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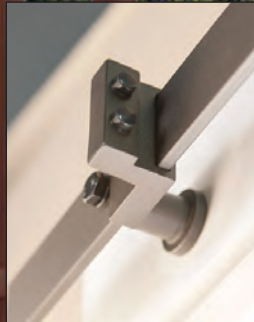
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On the cover:

Today's hardware designs feature simple, streamlined designs achieved through elements such as color, shape, operation and amount of hardware, among others. Credit: REHAU



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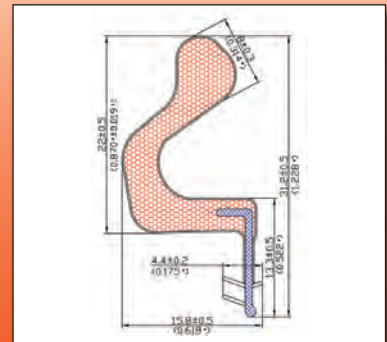
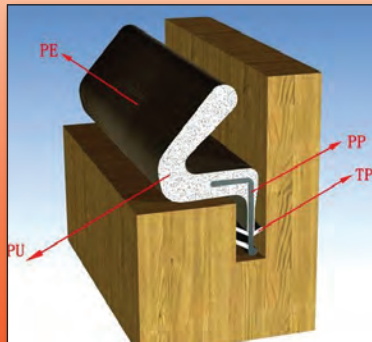
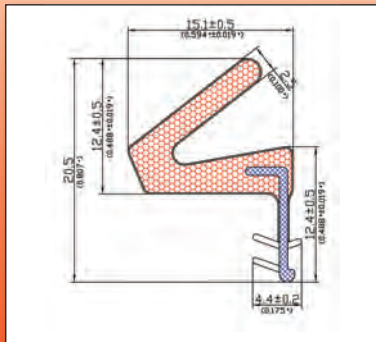


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Pressure-sensitive Adhesives in Window and Door Manufacturing

By Rebecca Blose



Customer Communication Through the Sales Process and Beyond

By Michael Tull and Charlotte Preston



Achieve Business Goals Through Automation

By Chris Kammer



Browse a collection of online-only patio door case studies on windowanddoor.com to see real-life inspiration for how designers and architects use these products.

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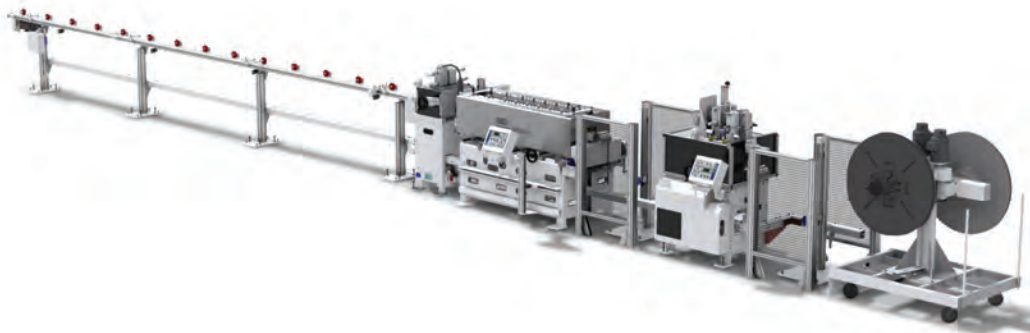
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Mergers, Acquisitions Abound

PGT Innovations signed an agreement to acquire Clovis, California-based Anlin Windows & Doors for a purchase price of approximately \$126 million. “Anlin Windows & Doors is 90 percent focused on the vinyl remodel and replacement market while the focus of Western Window Systems—our other Western Business Unit brand—is mainly on new home construction with aluminum products,” says Jeff Jackson, president and CEO of PGT Innovations. “[This acquisition] is also a geographically strategic addition to complement our western growth strategy.”

Anlin Windows & Doors will operate under the Western Business Unit of PGT Innovations, with CEO John Maloney remaining at the company in an advisory role and Mark Maloney assuming the role of vice president and general manager of Anlin Windows & Doors, effective as of the closing, expected in early Q4.

Cornerstone Building Brands acquired Cascade Windows for a cash purchase price of approximately \$256 million. Spokane Valley, Washington-based Cascade has about 800 employees at six manufacturing and three distribution facilities across the West and Pacific Northwest. “With Cascade, we have expanded our manufacturing presence across the rapidly growing west coast region and enhanced our tailored solutions offering for our customers,” says James S. Metcalf, Cornerstone chairman and CEO.

Assa Abloy signed a definitive agreement to acquire the Hardware and Home Improvement division of Spectrum Brands, which includes brands such as Kwikset, Baldwin, Weiser, Pfister and National Hardware. Fenplast Windows

and Doors acquired the residual assets of the Atis Group, Onex Corp. completed the sale of their remaining 14.9 million shares of Jeld-Wen Holding Inc., The Frameless Hardware Company LLC acquired the assets of A. Geo. Diack Inc., AEA Investors acquired Window Nation Holding LLC, and Hardwoods Distribution Inc. completed its acquisition of the equity interest in Novo Building Products Holdings LLC.

Companies Continue Product Expansions

Roto North America introduced its multi-point lock and new adjustable strikers for a 4-point locking system, as well as the Roto FS Kempton range, a stainless steel 4-bar hinge for top- and side-hung applications.

GED Integrated Solutions introduced three products for residential glass manufacturing: the Intercept LiteLock Extruder Tips, a collaboration with Vitro; TurboCool IGU cooling system and Intercept SureLock fourth corner spacer locking mechanism.

ODL expanded its Blink Blinds + Glass line with a new 7/8-inch version of its blinds-between-glass, which is designed to provide a slim option for light and privacy control.

Plus, Paradigm introduced Paradigm Payments; Marvin reimaged its Ultimate Swinging door and Ultimate Swinging French door G2 to include more expansive glass; Weather Shield expanded its Contemporary Collection and Premium Series aluminum-clad windows and patio doors with its redesigned multislide door systems; and Cornerstone Building Brands announced the Missile C impact-resistant certification for the Simonton Reflections 5500 line.

IN THE NEWS:

Month in Review

In August, the California Energy Commission approved a resolution to adopt the 2022 Energy Code, commonly known as Title 24. The Energy Code will go into effect Jan. 1, 2023, following expected approval by the California Building Standards Commission.

YKK AP America raised its minimum wage to \$15 per hour for all employees. The company reports the move will have a positive impact on a portion of the company's entry-level production associates at residential and commercial manufacturing centers in Middle, Georgia. YKK AP also opened a showroom in downtown Atlanta, which showcases commercial and residential architectural products.

The J.D. Power 2021 U.S. Windows and Patio Doors Satisfaction Study ranked **Renewal by Andersen** as highest in the manufacturer segment, followed by **American Craftsman** and **Milgard**. Renewal by Andersen tied with **Home Depot** as highest in the retail segment, followed by **Window World**.

HiMark Windows LLC received one of three low-interest loans from the Pennsylvania Industrial Development Authority. The 10-year, \$1 million loan at a 2.5 percent fixed interest rate will be used to acquire machinery and equipment.

FGIA launched an online video series documenting the association's in-person Insulating Glass Fabricators Workshop. The video series includes 10 segments, each from 20 to 30 minutes in length.



