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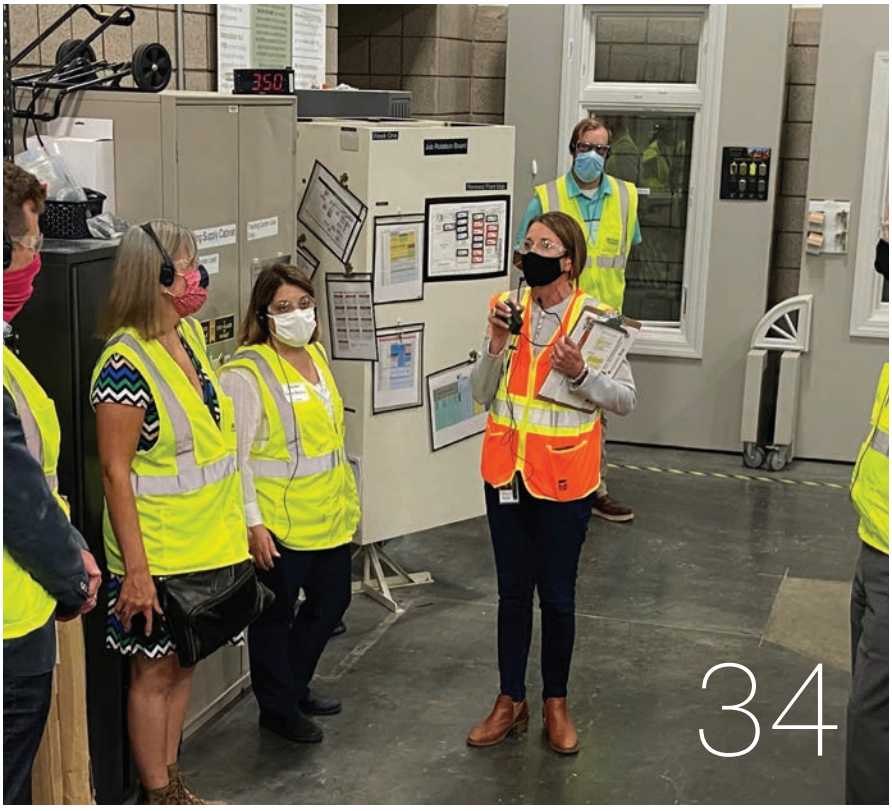

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Features

Insights

Intel

On the Cover: Amid the COVID-19 pandemic, residential fenestration companies demonstrated why the industry is essential in a time of crisis. Photo courtesy of Vector Windows

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As the official publication of GlassBuild America and its online experience in 2020, GlassBuild Connect, Window + Door is excited to offer exclusive webinars from the event throughout the remainder of the year via Glassbuild.com. Sessions are free but require registration.

Featured On-demand Education:

glassbuildamerica.com/watch-learn

- Veka Academy Spotlight: Town Hall Discussion
- A Glimpse Behind Roto's Manufacturing Curtain
- How to Achieve More Efficiency and Durability in Window Construction, Presented by Continental
- FenestrationMasters | NAFS Requirements
- Legislative and Regulatory Insights for the Fenestration Industry
- Women in Construction Roundtable

The Talk // Blogs of the Month

Catch up on all the latest industry "talk" at windowanddoor.com/talk

3 Reasons Manufacturers Should Take Advantage of Skinny Triples

By Eric Thompson, Quanex Building Products, quanex.com

What B2B E-Commerce Is, and Why it Matters to You

By Bob Koegler, Soft Tech, softtech.com

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IN THE KNOW

News

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NGA Extends GlassBuild Connect Through 2020

GlassBuild Connect will continue through December 2020, providing registered attendees on-demand access to more than 70 education presentations, and products and services from more than 300 exhibiting companies at GlassBuild.com.

"GlassBuild Connect was such a remarkable and collaborative endeavor," says Nicole Harris, NGA president and CEO. "Our exhibitors, sponsors, speakers, industry partners and NGA staff built something truly valuable in scale and caliber."

NGA produced GlassBuild Connect in collaboration with more than 300 companies serving the glass, window and door industries. Organizations representing all facets of the industry joined the effort, including the Fenestration & Glazing Industry Alliance, American Subcontractors Association, Fenestration Canada, Window & Door Manufacturers Association, Glass Canada and Architectural Record.

"In this year of in-person event cancellations, we're grateful that the industry has been able to come together at GlassBuild Connect," says Harris.

GlassBuild Connect is free to access, though registration and site login is required. Select webinars and events will continue to be held live on the site throughout the remainder of the year.

The next GlassBuild America is planned for Sept. 13-15, 2021, in Atlanta.

Trump Administration Lifts Reimposed Canadian Aluminum Tariffs

The Trump administration lifted the 10 percent tariffs on aluminum imports from Canada, which had been reimposed in August. The U.S. administration set up monthly quotas on Canadian imports.

"WDMA is pleased that the Trump administration listened to the concerns of manufacturers and rescinded the tariff on Canadian aluminum," Michael O'Brien, president and CEO of the Window & Door Manufacturers Association, said in a statement. "It is imperative that the administration continue to honor its 2019 trade agreement with Canada and reject any further tariffs on North American steel and aluminum. These tariffs can create uncertainty in the market and negatively impact the relationships with our long-standing trade partners."

DOL Revises Regulations for Paid Leave Under FFCRA

The U.S. Department of Labor's Wage and Hour Division revised regulations that implement the paid sick leave and expanded family and medical leave provisions of the Families First Coronavirus Response Act. The law enables employers to keep their workers on their payrolls, while at the same time ensuring that workers are not forced to choose between their paychecks and the public health measures needed to combat the virus, say officials.

The revised rule clarifies workers' rights and employers' responsibilities regarding FFCRA paid leave. ■

IN THE NEWS:

Month in Review

Soft Tech entered into an agreement to be acquired by global software company Compusoft Group, which specializes in the kitchen and bathroom design software space, for an undisclosed amount. Soft Tech reports it will operate as a subsidiary of Compusoft and the company name, branding and existing leadership will remain intact.

Veka Inc. launched ExperienceVEKA.com, a site that provides product updates, educational events and livestreaming opportunities. **Caldwell** also debuted Caldwellinnovation.com, a site to promote new content via product videos, sell sheets and technical information.

Jeld-Wen announced its plans to expand production at its Randolph County, Alabama, plant, which it anticipates will create up to 40 new jobs.

PGT Innovations held a drive-through Hurricane Laura relief supplies distribution event in Lake Charles, Louisiana. **Milgard Windows & Doors** participated in a Habitat for Humanity build day for the eighth consecutive year. In other charitable news, **MI Windows** hosted a volunteer day and key ceremony for its 300th Homes For Our Troops specially adapted veteran home; earlier in the summer the MI Charitable Foundation raised more than $440,000 during its online summer concert. ■

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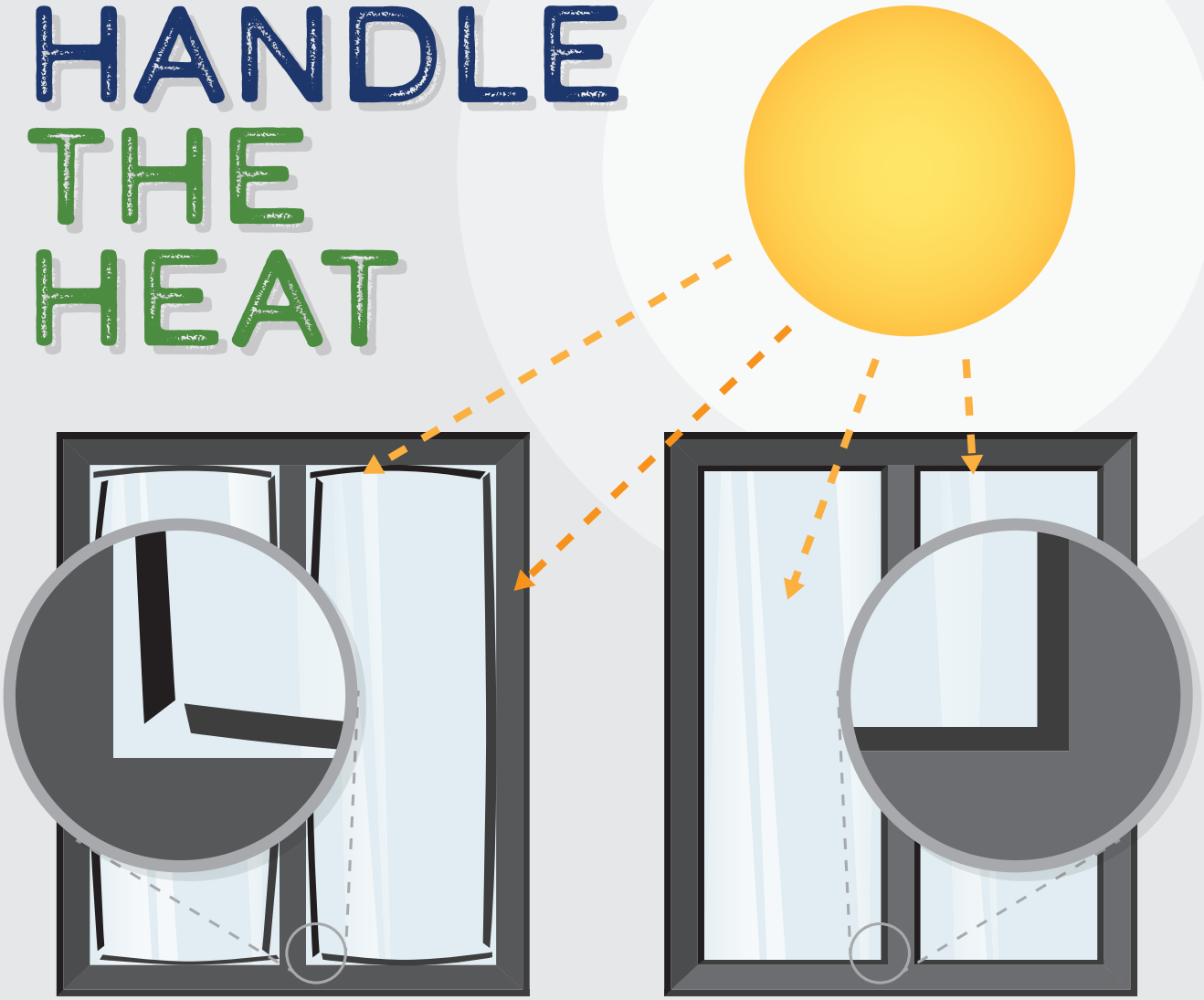

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A Rollercoaster of a Year

Business is booming amid a surprisingly strong housing market, yet supply challenges may loom

By Laurie Cowin
Editor, Window + Door

In March and April, it was almost unfathomable to think the housing industry would stand its ground through lockdowns, construction shutdowns and quarantines. However, during Connor Lokar's macroeconomic update during GlassBuild Connect in September, he described the housing market as a very positive signal with "impressive single-family housing numbers." Lokar anticipates housing to continue its upward trajectory and encouraged suppliers to prepare for higher demand through the coming year.

