio.com, hired Kirk Johnson as director of operations. Johnson has held positions

at ACI, now Trulite, and Hartung Glass Industries. Johnson's 23-year history in the commodity-based glass production industry has given him a unique advantage to phasing into the world of decorative glass, according to company officials.



Lawton

Safti First

Safti First, safti.com, welcomed Shawn Lawton and Charlie Hall as local architectural representatives in the Mid-Atlantic region. Lawton of Lawton Architectural Products will be adding Maryland, Washington, D.C., and northern Virginia to his territory. Hall, of



Hall

Division 8 Services, will be handling eastern, central and southern Virginia. Both Lawton and Hall have many years of experience, not just in fire-rated glazing and framing, but the fenestration industry as a whole.

Palmer

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Filippone

Graboyes Commercial Window Co.

Graboyes Commercial Window Co., graboyes.com, welcomed *Lou Filippone* as business development

manager. He will work with building owners, architects and engineers to support and assist them in creating and maintaining high-performance buildings through the commercial window, architectural glazing and smart-building services provided by Graboyes.



Bernard

YKK AP America Inc.

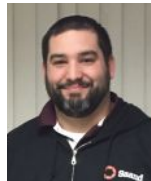
YKK AP America Inc., ykkap.com, promoted *Joey Bernard* to branch manager of the Texas and western regional office in Dallas.

Bernard will spearhead the company's efforts to expand its visibility and drive

sales within Texas and the western United States. He brings more than 30 years of industry experience to his new role. He joined YKK AP in 2011, where he served as the operations manager before becoming branch manager for the Midwest region.



Esformes



Morse

Saand Inc.

Saand Inc., saand.ca, welcomed three new employees to its Webster, Massachusetts, facility. The company added *Wendy Esformes* as human resource generalist, *Edwin Morse* as plant manager and *Lee Ann Gibree* as customer service manager. Esformes will be developing human

resource systems and processes to ensure an effective and efficient human resources administration plan. Morse



Gibree

will be responsible for driving strategic growth and profitability of the Webster facility in alignment with the short- and long-term strategic plans of the organization. Gibree will be responsible for aiding her team in developing strong relationships with clients.



Priest

Roto North America

Roto North America, rotonorthamerica.com, added *Bill Priest* as research and design manager within the product innovation

process. Prior to joining Roto, Priest worked at General Motors, assisting with automotive hardware. His experience also includes working at Stanley, with a focus on sliding door hardware, and at Ensign-Bickford.



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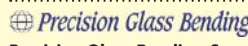
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
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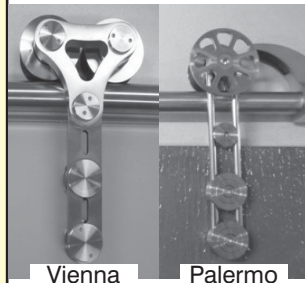
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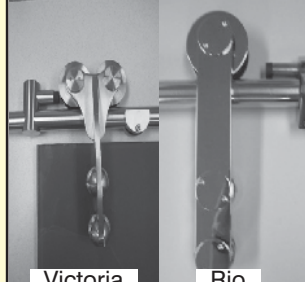
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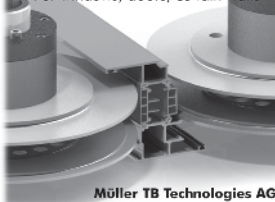


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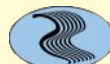
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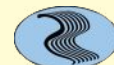
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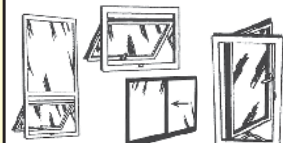
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Here's an Idea...

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



Dressed to Impress at Faour Glass Technologies

First impressions are vital to a business, and those impressions are often formed when a customer is first greeted by an employee. The behavior and appearance of a company's employees become the standard by which the company presents itself. A renewed focus on first impressions can be a catalyst for changes in all aspects of the business.

When Angelo Rivera, vice president of Faour Glass Technologies, faourglass.com, and chair-elect of National Glass Association, glass.org, came into the business, he noticed that the company's field employees were not dressed to the same standards as those who worked in the office. The employees who worked in the field wore T-shirts and pants that were often tattered, where the managers and other office staff wore more formal golf shirts. "I said, why do the office people look like that and the techs look like this? That was not the image that I saw for the company that we wanted to build," says Rivera.

To promote a more positive business image, and because all levels of employees had exposure to customers, Rivera implemented a uniform policy to elevate the way all his employees presented themselves.


But, change didn't come easy. "It took a while to get to that point—people

don't like to change. It's not something that happens overnight," he says.

Rivera encourages business leaders to stick to the requirement, regardless, because it's ultimately an investment in the company.

Over time, Faour employees have developed a sense of pride in the way they dress, which, Rivera says, ultimately results in a "level of pride in their work." The higher standard of dress has not only affected attitudes within the company but has also given customers a higher level of confidence in the professionalism of the company and its employees.

Rivera notes that to change external perceptions of a company, the perception within the company must change first.

"At Faour Glass, [the change in perception] started with uniforms but it has migrated to all aspects of doing business, from our vehicles and how they are badged with logos, to the safety equipment, to the language our employees are expected to use on the jobsite," says Rivera. "We're doing all of this because we want to differentiate ourselves from everyone else, and it's amazing how this approach has changed the mental culture of the company." 

glass[®] magazine

Published by the
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