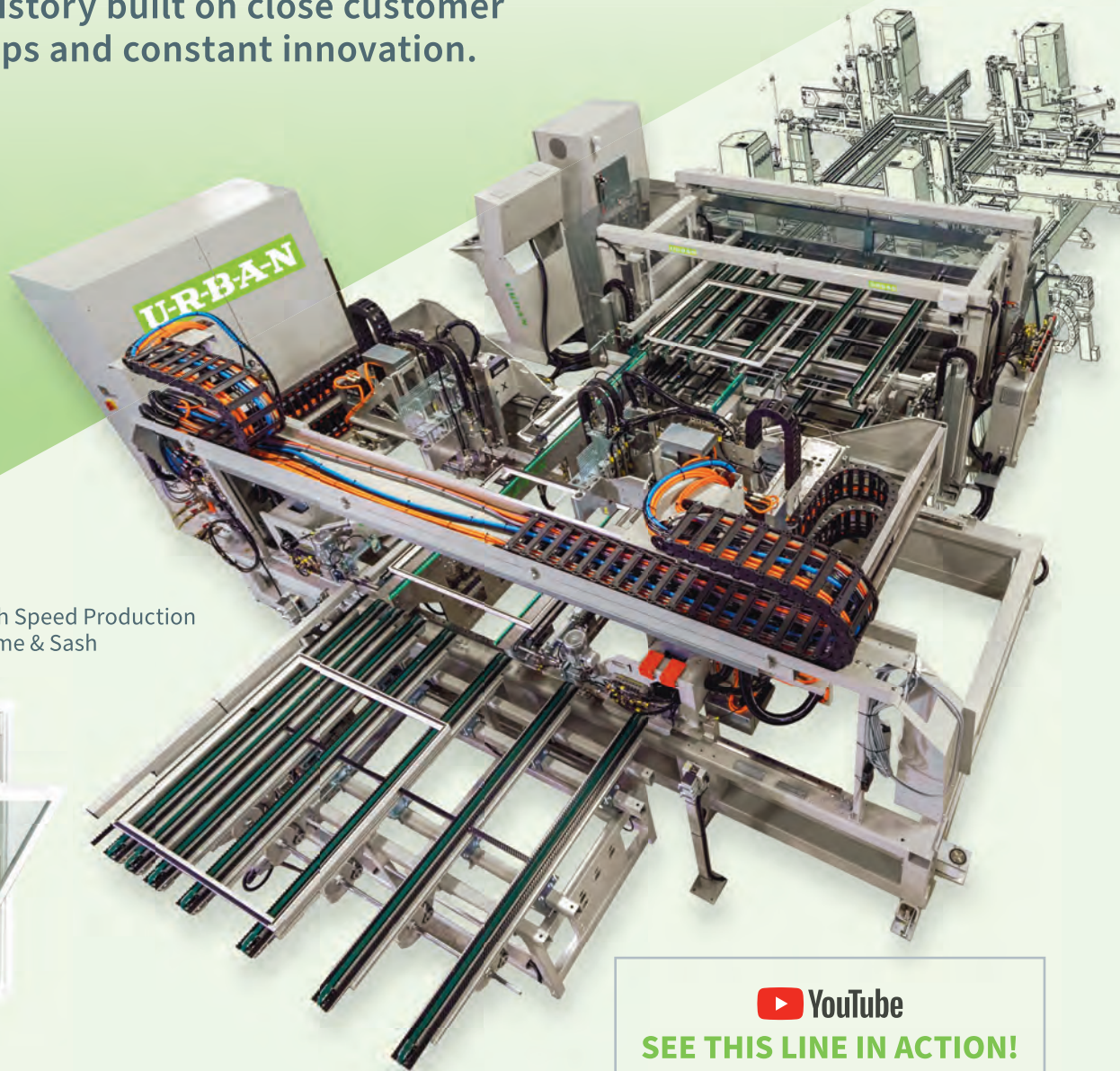
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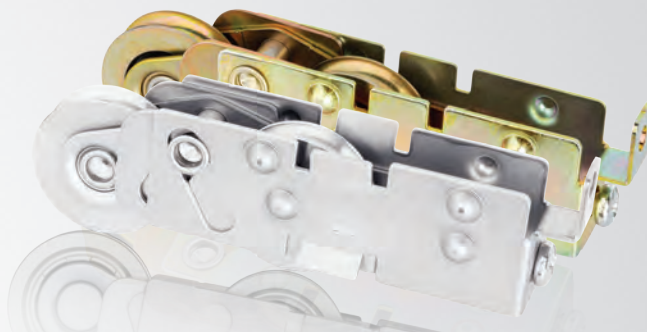
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Back to Business

Learning how to conduct business in a reality where high demand, material shortages are exacerbated by a tenuous labor market



By Laurie Cowin
EDITOR

We went back to GlassBuild America in September, and what a show it was. Energy ran high all three days in the Georgia World Congress Center in Atlanta, as more than 5,000 registrants explored new technologies, equipment, products and services from over 300 exhibitors.

The energy was palpable and, even behind face masks, I could tell people were smiling—myself included. The event served as a solid reminder to all of us what a resilient industry we are.

Part of that resiliency is learning how to live, play and conduct business in a new reality shaped by the evolving COVID pandemic. Economists say the U.S. economy is poised for continued recovery, but not without some bumps in the road.

During the virtual Home Improvement Research Institute summit in September, presenters agreed COVID strains are likely to remain for a long time. “The economy will need to adapt to growing during a time of COVID,” said James Bohnaker, director, U.S. macro & consumer economics, IHS Markit.

He and other presenters agreed housing likely reached its peak but will remain at strong levels because of low mortgage rates and wealth gains. Additionally, the early stages of the pandemic encouraged companies to adopt remote or hybrid work policies that are now becoming permanent. Many workers are now free to move to homes outside their work radius, further strengthening the housing market.

“It’s not a bursting bubble,” said Connor Lokar, senior forecaster for ITR Economics, during his economic presentation during the Glazing Executives Forum, held in conjunction with GlassBuild. “We’re just seeing sanity returning to single-family in 2022. Home sales are already markedly decelerating. Inventories are starting to tick up.”

Higher material costs and reduced material availability, however, are likely to erode housing affordability, said Robert Dietz, NAHB chief

economist, during the HIRI Summit. Windows and doors, in fact, ranked no. 5 on a list of the most significant material shortages (preceded by appliances, framing lumber, OSB and plywood), said Dietz. “It is the supply side that is limiting the growth of the industry,” he said.

Labor is the other major hindrance to industry growth, and what Dietz says will be the top issue as we emerge from supply challenges. He estimated in any given month, the industry has a deficit of 300,000 to 400,000 construction workers. Further, he said it will be necessary to bring nearly 800,000 additional workers into the home building and remodeling space over the next decade.

Bohnaker said the mismatch of skills, location and wages will negatively impact the labor force going forward. “It’s a struggle to find the right people with the right skills at the right wages,” he said. Employees in the leisure, retail and hospitality sector lost the most jobs during the pandemic. Employment demand, however, lies largely in the manufacturing and logistics side, categories that Bohnaker says many unemployed people likely aren’t qualified for. It will take time, education and training to develop those skillsets.

These challenges will undoubtedly change the way we do business going forward, which is part of what makes events like GlassBuild so important to the industry. The tradeshow creates an opportunity to build partnerships, share ideas and invent solutions for conducting business in the current and future climate. “Emmegi sees the event as an invaluable tool for education and innovative ideas,” Sandro Cestaro, general manager of exhibiting company Emmegi North America, states, noting that the company is “proud to have been a part of the NGA GlassBuild Show for the past years.” On a positive note, he adds, “GlassBuild allowed Emmegi to see that the industry is strong and rising to challenges of today’s business environment.” ■

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Gas Fill 101

Gas fill options for IGUs, plus three methods to test gas in a unit



By Dan Haglin

When an insulating glass unit is “gas filled,” it has had the air in the cavity replaced with a fill gas and sealed. Typically, the fill gases used in an IGU are argon, krypton and xenon. All three gases are less conductive than air and are designed to increase the center-of-glass performance by reducing the U-factor. The goal in using any of the three fill gases

is to lower the thermal conductivity and lessen heat conduction through the cavity.

Krypton and xenon will yield roughly the same performance as argon but in two-thirds to one-half the cavity width. Using krypton gas will allow an overall thinner unit and is often used with triple-pane construction. The chart shows the varying U-factors with glass spacing and argon and krypton fills.

NGA Glass Technical Paper

The Technical Services Division of the National Glass Association produced a Glass Technical Paper, “Performance Improvements in Insulating Glass.” The center-of-glass thermal performance of an IGU is a function of glass type, coating, and size and gas fill of cavity gap. This document addresses those areas and does not address IGU edge conditions. Download the paper at glass.org/store.

Concerning leaks

Does the gas in a sealed IGU really leak out? Yes, but it’s a two-way street. For the gas concentration to become lower inside the airspace, another gas needs to dilute it. For example, if there is a balloon filled with helium and some of the helium is let out, the balloon will still be 100 percent full of helium—the balloon size has decreased but the volume concentration is still 100 percent. To say that the balloon contains 90 percent helium, some other gas needs to dilute it (such as a puff of air).

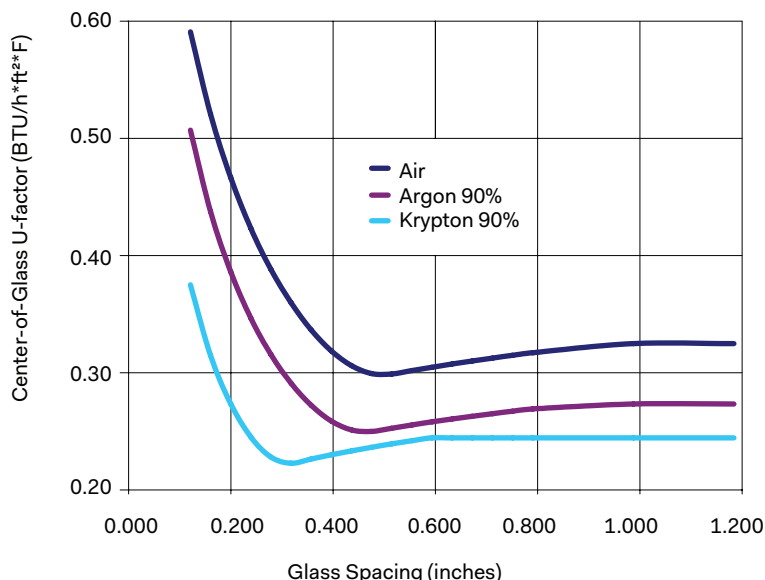
Take this example back to IGUs. The IG industry has conservatively said that argon will “leak” at a rate of 1 percent per year, but remember that two-way street. Argon is going out and air and water vapor is coming in. If, hypothetically, a sealed unit experienced an influx of air, the percentage of argon concentration would decrease without any argon actually leaving the unit.