That's great news for those in our industry, and from what we hear, business is booming. Companies describe some of the best business conditions they've ever seen, period. In many cases, they have more than rebounded from unsettling and low times earlier this year.

Although there doesn't appear to be a shortage of work anytime soon, busy production lines paired with a shaky supply chain could create a different set of challenges: keeping your customer base.

During the Home Improvement Research Institute virtual summit in September, Grant Farnsworth said that 45 percent of surveyed contractors indicated they used a new supplier within the past month—a notably high figure from the historical 10 to 20 percent range. "What customers need from you has changed and varies by customer and category," Farnsworth said. "Understand what your customers need and shift how you deliver."

What are you doing to understand your customers' needs in today's climate?

Maybe you need to leverage more digital strategies, such as video. See Your Business Matters, page 26, to learn how one company used video to launch a new product earlier this year. Or, as executives advise in In the Trenches, page 14, incorporate new software and digital technologies into your company.

Perhaps it's a matter of upping your communication. The Window + Door Awards, page 34, shares stories of how those in our industry are navigating the pandemic and tactics they use to not only survive the pandemic but, in many cases, thrive. There's no doubt the coronavirus will continue affecting our world for the foreseeable future. The stories outlined on those pages may be an inspiration for how to pivot your own operations during a time when the environment could change at any given moment.

We'll be following the booming business conditions closely and the celebrations and challenges that come along with it. As I assume the editor role of Window + Door, my lines are always open and I encourage you to pick up the phone, 703/442-4890 x188, or send an email to lcowin@glass.org, to share your story and best practices. ■

Publisher's Note: Window + Door is excited to announce promotions among its editorial staff. Emily Thompson, former editor-in-chief, will take on the role of Associate Publisher for the magazine, in addition to a fenestration business development role for the National Glass Association, which hosts GlassBuild America: The Glass, Window & Door Expo.

Laurie Cowin, former managing editor, assumes the role of editor, where she will be responsible for the editing, execution and production of the magazine, newsletter and website. "Laurie has a long tenure as an editor in the construction and building products industries and has proven herself as a critical asset to Window + Door," says Thompson. "She has an intuitive grasp on the industry that is evident in her reporting. Combined with her exceptional project management skills, Laurie will do an excellent job as editor." Window + Door welcomes Cowin to her new role with this first installment of her editor's note.

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Booting Up

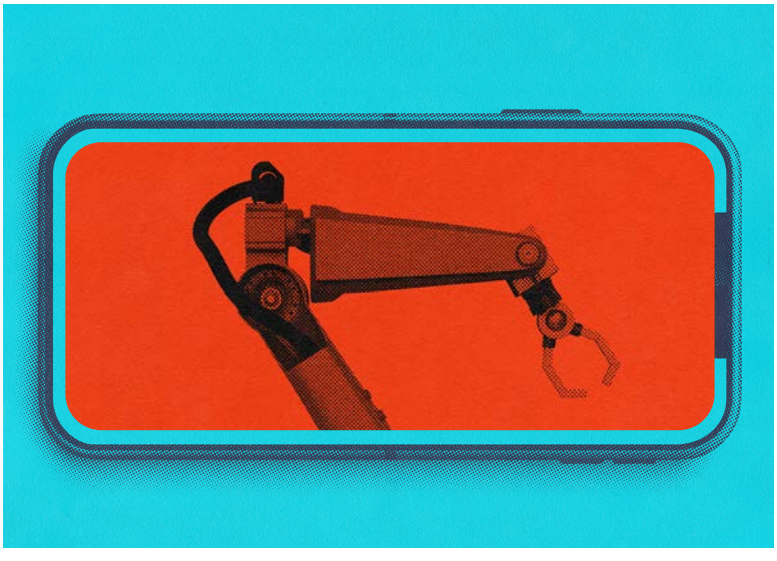
How to adopt new software and digital technologies

By Norah Dick

One of the results of the coronavirus pandemic is an uptick in companies integrating software and digital tools into processes to aid remote work or to streamline work processes for staff who must socially distance. While many manufacturers started digitizing processes well before the pandemic, many still have some misconceptions about what software can and can't do, say software developers.

"Many people underestimate the efforts involved in implementing a new system, as well as the benefits," says Dave Miller, business development, glass fabrication, North America at FeneTech. "The overall goal of putting a new system in place is to be able to do more with less. To realize these benefits, [companies] need to invest the time in learning how to use the new system to get the most out of it."

Industry leaders emphasize how today's software offers a variety of options for maximizing efficiency. They also underline that a software investment requires companies to consider what they need from digital tools. They recommend companies partner with their software vendor to realize the implementation in their business.



Additionally, sources note that the new "software as a service" model, in which services are licensed on a subscription basis, means lower initial investment for companies. "Choosing a Software as a Service model solution, where software is centrally hosted and based on a monthly license subscription, removes the need for hardware setup and maintenance," says Rowan Hick, co-CEO of Soft Tech.

Getting started—know your business

Suppliers say the first step for company leaders in selecting software is to review their own businesses. Analyzing and making a company's actual processes visible helps company leaders understand how software can streamline or replace those systems.

Josh Rudd, sales executive at A+W Software, says this analysis offers perspective on how software could be useful and how a company can form goals around the uses for the new tools. "[Companies] need to understand what their productivity metrics are, what their measure of success is, and what they're trying to achieve," he says.

FeneTech refers to this process as the "investigation phase" of a partnership. "What people find during the investigation phase is that they need to understand their businesses a little bit better. That's one of the positive side effects [of this process]—people dissect their businesses a bit and determine what processes make sense and which ones can be improved," says Miller.

After mapping out the business, the company has the information it needs to bring to potential software suppliers, say industry sources. Tyson Oldroyd, vice president of products at Kimzey Software Solutions Inc., recommends scheduling online demonstrations with at least two to three software suppliers that seem like they may be a good fit. "Be up-front about your budget and goal for a time frame of implementation. This way, the software company has a deadline to meet your expectations," he says.

Once a company chooses a provider, they

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should make a plan for implementation. Rudd recommends a phased approach, especially for companies that may not be able to completely digitize the factory floor all at once.

Training

Training is essential to implement new software, whether piecemeal or all at once, say developers. "When you take the whole project scope into consideration that's a lot of information to digest," says Miller. "We try to break it down into phases and give people the opportunity to learn chunks of information along the way to build up to complete knowledge of the system before they go live."

Staggered training can also be an advantage of a phased implementation approach, says Rudd. "Get people functional learning one particular piece [of software], whether that is in the office or on the shop floor, and then as you phase in different components of the ERP over time," he says.

Oldroyd recommends making the training realistic to the employees' actual work by using real-world customer data. "Things tend to stick better when people are using their own customers, products, pricing, etc. during training," he says.

Long-term goals

While gradually phasing in software and processes can work, it's important for companies to have long-term plans from the outset, with the understanding that the technology will constantly evolve. "Don't plan for today, plan for the next five to 10 years," said AJ Piscitelli, FeneTech, during the July NGA Glass Conference. "[The software] will soon become outdated."

Oldroyd recommends having a year-long implementation plan. Within six months, he says users should feel comfortable in every aspect of the software, and then implement other portions within the first year. In one year, users should be using 100 percent of what the software provides that you are interested in using, he says.

Looking ahead, Soft Tech's Hick suggests including data tracking as part of an implementation plan.

"Collecting and tracking big data is where the industry is heading, so setting infrastructure goals and creating internal processes to allow for this will create a central platform for secure access and easy collaboration," he says. "Collecting data from the factory floor, tracking actual processing times and materials management, for example, will result in better inventory and stock control measures. We're starting to see this with the advancement in technology heading toward Industry 5.0." ■

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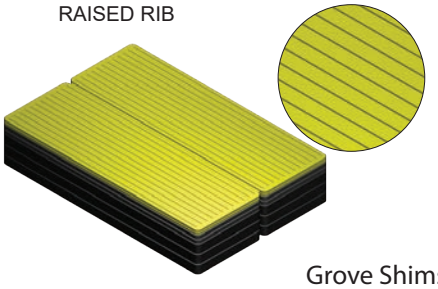

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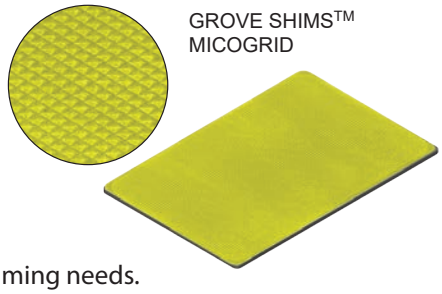

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Components and Certification

The quality is in the details

By Jason Seals

It is said that the devil is in the details. But so is quality.

The basic quality of a complete window assembly—as evaluated through testing for conformance with requirements for structural integrity under wind loading, resistance to water penetration and resistance to air infiltration as enumerated in the North American Fenestration Standard—is the foundation of credible third-party certification. But it is the quality of the various interacting components—framing extrusions, glass, weatherstripping, sealants, hardware and finishes—that combine into a functioning product to ensure a window's durability beyond this initial performance test.

For this reason, NAFS, along with the AAMA 1701.2, 1702.2 and 1704 manufactured housing fenestration specifications, references separate specifications for components. The FGIA/AAMA Component Verification Program based on these specifications serves as a key prerequisite for overall product certification. Qualified components are recognized via testing at an accredited independent laboratory and by listing in the online FGIA/AAMA Verified Components List.

As a class of components, polymeric framing profiles must be independently certified, which requires testing of randomly selected production line samples by an accredited third-party laboratory. For use in products tested for certification to NAFS, compliance must be established with the appropriate AAMA specification among those for PVC (AAMA 303), cellular PVC (AAMA 308), fiberglass (AAMA 305), cellulosic composites (AAMA 311), molded aliphatic polyurethane elastomer (AAMA 313) and others.

Qualified components other than profiles are grouped in four categories in the VCL: hardware; weatherstripping; sealants, tapes and flashings; and finish applicators. Four associated program manuals define the requirements.

Hardware. Guidelines for verification of hardware are published in Component Verification Manual CVPM-H. It references specifications for rotary and linear operators (AAMA 901-16), sash balances (AAMA 902), friction-based sash balances (AAMA 908), multi-bar hinges (AAMA 904), and sliding glass door rollers (AAMA 906). Other specifications govern hardware performance for exterior side-hinged doors.

Weatherstripping. Guidelines with regard to weatherstripping are set forth in Component Verification Manual CVPM-W. Weatherstripping must meet minimum requirements for weatherability and compression set or shrinkage as spelled out in AAMA 701/702, Voluntary Specification for Pile Weatherstripping and Replaceable Fenestration Weatherseals.

Sealants, tapes and flashings. Guidelines for verification of VCL-listed flashings and sealants are set forth in Component Verification Manual CVPM-S. It references specifications for self-adhering, mechanically attached and liquid-applied flashing (AAMA 711, 712 and 714, respectively), as well as those for sealants, aerosol expanding foam sealant, glazing tapes and adhesives for simulated divided lites. The underlying specifications are AAMA 800-16, Voluntary Specifications and Test Methods for Sealants; AAMA 812, Voluntary Practice for Assessment of Single Component Aerosol Expanding Polyurethane Foams for Sealing Rough Openings of Fenestration Installations; and AAMA 813-19, Voluntary Specification and Test Methods for Adhesives Used in Simulated Divided Lites.

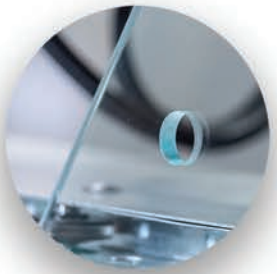
Finish Applicators. Paints and coatings comprise a special case in component verification in that the VCL lists finish applicators who

Articulated robot arm can be integrated with line for the manipulation of sheet glass.

FEATURING:

Vertical Production Line

Profile + Vertec



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meet the requirements of Component Verification Manual CVPM-FA, not the finish itself. The finish applied, however, must conform to the appropriate AAMA specification referenced within NAFS. These specifications are organized in a sequential basic-performance, high-performance and superior-performance trilogy of increasingly stringent criteria, i.e., "good, better and best." This allows a specifier to select the most cost-effective match for the type and climate of a given project location.

Depending upon the substrate to which they are applied, organic (hydrocarbon-based) coatings must meet the appropriate coating specifications referenced in NAFS, all of which have been updated in 2020. For aluminum profiles, the appropriate coatings are covered in the "good, better, best" series of AAMA 2603, AAMA 2604 and AAMA 2605. Coatings for thermoplastic profiles (such as PVC) are addressed by AAMA 613, AAMA 614 and AAMA 615. Coatings for thermoset profiles (e.g., fiberglass) are encompassed in AAMA 623, 624 and 625. Integral finishes, such as anodized finishing on aluminum, are covered by AAMA 611.

Testing of these components is required to be by an AAMA-accredited full-service independent laboratory or an AAMA-accredited component laboratory.

With its unique profile certification and component verification provisions based on NAFS-referenced requirements, the Component Verification Program (a prerequisite to AAMA Gold Label product certification) is a more stringent and demanding path to compliance with the NAFS requirements for components and profiles. ■

Jason Seals is the certification services manager, fenestration for FGIA. He oversees all aspects of all AAMA Certification programs. Reach him at jseals@fgiaonline.org.

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The Force Majeure Clause, Version 2.0

How to account for unforeseen circumstances in contracts

By John Nolan

Manufacturers, suppliers and customers should undertake a heightened level of vigilance to identify ways to operate in the face of today's challenges.

The challenge, of course, is to identify and account for the disruption these events can cause. For centuries, legal doctrines such as the doctrine of "commercial frustration" and laws such as the Uniform Commercial Code were developed to help parties to commercial transactions respond to such challenges. However, it might be worthwhile today to evaluate whether these legal concepts can be augmented to address current conditions.

One important way is to evaluate one's own contract documents to see whether they should be updated. Contractual force majeure provisions should address the effects of overall uncertainty that exist between a contract's parties. This helps present a better way to identify specific risks and negotiate provisions for dealing with them.

Current iterations

Some currently published construction contract forms do not isolate a specific definition for force majeure. For example, AIA A210-2017 instead addresses the challenges posed by unforeseen events in different sections of the contract that deal with the cause and effect of delays and the inability to perform. The AIA C191-2009 document form for Multi-Party Integrated Projects, on the other hand, combines the concepts of Act of God and force majeure in its definition of a force majeure "event."

These construction industry forms address the central purpose for acknowledging unforeseen and irresistible events in the contract documents. That is, to seek fairness to the party seeking relief from performance (the affected party) as well as to the party that will bear the brunt of non-performance or delay.

These particular forms do so by requiring the party invoking the force majeure to provide timely notice to the other parties of the imminent disruption to performance. They achieve this by setting limits on delays and allowing the other parties options for alternate remedies to mitigate the effects of disrupted performance as much as possible.

Addressing current conditions

The typical modern approach to force majeure clauses has been to identify and generally acknowledge there may be unforeseen events beyond the parties' control that may affect the ability to perform the contract's terms. This is usually indicated with, "including but not limited to...war, insurrection, civil unrest, rioting, pandemics, labor strikes or disputes of employees other than those of the contracting party." These descriptions help define the types of disruptive events that "qualify" as force majeure events without necessarily limiting the causes only to those that are listed.

When drafting contractual terms today, manufacturers may consider adding to the definition of what constitutes unforeseen and forceful event conditions with language "including, but not limited to" the governmental response to a pandemic, such as workplace, labor and transportation restrictions. So, too, with civil unrest conditions.

Consider that the COVID-19 pandemic has been an ongoing event. Protests in some communities have been ongoing for three months or more. These potential disruptions in and of themselves might not be totally "unforeseen."

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Nevertheless, while these events are ongoing, what is potentially unforeseen are events such as increases in infection rates, corresponding worker absences and the government's reaction to these potentially recurring conditions. Businesses should consider whether broadening the contract terms of force majeure would be better than limiting them to the "epidemic" itself, or the "civil unrest" itself, so that the clause captures the corresponding uncertainty of how these conditions will be addressed.

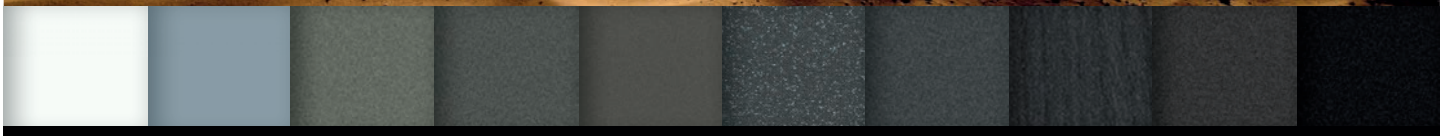
After broadening the definition of what constitutes a force majeure, the contract should recognize that, while aspects of the contract may not be impossible, the contract should still account for ensuing delays and disruption by balancing the effect of increased costs associated with later performance. For instance, aside from accounting for the delays themselves, the contract should also address corresponding price escalation clauses in the context of such events. Manufacturers may want to establish notice requirements—24 hours, three days, etc.

Provisions of a force majeure may establish that suspension of performance may not continue "unreasonably" beyond the time frame of the disruptive event. Also, stipulations may outline that the party that invokes the clause will make affirmative efforts to limit the economic effect to other parties—requiring an alternate supply of materials, for example. Certainly, whether the affected party reasonably complies with these affirmative obligations in the face of such an event may be the focus of a later dispute. However, acknowledging in writing that the parties must endeavor to act in good faith helps to frame and focus respective obligations and rights through further clarification of the effects of such events.

Finally, consider whether to make amendments to existing and ongoing contracts to expressly acknowledge COVID-19 and civil unrest disruptions within contract recitals, or as part of the force majeure provisions, so that equitable allocation of these risks can be addressed. With tailored language incorporated into agreements, orders and contracts, the current level of uncertainty and potential disruption can be managed to forestall economic stress and future disputes. ■

John Nolan 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. He can be reached at 217/526-4063 or john@prgarylaw.com.

Continental
The Future in Motion



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Continental is once again setting an example with skai® mattex. The attractive, matte-sandy surface adds noticeable value to construction elements. It looks and feels like powder-coated aluminum. The innovative product is also impressive from a technical point of view: skai® mattex is resistant to scratching and chemicals and is easy to clean. Equipped with proven cool colors technology and available in current trendy colors, it is the first choice for exterior films, even in extreme climates.

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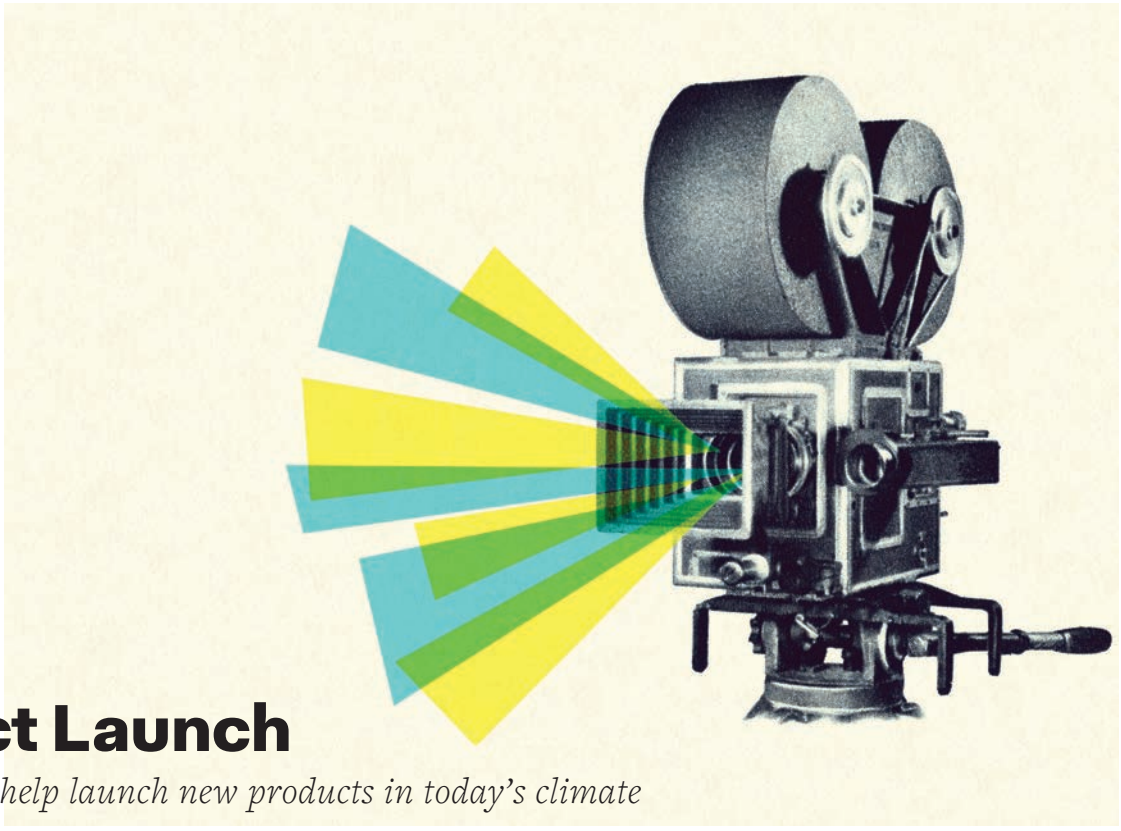


Product Launch

How video can help launch new products in today's climate

By Laurie Cowin

Much of 2020 has been defined by the coronavirus and its implications. Although building is now permitted in most areas after the construction moratoriums earlier this year, those in the industry still face COVID-related challenges. One of which: how to successfully launch a new building product in the midst of COVID-19.

Zach Williams, founder of digital marketing agency Venveo, and Beth PopNikolov, director of digital strategy, recently hosted a podcast with Ryan Galick, marketing director at Fuzion Flooring, who is taking on this particular challenge.

Despite most industry events being canceled on a worldwide basis through 2020, Fuzion still took the leap to launch a new product during a tumultuous time. Galick argues that now is a great time to market home improvement products, since millions of people are staying home and realizing what home improvement projects they want to tackle.