A number of factors weigh into how fast the gases travel directly through the sealant or across the bond line (sealant and glass, and sealant and spacer interfaces). Manufacturing defects—such as sealant voids and contamination, as well as permeability through the primary sealant—are the modes of transport. The driving forces are partial pressure difference of the gases (cavity space vs. atmosphere), temperature changes, barometric pressure changes and wind loads.

Now that we know the gas can leak out and air and water vapor can leak in, how can we test how

Center-of-Glass U-factor (IP) vs. Glass Spacing Double Glazed Low-E 0.04 Argon and Krypton Fills

Gas percentages represent initial fill rates achieved, balance assumed to be air. Calculations performed using Window 5.2 computer program by WESTLab.





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much fill gas is still in the unit? There are three methods for testing the gas content in an IGU that has already been sealed.

Three test methods

Destructive testing involves breaching the seal to extract a gas sample with a syringe that can be injected into a gas chromatograph (GC) or oxygen gas analyzer. The GC has historically been the “gold standard” for cavity gas measurement because it is very accurate and can measure multiple gases at once (oxygen, nitrogen, and argon or krypton). There are different types of detectors that can be installed on the GC but the most common is the thermal conductivity detector (TCD) for measuring these gases. Besides being the gold standard, it is also probably one of the most finicky pieces of equipment to operate listed in this article and requires a well-trained operator.

The head space oxygen analyzer is used in a similar fashion to the GC, where a syringe extracts a gas sample and is injected into the analyzer. The difference is that only the oxygen is analyzed, so any other gases such as nitrogen, argon or krypton need to be extrapolated (see the extrapolation sidebar below).

Non-destructive testing is accomplished with the use of a spark emission spectroscopy (SES)

or tunable diode laser absorption spectroscopy (TDLAS).

The SES method utilizes a spectrometer to monitor a high-voltage spark that is created through



The Sparklike Laser Portable measures insulating gas concentration on triple- and double-glazed units. The device is based on tunable diode laser absorption spectroscopy (TDLAS).

Extrapolation When Measuring Oxygen Only

The extrapolation method requires a bit of guesswork, decreasing the final accuracy. For example, if a sealed unit contains 90 percent argon and 10 percent air, we know the oxygen content should be 2.08 percent if measured with an oxygen analyzer (10 percent air is made up of roughly 7.8 percent nitrogen and 2.08 percent oxygen). Once the oxygen is known, the resulting gas can be calculated using the equation $100 - (100 / 20.8 * O_2)$.

The major limitation with measuring oxygen is that we expect its ratio with nitrogen to be the same as the air we breathe. Since we know there can be differential permeability and possible off-gassing from desiccant, we can't rely on the ratio to be unchanged. This is what decreases accuracy.

Taking that same example of a 90 percent argon-filled unit, if nitrogen is decreased to 7.7 percent and oxygen is increased to 2.18 percent, an oxygen analyzer would extrapolate the argon content to 89.5 percent even though we know the argon is 90 percent. Much larger variations have been seen in real life examples and verified using a GC.

the glass to the inside of the cavity. The spark creates a release of photons that the spectrometer analyzes for certain frequencies of light in the UV and visible spectrum; the resulting argon or krypton content is reported. Because oxygen is one of the gases measured by an SES, when measuring IGUs that have been aged, there is some concern of error if the ratio of oxygen and nitrogen is different than that of the air we breathe. Thus, it is partially affected by the extrapolation section (see box to the left).

TDLAS measures by means of a laser tuned to the absorption line of oxygen. A detector senses the signal intensity and relates it to the amount of oxygen in the IGU cavity. The oxygen content is then mathematically converted to display argon or krypton content.

TDLAS is limited by measuring oxygen only and is subject to the extrapolation section.

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➔ In the Trenches

a sensor inside the cavity at the time of manufacture. One type of in-situ sensor is a sticker-type product that is placed inside the cavity; an external wand measures the optical fluorescence decay of a dye on the internal sticker to determine the amount of oxygen in the IGU cavity. The OpTech sensor is limited by the extrapolation section.

Another in-situ gas sensor measures the total thermal conductivity of the cavity gas. The inside the insulating glass (iTIG) sensor measures gas using a thermal conductivity sensor similar to a GC. The iTiG comes in a small package



The portable, battery-operated Sparklike Handheld can conduct non-destructive testing.

and doesn't require pulling a sample with a needle. Since it is powered by wireless inductive power transmission, there is no breach in the seal; the unit seal has full seal integrity. The sensor can be calibrated for argon or krypton and also measures temperature, absolute pressure, relative humidity, frost point and UV light.

The sensor measures the total thermal conductivity of the gas and uses that to determine the argon or krypton content. Therefore, it is not limited by the extrapolation method like many of the other measuring types are. ■

Dan Haglin is the vice president of FDR Design in Buffalo, Minnesota. He has been with the company for 16 years and is responsible for creating new gas filling and testing machines. Haglin is also involved with several FGIA, IGCC and ASTM task groups.

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Climate Change Drives Demand for Better Energy Efficiency

The implications of climate change and what it could mean in the form of increased specifications in all windows and doors in North America



By Robert Thiroff

Tackling climate change may become a louder conversation through the coming year and beyond as it becomes a top agenda item locally, nationally and internationally.

President Joe Biden has declared that climate change is the “number one issue facing humanity” and has pledged a transition across the U.S. from fossil fuels to renewable energy that he says

will also help create millions of new jobs. The President has also put together a \$2 trillion plan intended to help put the U.S. on a trajectory to a net zero carbon pollution landmark from the electricity sector by 2035 and net-zero emissions by 2050.

Already North America has experienced record-setting wildfires in the West, while suffering from some of the most active Atlantic hurricane seasons in recent years. Europe is also experiencing record temperatures with Blufi, near Palermo, Sicily, recording a temperature of 120 F (48.8 C), while parts of Germany experienced unprecedented flooding earlier this year.

But how does this affect the market for windows and doors? There’s a social responsibility for us as individuals to help tackle climate change and arguably equally so for companies. Legislation is inevitable in that windows and doors for the remodeling and new construction sectors will enforce better energy performance. It’s already happening in parts of Canada for public buildings.

It’s also already happening in the UK with an announcement due in the next few months providing a requirement for windows and doors to offer a U-value of 1.2 (W/m²K) as the new standard for new construction projects, which equates to 0.21 Btu/(h·ft²·°F). Other G7 countries have made a similar pledge as they look to improve the energy efficiency of all privately and publicly owned buildings.

But arguably it’s not just the products we are looking to install in buildings across the U.S. that come under scrutiny. Consideration also has to be given to the aperture. If a window is installed with a ¼-inch gap around it and only sealed with

Kömmering's System 76 platform has been adapted for North American markets with the inclusion of a nail fin, while fly screens can also form part of the installation process. At 3 inches front to back, it is suited for the new construction and remodeling sectors.



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➔ Eye on Fenestration

a mastic/silicone sealant, then the window won't perform to its maximum. For this reason, we're seeing the increased adoption of expanding foam tapes in the UK and in Europe, which help seal the gap between frame and wall construction with a neat finish.

The U.S. is starting to more widely adopt European-style tilt-and-turn windows for performance reasons and energy efficiency benefits. These windows and doors also offer strong sound reduction credentials.

According to research from VinylPlus, a commitment of the European PVC industry to sustainable development, vinyl is proving to be the best solution from an energy efficiency point of view, when compared to similar lumber (timber) and aluminum offerings. From an environmental perspective, vinyl can also be recycled up to eight times. With a typical lifespan of 25 years, that equates to a 200-year product life cycle.

But with the UK already looking at revising the building regulations further in 2025 down to a near Passivhaus standard of 0.8 W/(m²K), or 0.14 Btu/(h·ft²·°F), will the other G7 countries,

including the U.S. and Canada, look to adopt similar standards? The ramifications across the industry are considerable and will particularly affect the large systems and extrusion houses, glass processors and even those producing spacer bars, among other ancillaries.

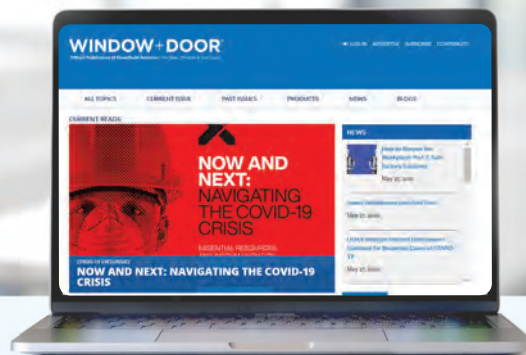
Frame depths will inevitably get deeper over time, while vinyl window and door profiles will necessitate more chambers within them to help improve performance standards. Profile inserts may well also become more of the norm in time.

Yet how soon will it be before Passivhaus standard windows and doors are installed by companies with a net zero carbon emission, zero landfill of all materials and transported on electric vehicles? The technologies, systems and equipment are already here. While it may seem a step change in the way in which we work and in what products are currently installed, with the rate of change to help tackle climate change ever increasing, it might just be sooner than you think. ■

Robert Thiroff is executive director, international markets, and president of Kömmerling USA Inc.

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The Increased Risk of Installed Sales

Recognize and prepare for the liability that can come with product sales and accompanying installation services



By Melanie Scherer

If you're a manufacturer or seller of window products, you've likely encountered a request to also include installation services along with the sale or supply of window products. Installed sales scenarios can arise in dealer and manufacturer/supplier contexts, and both carry some level of increased risk.

To prepare for and protect against future issues, it is essential to recognize the types of liability that can come with the product sale and accompanying installation services.

Product exposure

Of course, risk exposure exists for the sale or supply of the window or door product itself, separate and apart from any attendant service. This scenario is typically more straightforward—if there is an issue or a defect with the product, then the product warranty or terms and conditions associated with the sale of the product should address how such a situation may be handled. In the context of a claim, you have the opportunity to hold up the warranty to enforce its terms.

Approaches to limit exposure within the product warranty include exclusions of certain damages and limitations of certain remedies. Because state and federal law can impact your ability to properly limit exposure when it comes to the product warranty, it is a good idea to consult with your legal representative to ensure your warranty includes legal and enforceable provisions.

When you add in the installation component, the warranty may still provide some level of protection, but additional risk exposure arising from the installation services and any relevant contractual obligations attached to the installation require additional consideration.

Installed sales

Taking on the responsibility of installation, either directly or through a subcontractor, carries added risk. Recognizing the possible avenues of risk involved in providing installed sales is the first step to being prepared to prevent or at least respond in the event such risk occurs.

Providing installation of window and door products will typically involve a contractual relationship with the developer or builder entity, or directly to the property owner. In the developer/builder context, there may be an existing agreement in place containing standard provisions applicable across various projects and developments. Consult your contracts to gain a full appreciation of which contracts are in place, and the terms and conditions. Be on the lookout for any addenda to the contracts, as these can significantly alter the terms of an existing agreement.

Defense and indemnity provisions are commonly included in installed sales contracts. These obligations could kick in as soon as you are provided with notice of pending or threatened litigation from the party to the contract. Defense and indemnity involve a significant amount of risk, so being aware of the existence of these obligations is key to understanding your responsibility and exposure to such risk, ideally before an issue arises.

In negotiating the terms of any contract, pay close attention to these provisions, and try to revise the language as much as possible to offer protections and limitations to that exposure. For example, specific notice requirements, limiting the scope of your obligations, and other potential revisions to "standard" defense and indemnity language, could help limit your exposure if the parties to the contract can agree on the front end.

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Also watch out for additional insured provisions requiring you to name the other party to the contract as an additional insured under your company's general liability insurance policy. These clauses are common in construction contracts with developers and general contractors; contracts for installed sales are no exception.

Similarly, if you take on the responsibility to install the window and door products you sell, but subcontract the installation to a different company, be sure to include the appropriate defense and indemnity requirements, as well as additional insured protections in your agreements with the subcontractors.

While everyone hopes to avoid getting into a legal dispute, setting clear expectations and requirements in the contracts can help all parties to contracts navigate these situations professionally and collaboratively as long as everyone is on the same page with respect to what will be required in the event of a lawsuit or threat of legal action.

Overall, the best approach is to rely on your product's warranty to the extent possible. For any exposure falling outside of the scope of the product warranty, seek to incorporate protections into your contracts to proactively address issues that may arise.

Doing business contains inherent risk exposure, but there are a variety of tools and approaches to effectively limit your exposure and anticipate and protect against scenarios that could expand your risk. Working with your legal team to explore those options is the best approach to ensure you are fully taking into account the risks and addressing them prudently and in good faith. ■

Melanie Scherer is an attorney with The Gary Law Group, a law firm based in Portland, Oregon, that focuses on legal issues facing manufacturers of windows and doors. Contact her at 503/620-6615 or melanie@prgaryl.com.

Glass Enterprises Applies Personalized Service and Technical Savvy to Deliver for Clients

Based in Bensalem, Pennsylvania, Glass Enterprises Inc. delivers high-quality, innovative glass options for its customers ranging from IG and security glazing to railings and doors. The company takes pride in its offerings to help architects and glazing contractors make their visions a reality.

But it's not just exceptional products that Glass Enterprises has to offer. It views itself as distinctive in today's business climate because it offers all the products of bigger companies with a personalized customer experience that comes from its foundation as an independent, family-owned business.

"One transaction does not win the day," said Joshua Burg, CEO of Glass Enterprises. "That's why we are not order takers, we are collaborators. We ask questions, we understand what our customers are trying to accomplish from aesthetics to performance, and we bring them the right solution."



The company is also unique in its relationships with architects and its deep understanding of the market.

"Glass has become so much more specialized, and performance requirements have become even greater," Burg said. "More than anything, our customers need a technically savvy partner that is involved with the success of the project even before it goes out to bid. Our relationships are what enable us to be there throughout

every stage of the project—from design through close-out."

Investing in People, Process and Performance

Part of delivering on its promise to provide "unrivalled customer experiences" is making investments in the right places. For Glass Enterprises, its people are the No. 1 priority, ensuring every individual is not only committed to the success of customers, but also to having a passion and excitement for the work they are doing.

Glass Enterprises has made significant investments in automation and technologies that will provide consistency, thermal efficiencies, and replicable quality every time—a quality that Burg cites as a major concern for architects.



"A few years ago, we decided to add a second fully automated LiSEC line and used it as an opportunity to investigate spacer options," Burg said. "We did a full analysis, weighing the risks and rewards and decided that Super Spacer® T-Spacer™ was the right way to go. It offered us flexibility, performance and no fluctuation on the edge, providing clean sight lines every time."

Burg also noted that samples using Super Spacer T-Spacer look exactly like the finished product, giving customers a clear

idea of what to expect. And after a little over a year using the warm-edge product designed for automated lines, he is more than pleased with the results.

"With Super Spacer T-Spacer, we get no rejects, no seal failures and nothing but a consistently high-quality product," he said. "Within a year we were able to convert 80%-85% of our IG to T-Spacer, and our customers have been extremely receptive to the change."

Communication Is Key to Successful Relationships

Just as Glass Enterprises has a collaborative relationship with its customers, the company values the same from its suppliers. When asked about his experiences working with Quanex, Joshua noted that the two companies have developed a cooperative relationship built on open communication.

"Quanex is one of the few suppliers that maintains open communication—no matter what," he said. "Even though it is a big company, you always feel valued as a customer. Quanex truly excels at communication, and we work together through the good and the bad. That's the most important thing these days."

Burg also values the marketing support from Quanex as they have worked together to develop materials and educate customers on the value Super Spacer T-Spacer provides not only to product efficiency, but also to the quality and performance of the end product.

"Any supplier is only as good as the people that represent them," Burg concluded. "We've developed great relationships and share a common value to bring people together and to work with passion to always do what's right."

Glass Enterprises has two locations and more than 100 employees serving the Eastern U.S. from Boston to eastern Pennsylvania, and south through Virginia. **For more information, visit glassenterprises.com**

Quanex Wins 2021 Best Green Project for Flagship Project in Denmark

Affordable architecture is a pressing concern around the world. However, the issues of sustainability, energy efficiency, land sealing, recycling management, comfort and social integration can sometimes be thought at odds with cost-effective construction.

BaseCamp Lyngby, a major new living complex to house students at the Technical University of Denmark, pulled off the remarkable feat of combining these complex requirements within a spectacular, multi-award-winning student residence. Serial, modular construction, low-cost, recyclable façade materials, renewable energies and near-natural building greenery and seepage areas were the key to success here, as was the use of Quanex's warm edge spacer system, Super Spacer® T-Spacer™ Premium Plus.

The project recently was named the winner of *Glass Magazine's* Best Green Project for 2021. Here's how the architect firm Lars Gitz Architects, glass processor Glaseksperten A/S and Quanex worked together to ensure the project was a success.

A Modular Approach

To meet the estimated construction costs of around €75 million, Lars Gitz Architects designed a trapezoidal module that is repeatedly rotated by 180° and stacked at different heights to create the gently rounded structure. The building's outer skin also constitutes a model example of cost-efficient construction. The ventilated curtain wall is insulated with rock wool and clad with slabs made of pressed volcanic basalt rock from Rockpanel. With a weight of 8.4 kg per m², the extremely light material can be cut to size on-site and simply attached to the substructure.