Tell the story

Typically, product launches are promoted through tradeshows and via sales visits with potential customers. Because this isn't a current reality, Galick recommends focusing on video content. The videos should highlight what is new and exciting about the product and on key differentiators. "We sell new stuff because we have a story to tell," he says. Videos should tell that story.

Building the brand also is important, especially in industries where there's a lot of noise to cut through. Infuse that brand-building—such as what sets a company apart and makes it different—into the product content, he says.

Galick and his team introduce video internally to inform sales staff. "You want to educate your people, give them enough time to catch up and understand so they can control the message," he explains. He hosts the product videos on YouTube and tracks views through that platform, as well as sharing through social media.

Although social media doesn't lend itself to long videos—the product launch videos are about seven minutes long—Williams suggests parsing the video into micro content pieces (30, 60 or 90 seconds) and providing a link to the full video if people want to see more.

Diversify

Fuzion Flooring also hosts a designer series, where interior designers talk about general design tips

Fenestration FOCUS | Your industry insight

High-Performance Windows for a Housing Market on the Rise

By Eric Thompson, commercial sales manager

Amidst the turmoil of 2020, there's one thing that has emerged with some certainty: The single-family home construction market is on the upswing.

I have recently seen estimates of single-family home starts up by over 7% year-over-year and nearing a 14-year high. Homebuilder sentiment is said to be at the highest level in over 20 years. Based on conversations with customers and homebuilders, it seems there's no shortage of work on the residential side of the market right now.

With this in mind, residential window and door manufacturers need to be ready to deliver on rising demand with quality, innovative products. How to do it? Here are a few things I've been thinking about recently:

Delivering on modern desires.

Diversified color options have become an expectation. Much of today's new home design emphasizes clean lines, sleek profiles and—increasingly popular these days—black or bronze framing.

Meanwhile, larger-sized windows have continued to grow in prominence as homebuilders seek to let more of the outside in. Operability may increase in importance, as it's been shown that natural ventilation can contribute to healthier indoor spaces—and to that end, we could also see an increased interest in high-quality, functional window screens.

As is always the case, manufacturers must be able to balance delivering on these needs with cost—a compelling value proposition always plays a part in closing the deal. The challenge here is to provide price-competitive products with desired features and aesthetic benefits.

High performance is an expectation.

It was long the case that higher thermal performance in window and doors was a value-add. But today, it has transformed into a baseline customer expectation. It's part of the reason why vinyl windows have come to such prominence in the residential space. They're typically cost-effective and are inherently more energy efficient than comparable nonthermally broken aluminum windows.

But that doesn't mean there isn't room to differentiate, because not all vinyl is created equal. Specifically, PVC compounds for fenestration products formulated and produced in the United States are often designed and tested to ensure long-term durability in the diverse and regionally harsh North American climate.

For those reasons, it's important to ensure your vinyl extrusions carry a strong certification. Organizations like the Fenestration and Glazing Industry Alliance (FGIA, formerly known as AAMA) certify extrusion suppliers based on a battery of standardized tests. The certification program is voluntary, and provides manufacturers, contractors, architects and end users some comfort and security through the unbiased, third-party certification criteria.

Driving manufacturing efficiency in a challenging time.

Successfully delivering on these demands profitably, means staying efficient—and that may be the biggest challenge faced by manufacturers right now. The labor situation has only become more challenging in 2020, and manufacturers need solutions. Deploying automation may now be more impactful than ever before. Beyond automated equipment, manufacturers can eke out more efficiency by eliminating steps wherever possible from the fabrication process.

As residential housing heats up, window and door manufacturers need to be prepared with the right strategies and the right technologies to deliver on demand.

Questions or comments? Contact me directly at Eric.Thompson@Quanex.com.

This article was first published on our In Focus blog on Quanex.com.

Quanex building products

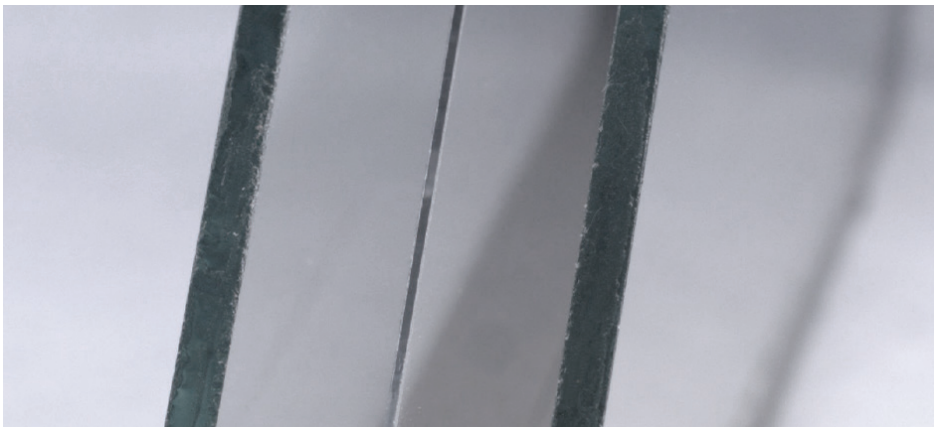
The Skinny on Skinny Triples

By Mark Molinaro, director of new markets and business development

Demands for higher efficiency have driven innovation in the window and door industry for decades—and right now, we're seeing another technology come closer to more widespread fruition: "skinny" or "thin" glass triples.

Compared with a traditional triple-paned insulating glass (IG) unit, which uses three conventional pieces of glass to create two pockets of insulation, a skinny triple utilizes an ultrathin center lite that is typically between 0.7 mm and 1.3 mm thick. Filled with krypton, these units can deliver outstanding thermal performance.

Around this time in 2019, we noted the emergence of skinny triples as a viable way to hit the stringent new California energy code. Their adoption has so far been a bit slower paced, but that could be changing as interest in the technology grows and new incentives make them more attractive. Here's what to know about skinny triples:



Efficiencies for manufacturers and installers.

One of the biggest advantages of skinny triples over their conventional triple-paned counterparts for window manufacturers is that they require no change in window framing—they are effectively a direct swap for double-paned glass. If adopting skinny triples as a differentiator, window and door companies don't have to worry about completely redesigning the entire unit.

Additionally, skinny triples are nearly the same weight as double-paned IG units and don't require any special considerations for installation or building design.

Occupancy benefits.

Skinny triples offer very high thermal performance, which can lead to lower U-factors and enhanced solar heat gain performance. But that's not all—they may contribute to greater sound suppression. We know that comprehensive occupancy comfort is something that's increasingly sought after these days. Skinny triples can make an impact here in addition to thermal benefits.

Widespread applicability.

Skinny triples are a versatile technology, suitable for a wide range of buildings, including residential single-family and multifamily, low- and high-rise structures, and nonresidential buildings. They're also a good option for both new construction and retrofit applications, as they can replace a double-paned IG unit or sash in existing windows without the need to replace the window frame. While the initial need for their type of performance exists primarily in California to meet energy codes, it's easy to imagine them gaining traction anywhere high-performance fenestration is desired.

New incentives.

Recently introduced incentives in California for the use of high-performance fenestration in new construction and existing buildings could spur greater adoption in skinny triples. The California Advanced Home Program, for example, is incentivizing the adoption of skinny triples with some attractive cash bonuses for builders—$400 per home can be had by utilizing program-approved thin-glass, triple-paned windows that can fit into a typical double-pane window frame and meets a U-factor of <0.22.

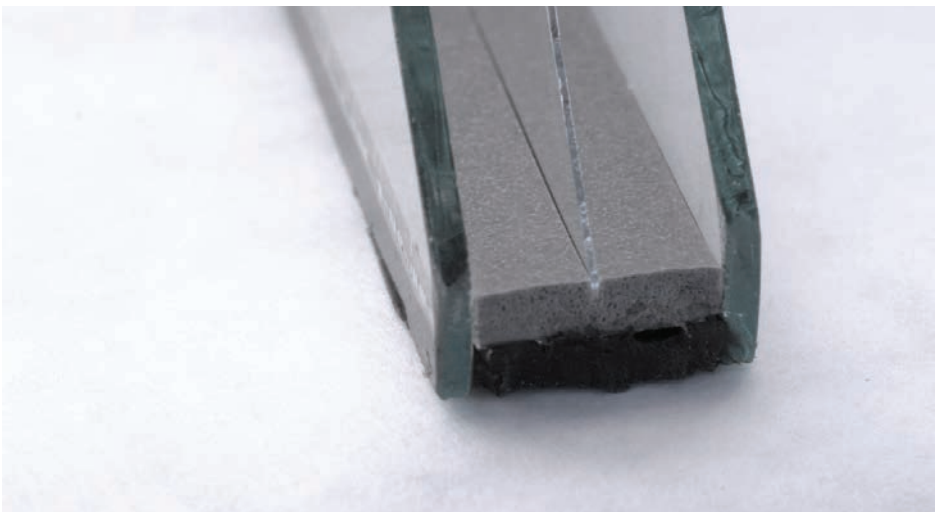
Evolving manufacturing techniques.

As it stands today, some skinny triples currently in the marketplace utilize two spacers in construction—one between each piece of glass. Like a traditional triple, however, this introduces additional points of failure versus the utilization of a single spacer in a double-paned unit.

But a single spacer solution is possible for skinny triples. Quanex's Super Spacer® technology has been shown effective in developing quality skinny triples, utilizing existing production processes to manufacture. This can make for a significant production advantage for window and door companies that want to seize the opportunity presented by skinny triples.

Questions or comments about skinny triples technology? You can contact me directly at Mark.Molinaro@Quanex.com.

This article was first published on our In Focus blog on Quanex.com.



Getting Creative With Tele-Tech Service by Quanex Technical Services

Customer experience and support are as important as ever during the pandemic, but they present unique challenges. The West Coast is no different where the tech services team is unable to visit customers to help them set up equipment and train their employees.

Senior tech services rep in the Southwest and Latin America, Hector Cortez Jr., took matters into his own hands and created his own "Tele-Tech Services." He approached his supervisor, John Ryba, about setting up a makeshift application area in his living room. He constructed a table, ordered the shuttles, some glass and spacer, and began training customers through Zoom.

According to Cortez, the best part about being able to do this was getting to interact with customers again. They can stop and ask questions and get answers in real time. He is able to walk them through the IG construction process, and he has even adapted his process to be able to show either Dura or Super Spacer, depending on what the customer is using.

Even though most places do not allow visitors right now, Hector has found a way to still be able to deliver the quality "Signature Service" that our customers have come to expect from Quanex. So far, he has held four sessions with a few more likely to be scheduled in the next few weeks.

Why You Should Rethink Investing in Screens Equipment

By Brian Ludwig, Northeast territory sales manager

Capital investments come with running any successful, growing window company. Whether it's investments in your people, in your equipment, or in the components used to make high-performance products, directing your expenditures in smart, strategic ways can make all the difference.

For a window company that does all of its fabrication work in-house, one area of investment that must be considered is the screens department. And because no successful window company stays in one place for very long, with growth resulting from innovation and diversification in their window and door offerings, keeping the right screens equipment on hand and available can become cumbersome and costly.

Consider: If you're in the process of developing a new window line, a new size and type of screen must be developed along with it. That means new punches specific to that window, machinery that can properly assemble it, screen tabs and more. And that's just for one specific size of your new window line. A diversified line, with multiple options for size and operability will require different equipment and components for corresponding screens production.