The façade's panels with their natural wood look almost entirely consist of natural volcanic rock and recycled rock wool and can be repeatedly reused in line with the idea of a circular economy. This makes the façade one of the pillars of the sustainability concept. The energy-saving green roof with the photovoltaic modules serves as a form of thermal insulation, an energy provider and natural air conditioning. The rainwater that is captured is returned to the natural water cycle via evaporation, which consequently relieves the burden on the sewage system and lowers the ambient temperature.

Energy-Efficient Glass

As is so often the case in Scandinavian architecture, the BaseCamp apartments and communal areas are glazed down to floor level to allow as much daylight as possible into the room, even during the winter.



Glaseksperten supplied 4,000 insulating glass units packaged in sizes of up to 4.011 x 1.127 meters to the construction site in accordance with a meticulous logistics plan. Due to the organic shape of the building, the glass structures change according to the direction. Depending on the heat input and amount of light, solar control glass, thermal insulation glass or clear glass with varying coatings and glass thicknesses were used. Glaseksperten opted for Super Spacer® T-Spacer™ Premium Plus in various widths as the warm-edge spacer system.

"An ever-increasing number of our customers wish to install energy-efficient windows," said Glaseksperten Sales Manager Jesper Hønning. "We consistently use low-emission thermal insulation glass and solar control glass combined with nonmetal warm-edge spacers in order to avoid thermal bridges and optimize the heat transfer coefficient."

At the company's headquarters in Hjørring, an ultramodern, automated insulating glass line is

available to produce insulating glazing for sizes of up to 3.2 x 6 meters. "Super Spacer is of key importance to Glaseksperten in supplying quality products, which also ensure we are a leading company in economical and ecological terms," Hønning added. "The fully automated continuous application of spacer from the reel saves time and money and guarantees top-class product quality that is reproducible."

"Northern Europe is a global pioneer in the field of climate protection and therefore one of the growth markets for warm edge products," said Joachim Stoss, managing director of Edgetech Europe GmbH and vice president, International Sales, at Quanex. "Of course, we are extremely proud that our Super Spacer system has been installed in another Scandinavian flagship project."

Follow us on [LinkedIn](#) to see more Quanex product in action.

Nike NYC Flagship Store Case Study

The Nike flagship store is an unconventional retail space that covers more than 68,000 square feet on the corner of Fifth Avenue and 52nd Street in New York City. The six-story building, called House of Innovation 000, opened its doors in 2018 to bring customers an immersive brand experience.

The various floors of the building offer spaces and experiences that are responsive and personal to shoppers. One floor is stocked with the community's favorite shoes and apparel based on local data. Another allows customers to customize purchases before leaving the store. There's even an entire floor that can shift into new layouts and configurations based on the available selection.

The futuristic brick-and-mortar needed a storefront that matched its innovative interior and bold brand personality. A glass curtain wall façade offers a 3D texture in daylight for citygoers and dazzles at night with the colorful inside of the store illuminating the building.

The dynamic custom slumped glass façade was created in Barcelona, then shipped to Germany for assembly and features Quanex's Super Spacer® TriSeal™. The flexible, warm-edge spacer blends

perfectly with the design's unique size, shape and form, offering a seamless aesthetic. With its superior Psi-value, the spacer enhances environmental comfort for those within the store, preserves up to 70% energy and resists condensation. Super Spacer offers both strength

and durability for commercial applications where failure is not an option.

For more information and Super Spacer case studies, visit [Quanex.com](https://www.quanex.com).



Tackling Performance Challenges at GlassBuild America 2021



GlassBuild America returned to Atlanta this September, where eager attendees and vendors converged on the show floor for the first time since 2019, looking for new ways to solve some of the industry's toughest challenges.

At Quanex, we're committed to helping our customers do just that. Our team was happy to return to GlassBuild America once again, and the show was a great reminder of the power of in-person conversation and collaboration. Here are some of the things we heard:

"I need to speed up and streamline my insulating glass production."

When demand is up and you need to keep up with production schedules, look no further than the Quanex Edgetherm® family of high-performance sealant solutions for insulating glass (IG).

Quanex's Edgetherm® 3500 is a single-part, butyl-based sealant that sets quickly from its molten state, allowing units to be moved from their assembly locations between two and five minutes after application and glazed the same day. A combination of high output and fast heat-loss properties reduces the risk of corner defects for a complete seal around the unit.

Edgetherm® 3600 hot-melt butyl sealant for IG units is an active, single-part sealant that offers superior performance, productivity and durability over comparable technologies for IG. It's formulated with i-Boost™, an exclusive technology from adhesive company Bostik, making it easy to produce more robust and durable units at the highest application speeds, with no curing time and the shortest skinning time on the market.

"I need efficient, large-format door technology that meets commercial structural ratings."

Large glass is increasingly desirable in commercial applications, and delivering on that demand requires the technology that meets critical specifications and high structural ratings while balancing outstanding thermal performance. The answer can be found in Quanex's new K2 series commercial vinyl sliding door systems.

The **K2 series commercial vinyl sliding door** has been thoroughly tested to AAMA standards, achieving an HC50 rating for 8-foot heights and a C35 rating for 10-foot heights in multiple-panel configurations. Its design includes equal glass and sight lines and multichambered profiles for strong welds and maximum thermal performance. It can accept multiple glazing options, such as monolithic or insulated, and utilizes a variety of hardware options. The K2 door is manufactured with long-lasting, .100"-thick-walled MikronBlend® extrusions that will stand up to even the harshest weather conditions and will never pit, warp, rot, corrode, peel or crack.



"I'm going to market in a new region—how can I meet that region's specific needs?"

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- AAMA certified to provide peace of mind from production to installation

"I need a proven spacer system for commercial performance."

For commercial IG, there can be no compromise when it comes to dependability and performance. Providing a unique triple-seal design, **Super Spacer® TriSeal™** is the premium choice for commercial insulating needs, including silicone structural glazing. Found in architectural marvels all over the world, from the Eiffel Tower in Paris to the Museum of the Future in Dubai, Super Spacer TriSeal incorporates an inner acrylic adhesive seal for immediate unit handling, a polyisobutylene primary seal for enhanced gas retention and low moisture vapor transmission, and an outer silicone seal for proven structural strength and superior durability.

Super Spacer is uniquely suited for use with modern, high-speed spacer processing equipment, including vertical automated lines, helping today's commercial glazing professionals drive their business forward efficiently and with confidence.

For more information about these solutions and everything Quanex has to offer for today's fenestration professionals, visit www.Quanex.com/GlassBuild

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Software Standards and the Supply Chain



Creating software standards for the supply chain can reduce barriers to entry and allow all manufacturers to participate **By AJ Piscitelli**

From graphics cards to glass, wood to web cams, and vinyl to vehicles, everybody has been impacted by the delicate supply chain the pandemic rocked. Lead times have been extended, products are hard to get and increased demand has sent prices skyrocketing. Your purchasing department may be spending more time trying to secure raw materials than they have in the past.

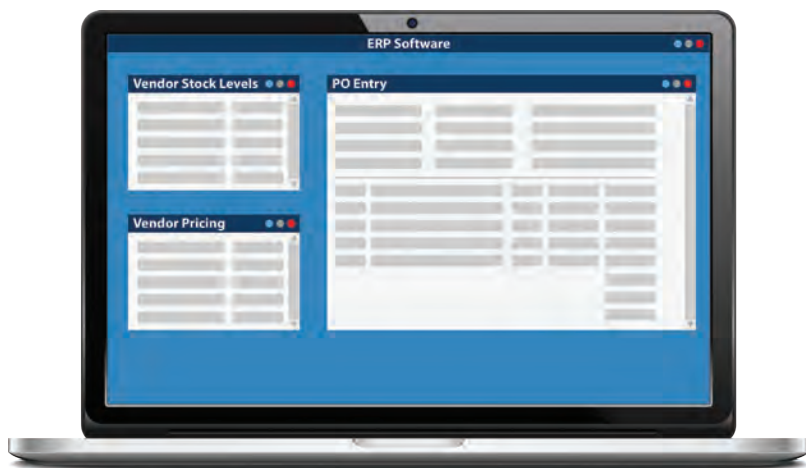
That is why it is more important now than ever to look for ways to streamline and automate your supply chain. Developing custom solutions for each customer and vendor requires increased effort and costs, creating roadblocks for automation. How do we solve this bottleneck? We create standards for

the supply chain, which can reduce the barriers to entry and allow all manufacturers to participate.

Standards can automate purchase orders

“Automating and streamlining the purchase order process increases efficiency. It makes the overall process easier to document, train, deploy and enforce,” says Reed Ashmore, COO of Burris Windows in Carrollton, Texas.