All of this screens-related capital requires some considerable expenditure, and it won't necessarily result in much return. After all, screens aren't a value-add for your new window line—they're simply a customer expectation.

What if your screens expenditures, then, could be directed somewhere else, somewhere where you can add even greater value to that new window line, like a more thermally efficient glass package, a higher-performance frame, or a wider variety of color options?

It's reason enough for growing, innovative window manufacturers to rethink investing in screens equipment—and whether it's worth their continued in-house manufacturing of screens at all. More than the investment in screens equipment, production requires extreme consistency and can be a major drag on your labor force.

Fortunately, there's a better way. Rather than reinvesting in screens equipment every time you reinvest in your core product, consider strategic screens outsourcing solutions from a reliable supplier. By working with a dedicated screens vendor that can match the needs of your production schedule, as well as the needs of your core product, window manufacturers can realize greater efficiency in the production process, free up plant floor space and labor, and are free to innovate with their core products without worrying about the headaches that decision will make in the screens shop.

Interested in what screens outsourcing solutions can do for your business? Quanex offers screens outsourcing solutions with multiple dedicated screens production facilities operating throughout the U.S. Since screens production is all we do at these locations, quality is assured, along with custom packaging and delivery options to meet the needs of any manufacturer.

Check out *www.Quanex.com/Screens* to learn more, or contact me directly at Brian.Ludwig@Quanex.com.

This article was first published on our In Focus blog on Quanex.com.

Super Spacer® TriSeal™ Selected for One of the World's Most Complex Designs

Many experts consider the Museum of the Future in Dubai to be the most complex building in the world. It is a home to innovation and vision, ranging from the fields of science and medicine to architecture and design.

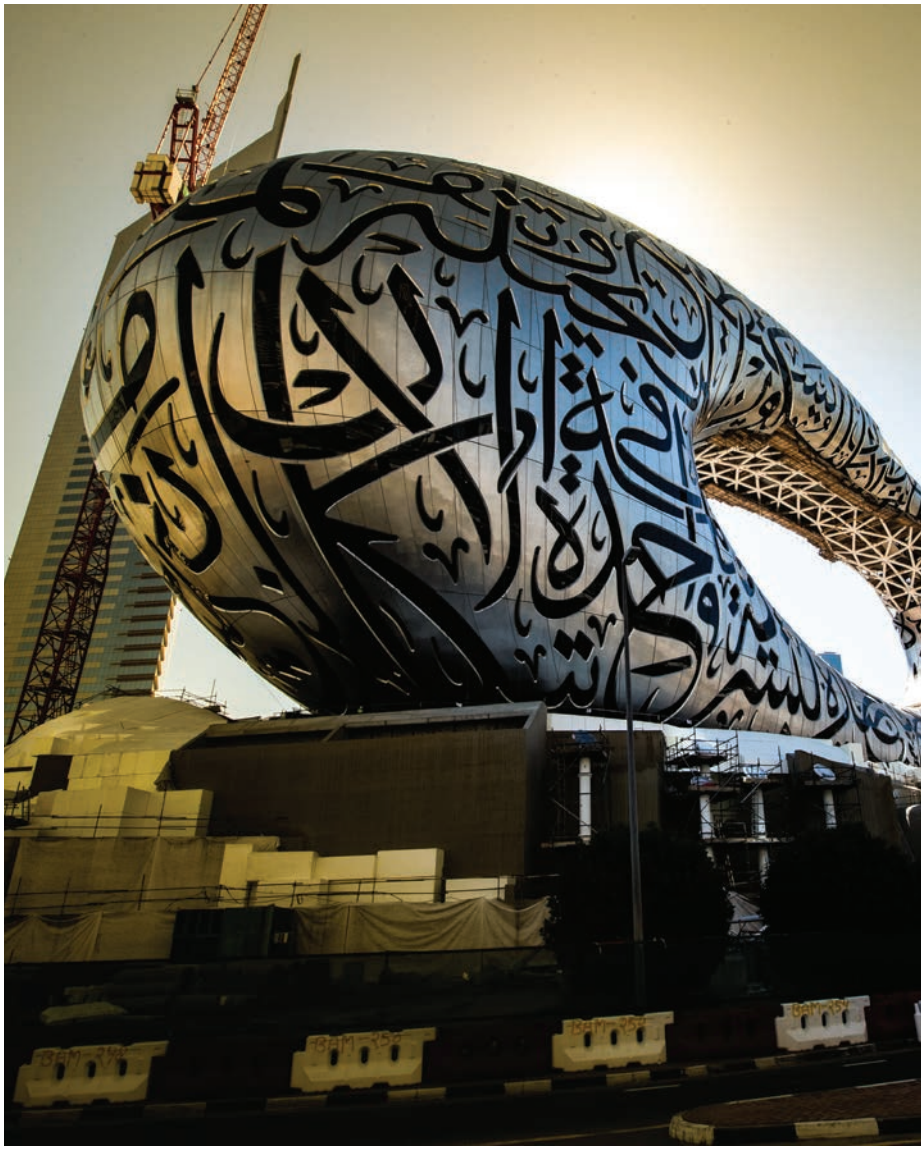
The toroidal-shaped building with the striking opening at its center was designed by Shaun Killa of Killa Design. Buro Happold is responsible for the engineering, BAM International for the construction, and AFFAN Innovative Structures manufactured the façade made of fiber-reinforced stainless steel, which is broken up by thousands of custom-made insulating glass elements, and providing the unique calligraphic ornamental form.

According to Shaun Killa, feng shui was the inspiration behind the design. In feng shui, round forms symbolize the fertility of the earth, the boundlessness of the sky, and the emptiness between them, and the unknown. The Arabic characters reproduce quotes from the ruler of Dubai and founder of the museum, Sheikh Mohammed bin Rashid Al Maktoum.

"The three-dimensional shape represents an unprecedented challenge in every sense," explained Morante Fernando, technical director of AFFAN. "Even if you've planned curtain walls for decades, you always start from scratch when working on such a project."

Around 7,000 insulating glass elements, each of which is uniquely formed, are embedded in the outer skin, along with nearly 120,000 linear feet of Super Spacer® TriSeal™ Premium Plus.

According to Morante, "We used Super Spacer for the first time ten years ago for free-form insulating glass units in the Sheikh Zayed Mosque in Abu Dhabi; we have not had any problems with the panes of glass whatsoever. Therefore, for me, Super Spacer was the go-to product to be assigned a key role in the realization of the 'Museum of the Future' right from the start."



He continued, "Due to the flexibility of the material, we can go to the limits of what is technologically feasible. Using rigid spacers, perfectly and individually shaped windows with a very complex shape would have been virtually impossible to create."

Morante is confident that the museum is one of the most iconic structures fitting the legacy and dreams created by Sheikh Mohammed.

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Quanex building products

Explore New Products

GlassBuild America is where manufacturers explore new options in equipment, window systems, technology and supplies. It is where seeds of innovation are sown, many of which grow into product launches for fenestration manufacturers.

Despite not being able to experience these innovations in person this year, the GlassBuild America tradition forges ahead through the rest of the year with GlassBuild Connect. It features a comprehensive product gallery from more than 300 companies, searchable by company or product type.

GlassBuild Connect additionally features videos and demos on many of the products from GlassBuild America exhibitors. Visit GlassBuild.com to register for free and explore new products.

for a home in two- to three-minute videos. Galick refers to these as a soft sell. "People don't want to feel like they're being sold to all the time," he says. "They want to be directed into making a decision that's right for them."

Diversification is critical. Having a strong digital presence and cutting-edge website is vital and becoming the new norm. "Always keep up with what's new," he recommends. "You don't need to know it all or like it all, but you need to be aware. Technology is ever-changing and so are the consumers along with it. Buying and purchasing behaviors are changing every year because technology is getting better." ■

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The heavy-duty pivot hinge and closer mortised entirely in the door. System M+ takes the System M pivot hinge range to a new level. This adjustable pivot hinge brings Latch Control to ensure proper latching, guaranteed control over the movement of doors up to 500 kg, and extra adjustability for the movement of the door. System M+, like System M, is equipped with FlowMotion technology which creates and controls the movement of the pivot door.

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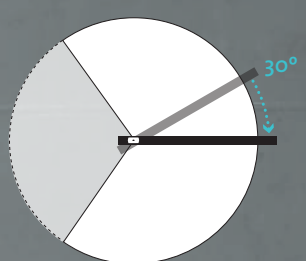
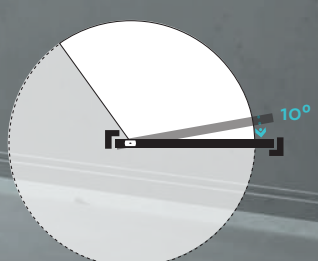
30° SPEED CONTROL



30° Speed Control allows you to fine-tune the speed of the pivot door through the last 30° of the closing movement. This helps you to define the closing movement of the door, no matter the weight. Control from 20 kg to 500 kg.

LATCH CONTROL



Latch Control enables the door to accelerate in the last 10° of the movement of the door to ensure proper latching of the door. This is especially useful in exterior pivot doors.

NOW UP TO 500 KG WITH M+

System M42+ adds SCF and SCG to the range. These new systems are heavier and larger and therefore suitable for doors with a width from 50 mm and up. System M42+ has been designed to guarantee the perfect movement of doors up to 500 kg.

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PRESENTS

INNOVATION

HOW FENESTRATION COMPANIES HAVE BEEN PROTECTING EMPLOYEES AND CUSTOMERS, DEVELOPING SOLUTIONS FOR THE INDUSTRY, AND GIVING BACK TO THEIR COMMUNITIES DURING THE PANDEMIC

BY LAURIE COWIN

IN CRISIS

When the COVID-19 pandemic swept the world earlier this year, companies everywhere modified their operations nearly overnight. Many businesses sat vacant amid government-mandated shutdowns, while businesses that could set their employees up to work from home and essential businesses altered their operations to accommodate social distancing and other safety practices.

Window + Door, with the support of parent organization the National Glass Association, created COVID-specific content geared toward helping companies navigate the business shifts and wave of legislation aimed at easing financial distress. We also reported on how companies in the industry quickly pivoted to accommodate the new realities. These stories demonstrated why the fenestration industry is essential in crisis.

To recognize the extraordinary innovation among companies during the pandemic, the 2020 Window + Door program presents Innovation in Crisis.

"The COVID-19 pandemic profoundly illustrates the interconnectivity of the glass, window, door and home-building industries and how the fortunes of each segment rise and fall on the same tide," says Kari Tamminga, product director, Paradigm. "In the home-building industry, time is money. When the pandemic hit, the disruptions to the supply chain and labor created a real challenge that threatened builders' bottom line. When builders slow down, that creates a ripple effect that reaches all the way back up the supply chain to building product manufacturers and their suppliers."

The stories told in the following pages exemplify just how those in the industry tackled an unprecedented scenario head-on, adjusted operations to protect their employees and customers, gave back to their communities and stayed afloat during an undisputedly challenging time.

THANK YOU TO THE FOLLOWING COMPANIES FOR SHARING THEIR STORIES:
ANDERSEN
CRYSTAL WINDOW & DOOR SYSTEMS
ERDMAN AUTOMATION
INOX
LAMATEK
MARVIN
ODL INC.
PARADIGM
QUANEX
VECTOR WINDOWS
WINDGO INC.

Left to right: Andersen transitioned more than 3,000 employees to work from home and implemented safety measures such as face coverings for onsite employees.

To comply with local mandates, New York-based Crystal Windows had to restrict hours and operate at a reduced production level.

Marvin's Design Lab created a "Stop the Spread" campaign that featured actionable ways to minimize the spread of COVID-19.

EMPLOYEE SAFETY AND COMMUNICATION

Perhaps foremost amongst companies' concerns was that of how to protect their employees. Nearly every company reports having its office staff work from home where possible and changes on the factory floor to protect its workers. (See the sidebar on page 39 for a full list of protocol shifts aimed toward employee safety.)

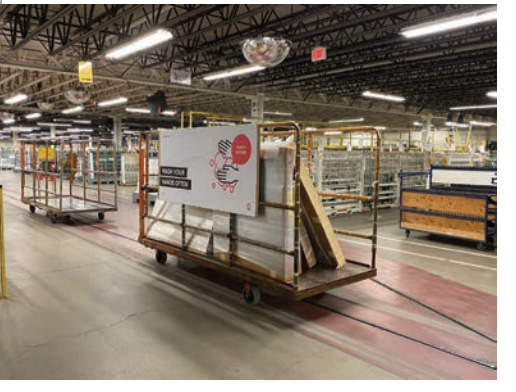
At the pandemic's onset, Andersen named four priorities to guide its actions: keep its people safe; contribute to the national effort to combat the virus; maintain business continuity; and preserve the financial stability of the company. Andersen, which noted a quick decrease in sales, also assigned one of its senior leaders to a new role dedicated to implementing a comprehensive business plan to operate safely and effectively through all stages of the pandemic.

Marvin, which also reported an immediate 25 percent drop in sales during the first months of the pandemic, committed to avoiding layoffs. Its cost-saving response included furloughs (while maintaining health benefits), salary and hiring freezes, some salary reductions and a reduction in its 401(k) match.

The company also tasked the Marvin Design Lab to create a "Stop the Spread" campaign that featured actionable ways to minimize the spread of COVID-19 through visuals with messaging and corresponding icons that encouraged hand-washing, social distancing and guidance on staying home. Marvin also produced 3D-printed modified handles that allow employees to open doors without using their hands. And, to address employees' questions about COVID-19 practices and policies and pre-shift health screenings, Marvin established a 1-800 hotline and email system. It also implemented a contact tracing protocol to track any positive case to its likely point of origin, which Marvin reports is consistently outside the workplace.

Andersen and Marvin reported a quick rebound in sales and are even adding capacity in some areas.

New York-based Crystal Window & Door Systems established a crisis management team in early March that immediately implemented safety protocols. The team also examined capital



projects and planned expenditures, putting on hold what they could to free up cash. During the weeks of reduced operation, the team updated the entire production and administrative areas of the factory, with extensive cleaning and disinfecting, enhancing and separating workstations, installing partitions and repainting several areas.

In a similar vein, Vector Windows created a Pandemic Response Team that put together a Pandemic Preparedness Plan and implemented and communicated safety measures across the organization, some of which Vector plans to make a permanent part of its operating procedures.

Inox, meanwhile, sourced masks and gloves for its production and warehouse employees and supplied webcams and headsets for its office staff to work at home. A majority of office staff continue working from home, and warehouse employees are on a rotating schedule.

ODL reports that its constant throughout the pandemic was the team spirit of its employees. "Although the COVID-19 situation has been an unfortunate moment in ODL's rich, 75-year history, it has also been a profound and impactful experience," says Townes Parsley, senior vice president, ODL. "Our teams across the world are rallying together to help us meet the high demand for our products." When production resumed, office workers suspended their normal tasks to join the production team and operation employees worked overtime to get the business moving again.

CUSTOMER COMMUNICATION

Alongside addressing employee safety and communication, companies maintained close communication with customers, part of which involved setting expectations and furthering education opportunities.

Crystal Windows describes "palpable fear" as virus numbers quickly escalated in New York City. Crystal's New York facility was deemed essential, but local mandate compliance restricted hours, resulting in reduced production levels and decreased revenues.

Although local trade customers understood project delays, some in other parts of the country "had little sympathy for Crystal's plight," according to the company. Crystal used online meeting platforms for

Left to right: Inox MicroArmor is a powder coating for hardware that is infused with antimicrobial technology containing silver ions that attach themselves to a microbe's cellular enzyme to inhibit the growth of microbes.

Windgo Inc. has technology that can sense human presence in windows and doors while providing projection of light in a variety of wavelengths meant to sterilize surfaces.

regular communication to discuss the New York restrictions, keep customers apprised of production challenges and anticipated deliveries, and making adaptations to meet orders. The company also shifted some production to its Pennsylvania and Chicago factories.

Crystal increased its distance learning and instruction. For trade customers and fenestration installers, it ramped up production and promotion of its window and door installation and adjustment how-to technical videos on its YouTube channel. Outreach to architecture firms increased via continuing education credit webinars.

Andersen also pivoted quickly on its customer-facing interactions, including introducing virtual sales and service appointments, contactless product delivery, online business consultations, and adherence to social distancing and safety guidelines with any in-person interactions. The company provided free CEU monthly webinars about topics such as coastal performance, door code, LEED-NC, glass and big doors.

PRODUCT INNOVATIONS

Companies acted quickly in their responses to the coronavirus, and that included accelerating the launch of certain products to address safety concerns and encourage social distancing.

Inox, for example, shifted its research and development to focus on products designed to lessen the spread of bacteria and accelerated the launch of Inox MicroArmor and Inox PD97. MicroArmor is a powder coating for hardware infused with antimicrobial technology containing silver ions that attach themselves to a microbe's cellular enzyme to inhibit the growth of the microbe. PD97, meanwhile, is a sensor-controlled, motor-driven electric mortise lock for sliding doors that limits touchpoints on door hardware.

Other products encourage social distancing on the manufacturing floor, such as Erdman Automation's One Operator U-Shaped IG Line. According to the company, the coronavirus outbreak inspired it to think "outside the box" with the concept of the line. Designed to require only one operator,

Protocol Shifts

Many companies cited new employee protocols with safety in mind, including:

- Face mask mandates
- Staggered shifts and breaks
- Hand sanitizing stations
- Signage that encourages social distancing and face mask wearing
- Employee temperature checks and health screenings
- Keeping windows open when possible
- Frequent cleaning and sanitizing procedures
- Guest restrictions
- Ongoing training practices
- Work at home where possible
- Limiting employee travel
- Quarantine and isolation in the case of confirmed or possible COVID cases
- Contact tracing to identify others who may have been exposed

the machine has a cycle time of about 45 seconds per 2- by 3-foot IG unit without a grid and about 1 minute, 15 seconds with a grid.

From a technology standpoint, Paradigm pushed its Omni virtual home design and visualization software that allows builders to create a virtual design center on their website and help prospective homeowners electronically visualize their future home.

The opportunity for smart technology in the residential fenestration space is also growing. Windgo Inc., a midwestern research and development startup company, is retooling and combining several of its patents that focus on sensors and projection technology, including technology that can sense human presence in windows and doors while providing projection of light in a variety of wavelengths meant to sterilize surfaces.

MANUFACTURING PIVOTS

Chief among the coronavirus pandemic's side effects was uncertainty. Companies' carefully constructed forecasts and plans were suddenly obsolete. "We anticipated layoffs, temporary closures and a significant decrease in revenue and resources," says Jennifer Lucano, creative director, Lamatek. "Employees began filing temporary unemployment, calling out sick, or working from home full-time, while onsite employees stepped up to maintain operations."

But then something happened. Inquiries began trickling in for foam strips and adhesive foam brow liner for plastic face shields. After speaking with the father of two nurses, Lamatek decided to donate adhesive foam, which volunteers used to make protective face shields for the local hospital and surrounding communities. PPE requests continued through the next months and Lamatek cites daily operations "more robust than ever" as PPE components became a top priority. Not only were laid-off employees brought back, but the company hired some new employees to meet the demand for PPE foam.

Marvin partnered with the nearby Polaris plant and the University of Minnesota to produce procedure boxes that surround a patient's face. Marvin's

Quanex supported local charities in its "hometowns" across the U.S. through donations and via communications programs designed to drive more traffic to charity sites.

research and development employees also teamed with the local high school robotics teams to make face shields for regional health care workers and first responders, as well as partnering with Minnesota's Lake of the Woods Brewery to produce hand sanitizer to make available to all of Marvin's employees. That partnership also helped the brewery stay afloat while state executive orders required bar closures.

Andersen's research, development and innovation team pivoted its focus to designing, developing and manufacturing critical PPE. The company distributed more than 10,000 face shields across the Andersen enterprise, and donated more than 50,000 face shields to health care and frontline workers. Additionally, Andersen donated 100,000 components to other organizations that are critical to face shield assembly.

ODL used its printers to make visor headbands for face shields and ear savers for masks; it also cut face shields in its model shop.

CHARITABLE ACTIONS

Throughout the pandemic, stories abounded of organizations and individuals helping those in need, and the residential fenestration industry is no exception. "As a global organization, business units and individuals were not only committed to keeping the supply chain going, but also using their time, talents and resources to help those in need," says Paul Cornett, chairman of the Quanex Foundation and senior vice president, general counsel and secretary for Quanex.

Efforts included producing face shields for frontline workers in the U.S. and U.K., as well as localized support, including taking out ads for blood drives, PPE donations, and to congratulate graduating seniors.

Cornett quotes one of the company's greatest overall accomplishments as "the support provided to 40 local charities in 'Quanex hometowns' across the U.S. in the way of donations and through communications programs designed to drive more traffic to the charity sites." Alongside the Quanex Foundation, Quanex donated $500,000 to charities in its hometowns.

"The response we've received from these nonprofits has been tremendous and overwhelming," Cornett says. "Many are struggling to keep up and are relying on donations to provide much-needed support. One of our core principles is

to always 'do the right thing,' and we will continue to do that. We also encourage others to consider donating to their own local charitable organizations, many of which will need increased support from businesses and individuals during this trying time."