What does “automate” mean when it comes to purchase orders? First, you should not be calling or emailing your vendors to resupply your inventory. When submitting a purchase order, your ERP system should electronically convey



With advanced integration, ERP systems can show vendor information, like stock levels and pricing, without having to leave the software.

Collectively, manufacturers have the power to influence the entire industry to incorporate more automation into its supply chains.

that information to your vendor.

Similarly, your vendors should automatically import those purchase orders. This automatic process eliminates the possibilities of human error normally associated with rekeying orders into another system. In addition to reducing purchasing errors, it also reduces the time required by both your purchasing staff and your vendors' customer service representatives.

Saving time saves money. Lowering vendor costs today may delay a price increase for you in the future. Additionally, some vendors offer incentives for customers to automate. It is a good discussion to have with your vendors when planning the automation of your purchasing process. They may help offset some of the costs associated with integrating a new automated solution.

Not automating could also create vulnerabilities. "Over the years, I have

heard of established purchasing managers that have the entire inventory needs of the business memorized, operating manually," recalls Ashmore. "Then at some point, I hear the story where the manager has moved on with all the business's purchasing knowledge and then chaos ensues."

Situations like that disrupt any business, and can lead to inventory shortages and production stoppages. Automating supply chain transactions mitigates the risk associated with key staff leaving.

Standards can increase supply chain visibility

After automating the purchase order process, the goal is to grow that automation to allow the flow of all critical information up and down the supply chain. Inventory levels, pricing, lead times and other key details can

be shared between customers and vendors. The ability to see this critical vendor information directly in your purchasing software, such as an ERP package, allows you to make decisions without having to call or visit websites for different vendors.

"By having relevant and accurate vendor information available immediately, Burris can make critical decisions on managing inventory," says Ashmore, noting that most vendors in the fenestration industry are often behind others when it comes to automation. "Without integration, Burris is relying on calls, emails and text messages that can get mixed up and lead to poor purchasing strategy. I often look at our current business and compare it against large-scale retailers, like Home Depot or Lowe's, and their suppliers, where everyone participates in making the supply chain as efficient as possible."

As Ashmore points out, the major retailers in the industry are great examples of how automation is necessary to grow. It is impossible to operate at the immense scale of these retailers without a tight integration with suppliers. Individually, any window manufacturer is not the same size as the major retailers and may not be able to demand this level of integration from its vendors alone. Collectively, however, manufacturers have the power to influence the entire industry to incorporate more automation into its supply chains.

Supply chain automation also provides an opportunity for industry vendors to stand apart from the competition. A lot of products compete on price alone, making it difficult for vendors to compete in the market. Vendors who provide a more seamless experience to their customers attract more business than those who do not.

Standards can reduce integration costs

When discussing integration development, it is hard not to look at how far we have come. Ashmore recalls the phone and fax machine as primary methods of interaction in 1999, which eventually evolved to Excel spreadsheets and then

PRO-LINE

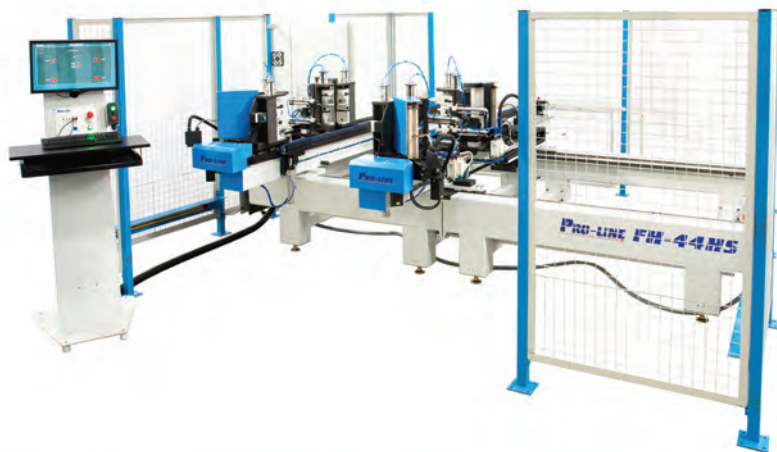
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Systems are moving from using limited file formats like CSV and DAT, to more complex formats like XML and FENml that can store more information.

FeneTech has observed the benefits of providing a more seamless customer experience for well over a decade. Window manufacturers who newly integrate FeneVision WEB, a self-service, web-based quoting and ordering tool, tend to see an uptick in orders from their customers. In addition, as new features are integrated into WEB, customers have switched manufacturers to gain access to these features in high-competition areas. Those window manufacturers who do not automate and upgrade end up losing business.

databases, many of which had individual system requirements. Manufacturers across the industry have increased the amount of data exported to vendors, as well as data imported from customers.

Developing individual integration points for each vendor, however, may require custom development and can be expensive. Supply chain standards reduce the amount of required integration development, and ultimately reduce integration costs. FeneTech has been working with one of these standards, called FENml. FENml, or the Fenestration Manufacturing Language, is an open standard that describes data flows and transactions between customers and their vendors for the fenestration industry.

Ashmore reiterates the importance of these standards in our industry. “EDI systems are starting to support XML, or more importantly FENml, where support for additional product attributes and process are possible. The fenestra-

tion industry will be able [to] adopt these types of EDI strategies to finally move forward at a faster pace. Anything that promotes a seamless environment should not only be welcomed, but demanded, if not required.”

How to get started

Look at your current processes to determine how much time is being spent ordering products and what takes the most amount of time from your purchasing staff. Then reach out to your vendors to determine what level of integration they support. Some good questions to start with are:

- Can they receive purchase orders electronically?
- Can they reply with order acknowledgements, packing slips and invoices in an electronic file format?
- Do they support standards?
- Can they provide other product information, such as pricing,

inventory levels and lead times?

- Do they offer any incentives for automating the purchasing process, such as price breaks or better lead times?
- Will they help cover the costs of incorporating this integration into your software package?

Then reach out to your software provider. Discuss the integration capabilities of your current software package. Good questions to ask are:

- Does your software package support automating the purchasing process?
- Can it ingest data from your vendors and display this information to your staff?
- Does it support supply chain standards for communication?
- Will there be custom development required?

These conversations will help you plan a strategy for supply chain automation. This process will take time, but the benefits will be worth it. “I look at the integration models used by major players like Home Depot, Lowe’s, Walmart and Amazon, and I see it as a win-win,” says Ashmore. “The development and investment in information systems and processes by these companies increase their operation efficiencies. These gains are beyond the comprehension of most businesses in our industry at this time.

“In the future, I am sure we will find these investments in technology and automation move into software systems run by business with the help of various software companies,” he continues. “It will be a long journey until most of the suppliers and fenestration manufacturers can adopt a simplified strategy that can shift all of us in the right direction.” ■

AJ Piscitelli is a project manager at FeneTech, where he works in FeneTech Labs, creating solutions for the fenestration and glass processing industry, such as FENml. If you have any questions for AJ, he can be reached at aj.piscitelli@fenetech.com, or on LinkedIn at [linkedin.com/in/ajpiscitelli](https://www.linkedin.com/in/ajpiscitelli).

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TRENDSHUNTER

The black on anthracite grey REHAU System 4500
with Attivo hardware was fabricated by Amieva
Cristalum. Credit: REHAU

BACK TO BASIC



Streamlined, simple trends reign in today's hardware design



BY DIANA MAHER

In a recent discussion with some fabricators, simplicity emerged as the overarching theme in hardware design. Simplicity can be achieved in many different ways: color, shape, operation and amount of hardware, among others. Specific trends span residential and commercial spaces alike.

Source a cohesive look across styles

The industry is reaching toward versatile hardware that can be applied to more than one model of window or door. "Hardware that can be extended to multiple applications simplifies production for fabricators and makes coordinating matching hardware throughout a space easier," says Katherine MacNevin, marketing manager of the window solutions division at REHAU. More versatile hardware not only streamlines manufacturing; it also leads to a cohesive look throughout a space.

Choose the effortless option

Fabricators report many consumers want hardware that is easier to use. Multifamily building owners, in particular, want reassurance that the occupants will know how to operate windows and doors in their spaces. "Window style choices are being driven by ease of use. People want the easiest possible



Above: The REHAU LINEA handle design (shown in Brushed Nickel) is equipped with the Secustik patented closing mechanism that clicks when the window is opened, tilted and closed and a spring-activated spindle that adjusts to a range of profile thicknesses. Credit: REHAU

Right: Hardware at the foot of this REHAU System 4500 tilt-slide door is concealed behind a profile-matching base plate. Credit: REHAU



window that will seal well and that their occupants will know how to use,” says Alison Ray, commercial sales manager at Alpen High Performance Products in Niwot, Colorado.

Accessibility is key in today’s society. For windows and doors, this means reconsidering standards for hardware to better suit people’s needs. Hung and slider window hardware is generally not accessible for people in wheelchairs because of the latch height. Styles with operators that can be placed at lower heights make them easier to use, giving rise to casements and tilt-turns. Hardware should also have features for the visually impaired, such as a handle that audibly clicks when opening, tilting and closing the window.