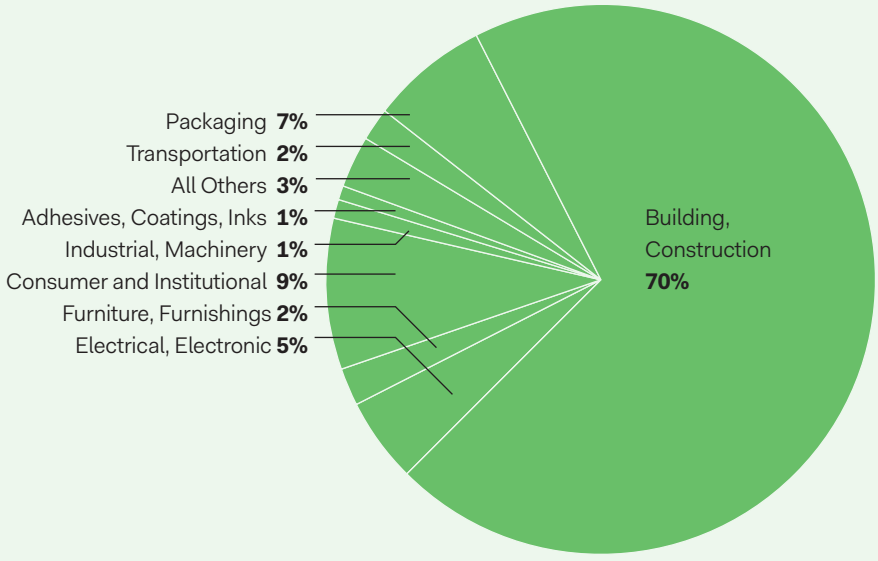
Likewise, the Andersen Corporate Foundation donated $500,000 to support COVID-19 response efforts in local communities. Among the grant recipients are food shelves in communities where Andersen operates, HealthPartners' telemedicine program and homelessness relief, as well as supporting immediate needs for health care workers and patients. Andersen also joined other philanthropic and business leaders across Minnesota to support ConnectedMN, an initiative from Gov. Tim Walz that aims to bridge the digital divide by supplying tech devices and internet access to students. ■

P.H. Tech recently introduced an eco-friendly patio door made from recycled PVC. The doors are made through Nucleus technology, which the company says adheres to AAMA/FGIA standards. The green shaded sections shows what area is recycled. Photo courtesy of P.H. Tech.

Vinyl's Sustainability Journey

As the importance of sustainability continues to grow, fenestration companies that focus on responsible practices win with consumers

By Jay Thomas



Use of PVC in the U.S. by Market

Source: American Chemistry Council Resin Report, 2019

The Vinyl Sustainability Council undertakes initiatives to advance sustainability efforts across the industry

As the third most-used plastic in the world, vinyl products are used in a multitude of industries, but nowhere is vinyl as prevalent as in infrastructure. Nearly three-quarters of U.S. vinyl resin goes into the building and construction sector. Extruded windows and doors are the fourth largest end product use, according to the 2019 American Chemistry Council Resin Review. The Vinyl Institute, a trade association representing the leading U.S. vinyl resin manufacturers, calls it "the material for life."

But the world's finite natural resources are fleeting while the world's population is growing. The success of the vinyl industry will be reliant on continued sustainable practices.

The vinyl industry's sustainability journey dates back more than 40 years. It began with a focus on reducing emissions, eliminating certain heavy metal stabilizers, increasing recycling, and making other improvements to protect workers and the communities in which they live.

The importance of sustainability has since continued to grow for the industry and the world. Consumers continue to seek out sustainable products and give preference to companies that have sustainability at the forefront of their business model.

Industry-wide initiative

Recognizing this, industry stakeholders discussed how they could collaborate on this challenge, ultimately setting a clear set of priorities and forming the Vinyl Sustainability Council.

The VSC, a voluntary membership organization, serves as the collaboration platform to provide vinyl value chain members the opportunity to advance sustainability efforts across the industry. Membership is open to any company or organization throughout the vinyl value chain, from resin producers to end-product manufacturers, retailers and recyclers.

The VSC commissioned a materiality analysis through a third party to determine industry priority areas, determined by stakeholder input and a comprehensive literature review. The exercise identified three impact categories the industry should focus on:

1. Expanding the industry's successes in resource efficiency, including recycling
2. Reducing emissions to protect the environment
3. Ensuring the safety of the 350,000 workers in the nearly 3,000 communities they serve.

These three impact categories align with three of the United Nations Sustainable Development Goals: clean water and sanitation; industry, innovation and infrastructure; and responsible consumption and production.

But sustainable practices mean little if there isn't accountability to track performance. As such, VSC introduced +Vantage Vinyl in 2018, a voluntary effort by VSC member companies

In the past year, AAMA added the option to recycle known pre-consumer AAMA-certified compounds as long as they are capped with the extruders' AAMA-certified compound. Photo courtesy of Veka Inc.

through which industry and company commitments are set, measured and reported on.

Participating companies must commit to completing activities that contribute to impact categories. Third-party certification body GreenCircle Certified LLC annually verifies +Vantage Vinyl participants through achievement of KPIs. Verified companies can use the +Vantage Vinyl trademark to communicate their commitment to sustainability to their customers.

+Vantage Vinyl participants report abundant value in committing to the initiative. For Formosa Plastics Corporation, it emphasizes the meaning of sustainable development through common core principles. GEON Performance Solutions uses the program as an opportunity to demonstrate leadership and innovation in sustainability in the industry and build a reputation as a responsible corporate citizen. And Sika Corporation – Roofing says +Vantage Vinyl provides the opportunity to assess their progress against sustainability initiatives, highlight their accomplishments and develop a path for continuous improvement.

With clear benchmarks for each of the three impact categories, the VSC plans to announce the next set of industry commitments and targets for the industry in the first quarter of 2021.

Vinyl recycling

Environmental stewardship is at the core of how vinyl value chain members do business. For example, the U.S. vinyl industry's air emissions have decreased by 84 percent since 1987, while overall production of resin has increased by 99 percent over the same period.

It's also important to note that vinyl is recyclable, and with the help of product manufacturers and more than 100 recycling facilities, the vinyl industry recycles over 1 billion pounds of vinyl materials annually in the U.S. and Canada.

One way the vinyl industry has improved recycling rates is through take-back programs. Product manufacturers, including Tarkett and Sika, have robust recycling programs that collect materials at the end of their lifecycle and reincorporate them into new, recycled products.

The residential fenestration market

Window and door manufacturers are also seeking out more sustainable solutions and are considering additional recycling methods.

"For many years American Architectural Manufacturing Association (AAMA)-certified profiles were always allowed to use recycled pre-consumer profiles and cutoffs of the same compound," says Kevin Seiling, Veka's VP of engineering and first vice president of the Fenestration and Glazing Industry Alliance Vinyl Materials Council. "In the past year, we added the option to recycle known pre-consumer AAMA-certified compounds as long as they are capped with the extruders' AAMA-certified compound. All other scrap that is not an acceptable color match or a mix of PVC caps, acrylic caps and other contaminants are recycled down one level into capped profiles such as fence and railing."

Additionally, P.H. Tech recently introduced an eco-friendly patio door made from recycled PVC. "The doors, which are made through Nucleus technology, also adhere to the high AAMA/FGIA standards," says Philippe Hurez, P.H. Tech project manager. Hurez explains the door is deliberately made with a light gray color to showcase its recycled profile. ■

Jay Thomas is responsible for developing and executing strategies and tactics that support the sustainability mission and policies of the Vinyl Institute. In addition to serving as VP of sustainability, Thomas leads the Vinyl Sustainability Council as executive director, driving the VI's ongoing sustainability campaign and implementing +Vantage Vinyl. Thomas has more than 20 years' experience in the vinyl industry and is a certified Green Globes Professional with more than 10 years' sustainability experience.

Editor's Note: While the Passive House conversation is largely relegated to European countries, the energy efficiency movement keeps pushing the building envelope toward higher performance on a global level. Looking to the Canadian province of British Columbia's recent and aggressive energy code regulations and how Canadian manufacturers are responding can serve North American fabricators in likewise answering to the increasing consumer awareness of energy efficiency in the products they purchase for their homes.

Passive House

Outside, looking in... through a Canadian window

Insights on developing a high-performance window system

By Terry Adamson

Canadian window manufacturers are often seen scratching their collective heads these days. Especially old boomers like me who have been around since non-thermally broken aluminum windows were the norm. Those were the days, hey folks? Screwing together a few sticks of metal, tape in a sealed unit (if you were high-performance) and send it out the door. How things have changed.

Of course, change is inevitable. Most of us can agree that fenestration is a critical component in the move toward better buildings. Part of the challenge in Canada is that most Canadian manufacturers have had a fairly easy ride when it comes to performance improvements. There has been very little regulation on thermal performance; the last significant industry-driven improvement goes back 30 or 40 years, when the PVC frame window entered the residential market in British Columbia.

PVC has proven to be a major improvement in the thermal performance of products compared to the 1980s thermally broken residential aluminum systems. But, since its inception, there have been relatively few enhancements to performance. We have seen new spacers and glass coatings enter the market, but the PVC window itself hasn't changed much since the early '90s—Westeck, for example, has been building the same PVC slider and casement systems since 1995 with almost no change to the frame designs.

Meanwhile, British Columbia made numerous changes to its codes and regulations over the past decade, with many changes focused on thermal performance. In 2009, the province adopted the BC Energy Efficiency Act that resulted in laws laying out specific thermal performance for windows sold in B.C. Although it has struggled with enforcement, today, it is illegal to purchase and install a window in a single-family home in B.C. that does not meet a 1.80 metric U-value (.317 imperial). This is forecast to drop to 1.61 (.28) by 2022, which, in B.C., presents little challenge compared to other regulation.

This very aggressive stance on thermal performance of buildings, in turn, is creating a high-performance product wave with local fenestration manufacturers. I fully expect B.C. manufacturers to face Step 5 levels by the mid-2020s. As such, many manufacturers that serve this market have launched, or are in de-

Page 45: Westeck manufactured what it says is the first and only swing solid wood casement Passive House certified window in North America. The company could not reach the final values with solid wood, but found cork to be the "silver bullet." The author says cork is an excellent insulator and was readily available in the compressed shapes needed and, once laid into the frame and sash, allowed Westeck to achieve Passive House numbers. (All images courtesy of Westeck Windows & Doors)

Left: Frame performance is critical in Passive House. Westeck worked with its extruder, going around the world to find components that met the design attributes that would work for the window.

velopment of, new systems specifically aimed at these approaching performance targets.

A couple years ago, the province's CleanBC program launched Innovative Clean Energy, a funding program for B.C. manufacturers. This program offered B.C. manufacturers development funding to develop and certify either Passive House or Energy Star Most Efficient systems. This program is what launched Westeck's path to developing two PH window systems. Following are insights for manufacturers and their suppliers that are considering journeying on their own path to Passive House or high-performance systems.

Tips for developing a Passive House line

Westeck's GM, Neal Turner, is the catalyst for Westeck's proactive approach to the developing codes. "Passive House is not only an excellent idea for Westeck to support, it is actually more our responsibility to support," he says. Such support from the top is critical. Our technical team was new to the PH world, so we engaged a hardware supplier familiar with the process to assist us through it. If your history is with A440.2 or NFRC, I strongly recommend finding a supplier with at least some experience in the Passive House Institute (PHI) process.

One point to understand is that the criteria used to evaluate the thermal performance for PHI products are different than what is used under A440.2 or NFRC 100. Thermal modeling needs to be done to the European standards, so it's important to get some assistance. This is a time-consuming process—we made changes one at a time so we didn't miss an improvement or, worse yet, a performance loss from a change. Each iteration went though our modeler, followed by meetings with our Passive House advisor in Germany over a nine-hour time difference.

My advice is to reach out early and connect directly with the staff at PHI. If possible, communicate online or by phone as you will be faced with the inevitable communication challenges, not so much in language but in terminology. I.e. do you know what hygiene for fenestration is? You will have many questions that can get lost in emails.

On that point, getting frame hygiene just right eluded us for months. Hardware was a challenge in that we were trying to minimize the amount of metal required to minimize thermal bridging with different systems while keeping the operation as simple as possible... and always considering the aesthetics and keeping cost in check.

Frame performance is also critical in Passive House and cannot be overlooked or minimized. The best glazing package may not make up for limitations in frame design performance. We learned that we weren't able to make changes as quickly with PVC profiles as with modified wood, which pushed us to try and use what was available off-the-shelf. A little tip here: qualify the profile performance that will work before committing to the system. This was a painful lesson for us as we fully integrated the window system into our product line prior to reaching PH certification.

From there, we did not want to start from scratch to develop an entirely new system of profiles. Instead, we worked with our extruder, literally going around the world to find components that met the design attributes we needed. It was a bit like Dr. Frankenstein: sourcing and piecing a system together, having to integrate and model each iteration to find components that worked.

Mixing just the right recipe is challenging. Then, just when you think you have it nailed, there's one more little item: the details for a Passive House certified window component also require a specific installation/wall detail. The overall thermal performance includes the installation—not something we've ever had to provide for any other thermal certification. Passive House entails walls that are much thicker and significantly more complex than anything we've drawn before. The windows sit in the center of the wall, with exterior insulation that almost covers the exterior of our beautiful window. These details are very unusual and foreign to many of us.

Our PHI contact in Germany was very helpful, guiding us through this with much more patience than I could have mustered. All told, the certification of our Revolution XL Passive House tilt turn window took about 24 months. The support from our suppliers was critical, as well as the people at PHI; we never could have succeeded without them. ■

Terry Adamson has been in the fenestration industry in British Columbia since 1985, currently working for Westeck Windows and Doors as its technical director. He previously served as a director and chair with the Fenestration Association of B.C. and today, is the president of Fenestration Canada.

Products

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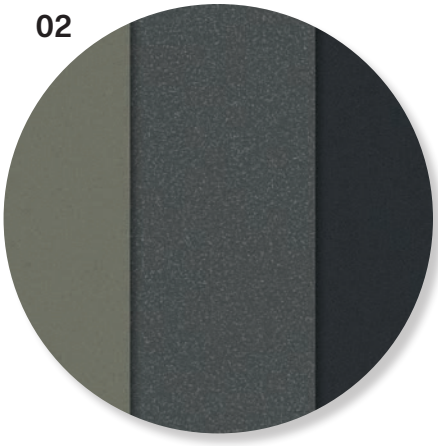

03

01 / Roto North America

The H600 is a handle-operated multi-point locking system for a swing door application. Features include: mechanical multi-point locking system; V-Cam Security cams and keeper; standard 5 point lock and security 7 point lock; French door option available; and a high-security option with a wedge bolt and hook combination. New in 2020 is a multi-point locking system with a stainless steel faceplate.

800/243-0893 | ROTONORTHAMERICA.COM

02 / Continental

skai Mattex is a single-color matte exterior surface laminate with a gloss level of two. The surface is designed to be scratch-resistant and is sealed with a PVDF layer. The company also reports it shows no gloss development during welding or bending. It is available in nine colors.

540/550-4596 | SKAI.COM

03 / Quanex Building Products

Mikron House Systems are designed to meet energy standards and include several residential window systems. Mikron R1-100 has a beveled frame design and perimeter mull groove. R2-9200 (pictured) is appropriate for new construction and renovation and has a ⅞-inch exterior-glazed glazing pocket. R2-10000 is designed for colder climates while the R1-6450 window system is a lightweight system appropriate for new construction.

330/447-7337 | QUANEX.COM

Product/Solution

Left: The Erdman® High Speed Dura line produces IG vertically in a fashion that nearly doubles the speed of traditional vertical lines—a first for vertical automation for the single-seal IG market. Vertical production eliminates the need to tip a unit up to four times in the production sequence, which saves time, eliminates injury potential, qualifies more operators for service and minimizes breakage.

High-speed Machinery // **Erdman Dura High Speed IG Line**

Challenge

Insulating glass manufacturers expect more out of their IG production equipment, including speed and benefits such as reduced floor space and labor, and a higher-quality product.

Solution

The Erdman High Speed Dura line produces IG at a rate nearly twice as fast as a "traditional" IG line. Total labor for the Dura High Speed line is three to four operators per up to 1,200+ units per shift.

Case in Point

Kyle Hawthorn, Mathews Brothers Co., shares how the Erdman® High Speed Dura line changed production:

"The Automated Parallel Process Duralite IG line has given us a huge advantage in an area with a very low unemployment rate. We have been able to shift a significant amount of labor into more critical thinking tasks. We can accomplish what we do on one of our standard goal post lines (12 employees, 10-hour shift) with four employees in an 8-hour shift on the Erdman Automation line. Additionally, SAM, or the 'Swiggle Application Machine,' which automatically applies the Duralite, also lowers the amount of soft tissue wrist injuries by decreasing repetitive tasks needed to be done by employees.

"The inkjet printer allows us to stamp the spacer system as opposed to etching the glass with a laser or sand. This allows us to greatly minimize any obstructions to the sight line or view of the windowpanes. And, the argon filling chambers have lowered our costs as they fill more efficiently than any of our previous methods.

The unique industry heating methods allow for immediate sealing of the units, which increases our quality control and leads to a better product for our customers. The final press has an application of even pressure, as an alternative to the standard tapered roll press, which we feel adds to the quality of the units."

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For more information, contact Erdman Automation at 763/389-9475 or visit erdmanautomation.com.

FROM GLASSBUILD CONNECT

01

02

03

01 / Soft Tech

The Drawing Module allows users to automatically produce shop drawings without a CAD license or knowledge. The user will need to have access to the V6 database information to formulate the drawings. Features include grid snapping, customized title blocks and multi-page layout options designed to display all required cuts on separate pages.

954/568-3198 | SOFTTECH.COM

02 / Deceuninck North America

The 326 series high-performance window system is available with an integral nailing fin, retro flange or block frame. The family includes casement, awning, picture window, side-load single-hung and single slider configurations. Multiple T bar and astragal options accommodate the build of multi-unit combinations. The windows are designed for thermal performance and have a DP-50 baseline.

513/539-5505 | DECEUNINCKNA.COM

03 / DeMichele Group

RhinoFab 9500 - Door Machine uses an automated pushing system to move a door up to 51 by 108 inches through the fabrication center where it will drill, rout and countersink the door in preparation for installing various hardware. Through the use of the Studio and RhinoFAB software, the machine will lay out the holes on either the hinge or lock side of the door before prompting the operator to rotate the door 180 degrees and prepping the opposite side.

480/985-4926 | DEMICHELEGROUP.COM

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Statement of Ownership, Management and Circulation

1 Publication: Window + Door™. 2. Publication Number #1525-1195. 3. Filing date: September 29, 2020. 4. Issue frequency: Oct/Nov, Dec, Jan/Feb, Mar/Apr, May, June/July, Aug and Sept. 5. Number of issues: 8. 6. Annual sub price: $49.95. 7. Complete mailing address of known office of publication: Window + Door™, 1945 Old Gallows Road, Suite 750, Vienna, VA, 22182-3931; Contact Person – JoAnn Binz, Circulation Manager; Telephone-843-388-3808. 8. Complete mailing address of company headquarters: Same as above. 9. Full name and complete mailing address of publisher: National Glass Association, 1945 Old Gallows Road, Suite 750, Vienna, VA, 22182-3931. Publisher: Nicole Harris, Publisher & CEO, National Glass Association, 1945 Old Gallows Road, Suite 750, Vienna, VA 22182-3931. Editor-in-Chief: Emily Kay Thompson, 1945 Old Gallows Road, Suite 750, Vienna, VA 22182-3931. 10. Owner- National Glass Association, 1945 Old Gallows Road, Suite 750, Vienna, VA 22182-3931. 11. None. 12. Has not changed during preceding 12 months. 13. Publication Title: Window + Door™. 14. Issue Date for Circulation Data Below: Avg. Oct/Nov 2019–Aug/Sep 2020; Actual Aug/Sep 2020. 15. Extent and Nature of Circulation. 15a Total Number of Copies: Avg. 22,002; Actual 18,008. 15b.1. Paid/Requested Mail Subscriptions: Avg. 11,306; Actual 8,801. 15b.4. Requested Copies Distributed by Other Mail Classes: Avg. 1,598; Actual 1,380. 15c.Total Paid and/or Requested Circulation: Avg. 12,904; Actual 10,181. 15d.1 Non-requested Copies: Avg. 7,861; Actual 6,606. 15d.4. Non-requested Copies Distributed Outside the Mail: Avg. 146; Actual 0. 15e. Total Non-requested Distribution: Avg. 8,007; Actual 6,606. 15f. Total Distribution: Avg. 20,911; Actual 16,787. 15g. Copies not distributed: Avg. 1,092; Actual 1,221. 15h. Total: Avg. 22,002; Actual 18,008. 15i. Percent Paid and/or Requested: Avg. 61.7%; Actual 60.6%. 16a. Paid/Requested Electronic Copies: Avg. 3,605; Actual 3,784. 16b. Total Paid/Requested Print + Electronic Copies: Avg. 16,509; Actual 13,965. 16c. Total Print Distribution + Paid Electronic Copies: 24,515; Actual 20,571. 16d. Percent Paid/Request (Print + Electronic Copies): Avg. 67.3%; Actual 67.9%. 17. Publication of Statement of Ownership for a Requester Publication will be printed in the October/November 2020 issue. 18. Signature and Title of Editor, Publisher, Business Manager: Emily Kay Thompson, Editor-in-Chief. Date - 9/29/2020 - PS Form 3526-R.

Market Data

OUTSIDE VIEW

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Macroeconomic Rebound // Housing a Bright Spot in the Overall Construction Industry

Despite stumbling in March and April, single-family housing is posting a strong rebound. Connor Lokar, ITR Economics, expects housing starts to continue their upward trajectory and encourages suppliers to prepare for higher demand.

Builder Confidence

83 (up five points)

Builder confidence in the market for newly built single-family homes increased five points to hit an all-time high in September. *Source: National Association of Home Builders/Wells Fargo Housing Market Index*

New Home Sales

1.01 million units

The sales number of newly built, single-family homes in August reached their highest pace since September 2006. *Source: U.S. Housing and Urban Development and the U.S. Census Bureau*

Delayed Work

24%

Nearly a quarter of contractors did not cancel or delay a project over the past month. This is the highest percentage of contractors that did not cancel or delay a project since mid-March. For those that experience cancellations, it's primarily due to homeowners' financial concerns. *Source: The Farnsworth Group and Home Improvement Research Institute*

August 2020 window and door stock index increase	August 2020 overall S&P 500 increase	Year-over-year return for window and door index	Year-over-year return for S&P 500
9.2%	7.1%	31.8%	20.4%

The window and door index has outperformed the broader market as residential construction activity continues to outperform investors' expectations. The outperformance has not been limited to only repair and remodel, but also single-family new construction. *Source: Lincoln Financial*


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