One-touch hardware and antimicrobial finishes can ease sanitation measures by reducing fingerprints and spread of germs.

Create a clear view with less hardware

Windows and doors are meant to showcase spectacular views, not hardware. Rather than having several pieces of hardware that perform different functions, one multi-functional piece may reduce visual clutter.

“Anywhere you can minimize the number of pieces of hardware, the better. Reducing moving parts is always beneficial, as long as the window can still be operated and maintained properly. It helps clean up the lines of the window,” says Randy Hoover, engineering manager for the window solutions division at REHAU.

Concealed hinges also remove hardware from the field of vision. Primarily used on tilt-turn or turn-only windows and balcony doors, this type of hinge does away with the color-coordinated cover caps normally seen on surface-mounted hinges. “A lot of

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This casement window features a contemporary cover and handle by AmesburyTruth. Credit: AmesburyTruth

customers want the concealed hinge because they want to simplify their operations, since the concealed hinges are easy to install and are invisible at first glance,” says Hoover.

Stay in the dark

Whether black-on-black or black-on-white, there’s no question black hardware is in. Black is the foundation for much of today’s Euro-inspired design. “For our tilt-turn doors, we just do a bullet catch on our door systems and paint the pull handle to match the exterior so that it completely disappears from view. It gives you a really nice, sleek look, more like a window,” says Laura Weil, vice president of euro + glasshaus in Woodbridge, Ontario, Canada.

If too much dark isn’t suitable for a space, minimalist black hardware on white windows can also be very striking.

Make it matte

Smooth, matte hardware can spell understated sophistication. Matte recedes, drawing attention to the exterior view or your interior furnishings. “This design attraction to matte I think is very much European-influenced,” says Weil. “Our customers used to show pictures of places in Miami as inspiration and that is no longer the case. Now, it’s more the Scandinavian or Euro aesthetic that’s driving matte to be the most popular hardware finish.”

Have an answer for the statement door

Demands for hardware shift with window trends. “A few years ago, there were a lot of conversations around shape ... those large Palladium curved windows. Now it’s more about a statement door and really nice hardware finishes,” says Weil.

Jeromy Haines, president of Progressive Windows in Fairview, Oklahoma, agrees there’s a trend toward higher-end doors. “Hinged doors

“Hardware that can be extended to multiple applications simplifies production for fabricators.”



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This AmesburyTruth Executive Hardware on REHAU 2200 sliding patio door was fabricated by euro + glasshaus. Credit: euro + glasshaus

are still our most popular, but we currently sell more tilt-slide doors than standard sliding patio doors.” Hardware is a great way to customize and upscale a window or door system. “Tilt-turn, tilt-slide and lift-slide ... these doors are cool so you want hardware that matches the cool factor. There’s some really chic statement hardware available from European suppliers, and consumers seem to be willing to wait for a special delivery to get exactly what they want,” says Hoover.

Broaden horizons with bigger and better

Large unobstructed views connect indoor and outdoor spaces. Bi-fold, hinged and sliding doors accentuate open floor plans by allowing two spaces to become one. Casement and floor-to-ceiling

windows increase light infiltration into the interior without the clutter of panes. The bigger the window or door, the stronger the hardware that is needed to ensure it operates efficiently and effectively. “The trend is larger and larger windows and doors, so we have been increasing the strength of our hinges and handles to be able to accommodate the larger and heavier sashes,” says Hoover. ■

Diana Maher is a communications intern at REHAU. A rising senior at Virginia Polytechnic Institute and State University, she is pursuing a bachelor’s degree in public relations and a minor in event management.



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GlassBuild America Displays Industry's Resilience

Exhibitors, suppliers return to in-person event with high energy and a focus on meeting industry challenges

GlassBuild America: The Glass, Window & Door Expo was back in Atlanta Sept. 13-15 for the first time since 2019. The largest annual industry tradeshow in the Americas drew 5,100 participants to its 114,874-net-square-foot exhibit floor.

"People are social animals. They need to be together and that was evident at the show," says Gary Hartman, vice president of sales and marketing, Chelsea Building Products. "Folks who made up their mind to attend were glad they did. Those who were hesitant to attend, and did, were glad. Those who didn't attend probably wish they did."

Though with fewer exhibitors than usual due to the global pandemic and pre-registrations tracking lower than normal, the National Glass Association, organizer of GlassBuild America, and exhibitors alike were pleased with the final participation.

"The attendance and energy on the show floor exceeded our expectations," says Nicole Harris, NGA president and CEO. "We are grateful to everyone who made the extra effort to show up in person to see each other, their suppliers and the most exciting products and services our industry has to offer. Having such a good turnout is a testament to this industry's resilience and forward-thinking attitude."

"Even if it was a smaller scale," says Florian Doebeel, business development manager, façades, Sika Corp., "all attendees were absolutely focused on improving their business and business relationships. All of them showed up with specific interest and demand."

David Harris, product manager – exterior solutions, American Renolit, echoes this sentiment, saying that attendees were, "anxious to discuss in person how to work through current challenges and to plan

Show Highlights

Attendance: 5,100 attendees from 48 U.S. states and territories and 35 countries

Exhibit floor: 114,874 net square feet at the Georgia World Congress Center in Atlanta

Education: GlassBuildTV featured more than 3.5 hours of industry programming from about 20 glass and fenestration industry associations

Glass product trends: Larger glass sizes, higher thermal performance, protective glazing, custom offerings

Equipment trends: More automation, integrated machines, safer handling, ease of use, labor-saving solutions

Industry headwinds: Labor shortage, supply chain delays, freight and other material costs

Next up: GlassBuild America 2022, Oct. 18-20 in Las Vegas

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for positive projects in the future.” He continues, “It seemed like there was a kind of sense of togetherness as everyone was able to reflect and relate about the struggles and accomplishments we have had over the past 18 months.”

This hints at another theme that was prevalent at the event: despite challenges, the industry remains strong. “GlassBuild 2021 showed the strength of the window, door and glass industry, and the commitment to customer service and product advancements during difficult times,” says Laura Fiegelist, marketing communications coordinator, GED.

Addressing industry challenges

At the event, exhibitors and attendees alike expressed supply chain as a top-of-mind issue, followed by ongoing labor shortages and concerns. People were looking for solutions to ease some of the problems they face, both now and going forward. “Even though folks are busy

now, they are looking to the future,” says Hartman. “When the current situation ends, what will they need to do to give their business a competitive advantage?”

Steve McDowell, NFRC’s residential program manager, notes supply and labor pain points. “Consumer demand for fenestration is extremely high, pointing to a significant rebound in the market, but supply chain constraints and labor shortages are somewhat hampering efforts to meet those demands. Suppliers and manufacturers are very optimistic that the increased demand will continue well into 2022 and 2023.”

And, while labor challenges have been even more difficult due to this high demand, Morgan Donohue, president, Erdman Automation, believes that we would have been in this situation regardless of the pandemic, just to a lesser degree. “We are using robotics more due to the labor shortage; the robots are easier for our customers to cost justify now,” he says.

In order to meet this demand, Donohue also points to the need to diversify products, to protect against supply disruptions. “This will lead to some interesting shifts in how people approach vertical integration in an organization.”

While looking for solutions was one obvious mission of those at GlassBuild, attendees were also there to stay on top of trends and build a competitive advantage in realizing the ways to accomplish those trends. “Many visitors were new prospects, but also existing customers, which all came with a mission to the show: to talk business, to find out what is new in exterior laminate finishes and to educate themselves about profile wrapping or to expand their current operation,” says Marco Patermann, manufacturer’s representative, Continental and FUX.

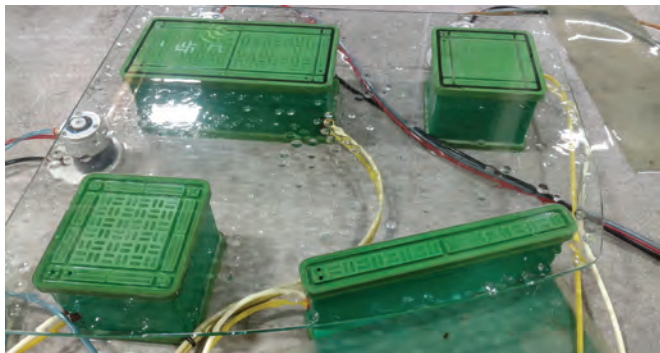
Another trend, according to GED’s Fiegelist, is the future of IG and vinyl equipment, which is in high-speed, automated systems that offer labor savings while maintaining great quality and precision. “We met with many customers and had great discussions about new IG and window systems and software products we introduced prior to and during the show,” she says. ■

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02



03

01 / Inox

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02 / SoftLite Windows & Doors

SoftLite introduced a black-on-black option for its Elements and Imperial Elite window lines and select Kingsroyal Glide sliding patio door designs. Operating style options include double-hung, slider, picture and casement windows, as well as custom-shaped windows. The laminate is designed to withstand environmental pollutants and is safe in all climates, according to the company. Brushed nickel hardware is standard on the Elements line, and the Imperial Elite has black hardware. **330/427-4132 | SOFT-LITE.COM**

03 / United Window and Door

The Distinct double-hung window is constructed of composite materials with a hybrid design. Multiple seal points, an interlocking sash and sill, and a dual-bulb seal contribute to energy efficiency and air performance, according to the company. The window is available with acrylic color technology to provide a black interior and exterior and offers optional satin gray or white blinds between the glass and other exterior color options. **800/848-4550 | UNITEDWINDOWMFG.COM**

Product/Solution



WinTrax™// GED

Challenge

Residential vinyl window manufacturers encounter costly production asset management problems that can be easily addressed with the right technology.

Productivity and financial effects start to kick in as soon as a window is misplaced or overlooked. Time is lost as workers look for windows that may not be found and manufacturing expenses mount as management decides to remake windows.

A typical 1 or 2 percent lost window factor translates into hundreds of thousands of dollars a year that hurt margins and

profitability. Human error is the main problem, along with some barcode scanning equipment issues that arise. Barcode scanning has a 90.2 percent accuracy reading, whereas RFID technology yields a 99.8 percent accuracy reading and does not have operator interference.

Solution

To overcome the known barcode accuracy shortcomings, GED developed WinTrax™, the intelligent logistics system that tracks window assemblies through the production process to shipment (inside and outside of

facilities). Using RFID technology, WinTrax software offers window manufacturers a real-time view of window components (WIP) and completed windows (finished goods)—marked with uniquely encoded tags—as they pass through gateways at each production stage.

“WinTrax is the fundamental platform that gives the customer the tool they need to build a very powerful tracking production management system,” says Tim McGlinchy, executive vice president of engineering and R&D at GED. “The system is going to provide immediate pay back by realized efficiencies of not remaking lost windows and by providing the ability to get windows through production in a very predictable manner.”

Companies gain complete visibility of any window and reduce material, labor and production costs. Manufacturers can do all of that without disrupting their workers and operations. WinTrax benefits include:

- Decreased materials, labor and production costs: Tracks products within and after manufacturing.
- Increased customer service: Provides customers with product status throughout the process.
- Validates that the windows have left the building.
- Process Transparency: Ensures the window is being routed within the plant correctly.
- Equipment integration: Drives production requirements.
- Hands-free: There is no manual scanning; the process is automatic.

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People

ON THE MOVE



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Chris Ball joined **Masonite International Corp.** as president, global residential. He replaces *James A. "Tony" Hair*, who resigned in August. Ball most recently served as president – Americas for Cooper Tire & Rubber Co. and, before that, in various roles at Whirlpool Corp.

Masonite also appointed *Clare Doyle* as senior vice president, chief sustainability officer, and *Vicky Philemon* as senior vice president, general manager, Europe. Doyle joined Masonite as senior vice president, components, in 2016 and has served as senior vice president, general manager, Europe since 2018. Philemon was most recently managing director for Morphy Richards, a supplier of small appliances in the UK.



Kowalewski

PGT Innovations named *Eric Kowalewski* as executive vice president of Florida operations. He brings with him more than 20 years of operations experience in an executive role, most recently as senior vice president of operations for Cornerstone Building Brands Residential Group.



Leszczynski

Deceuninck North America hired *Mark Leszczynski* as vice president of operations at its Monroe, Ohio, headquarters. In his new position, Leszczynski will oversee the day-to-day management of the company's production operations, quality, continuous improvement and logistics, as well as the safety and maintenance of its U.S. facilities.



Macke

Cory Macke has been appointed as Deceuninck's plant manager for its Monroe production facility. As plant manager, Macke will ensure effective management and operation of the facility and play a leading role in the successful implementation of key company business initiatives to meet customer needs, according to the company.



Kermode

FeneTech Inc. promoted *Scott Kermode* to FeneTech software development group manager for FeneTech's Holly Springs, North Carolina, office. In his new role, Kermode will be responsible for growing the company's North Carolina software development presence, including complete responsibility for teams that will focus on developing FeneTech products and manufacturing system solutions.



Kato

YKK AP America appointed *Tomohisa Kato* as its first-ever chief sustainability officer. In this new role, Kato will oversee the company's sustainability strategy, with a focus on advancing and accelerating efforts in North America to promote sustainability in business and corporate practice. Kato will lead YKK AP's materiality-based strategic planning processes to enhance the company's continuous growth and society's sustainable growth through corporate development, technology innovation and process improvement.



Woznick

ODL Inc. hired *Ron Woznick* as its new chief financial officer. Woznick joins ODL with financial experience from footwear company Wolverine Worldwide. In his new role, Woznick will lead ODL's global finance, accounting, IT services and legal teams.



Davis

Sullivan Hardware added *Mike Davis*, *Avalanche Associates Inc.*, and *Jim Plavecsky*, president of Windowtech Sales Inc., to its roster of regional sales professionals. Davis will represent Sullivan Hardware in Illinois while Plavecsky will represent the company in Ohio, Michigan, Indiana, Kentucky, West Virginia and western Pennsylvania.

MI Windows and Doors promoted *Brett Erdman* to director of operations at its Hegins, Pennsylvania, facility. Erdman, who has been with the company since 1990, will oversee MI's largest replacement window manufacturing operation, according to the company.



Penhall

Jeld-Wen Holding Inc. appointed *Colleen Penhall* to vice president of global corporate communications. Penhall will lead all internal and external communications and will report to Tim Craven, executive vice president of human resources.



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FeneTech Inc.	19	330/995-2830	fenetech.com
GED	9	330/963-5401	gedusa.com
Hover	64		hover.to/possibilities
Lawrence Industries	47		lawrenceindustriesinc.com
MFM Building Products	36, 59	800/882-7663	mfmmbp.com
Mirror Mate Frames	27	704/390-7375	mirrormate.com/dealer
National Glass Association Websites	26		windowanddoor.com
Panda Windows & Doors	37	888/246-1651	panda-windows.com
PDS IG Equipment	29	303/948-4793	pdsigequipment.com
Pro-Line Automation	41	888/PRO-WELD	prolineautomation.com
Quanex Building Products	31-34, 53		quanex.com
Roto North America	3, 51	800/243-0893	rotonorthamerica.com
SEVASA	55	(34) 93-828-0333	sevasa.com
Solar Innovations	23	570/915-1500	solarinnovations.com
Stürtz Machinery	25, 63	330/405-0444	email: info@sturtz.com
Urban Machinery	13	800/263-4216	urban-machinery.com
Vantage Point Industries	7	909/786-0629	vantagepointindustries.com
Vision Hardware	4, 35	800/220-4756	visionhardware.com
Wakefield Equipment	22, 30	440/899-5658	wakefeldequipment.com
WPR srl	43		email: jpitcher@wraaptak.com

Statement of Ownership, Management and Circulation

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Market Data

OUTSIDE
VIEW



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Home Building Activity // Residential Construction Continues to Shift Toward Suburban, Exurban Communities

Exurbs and outer suburbs of medium-sized cities accounted for 18.1 percent of single-family construction in the second quarter of 2021, a market share gain of 0.8 percentage points since the fourth quarter of 2019. And while 45.8 percent of single-family construction occurred in core areas of large and medium-sized metros, that share has declined 1.2 percentage points for that period. Multifamily construction, meanwhile, grew by 14.3 percent in small metro urban cores and 25.5 percent in small metro suburban areas. Large metro core areas recorded a 0.5 percent decline. *Source: Home Building Geography Index, National Association of Home Builders*

Smart Windows

\$2.6b

The expected revenues for the smart windows market by 2026, up from \$300 million today. *Source: Smart Windows Market Opportunities and Analysis, 2021-2030, n-tech Research*

Remodeler Confidence

75.3

Remodeler confidence in Q2 2021 is up from a strong 72.7 in the previous quarter. *Source: U.S. Remodeler Index, Qualified Remodeler and John Burns Real Estate Consulting*

Housing Starts

2.8%

Decline in single-family housing starts in August amid ongoing supply chain issues and labor challenges. *Source: U.S. Department of Housing and Urban Development and the U.S. Census Bureau*

August 2021 window and door stock increase

2.1%

August 2021 S&P 500 increase

3.8%

12-month window and door return

18.8%

12-month S&P 500 return

28.2%

Stock prices of publicly traded window and door companies underperformed the broader market caused by construction data from the Commerce Department, which reported a 7 percent decrease in housing starts to a seasonally adjusted annual rate of 1.53 million units. Material supply and affordability issues continue to restrict the demand for new single-family units. Still, record low inventory will support high levels of residential repair & remodel activity while the new construction market increases supply in 2022. *Source: Lincoln Financial*

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