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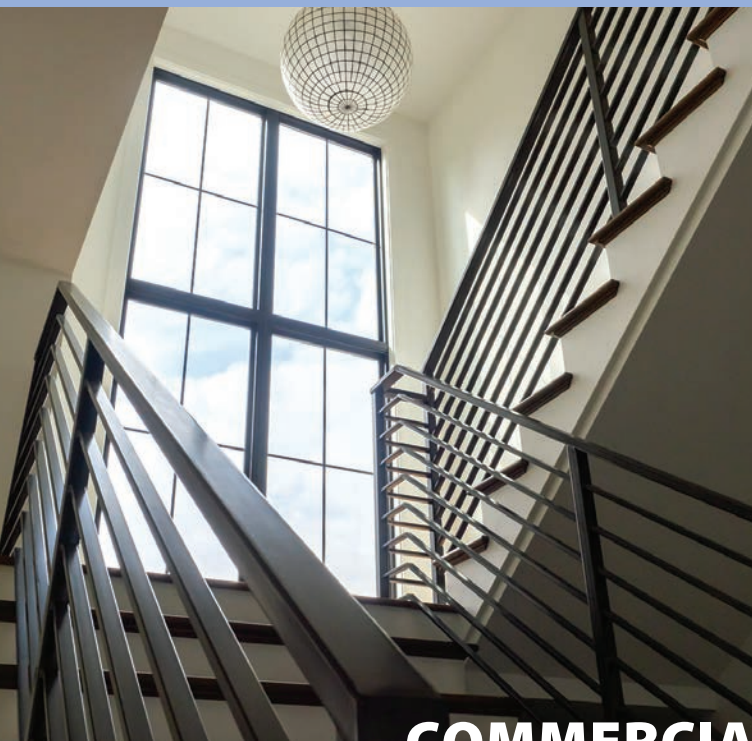
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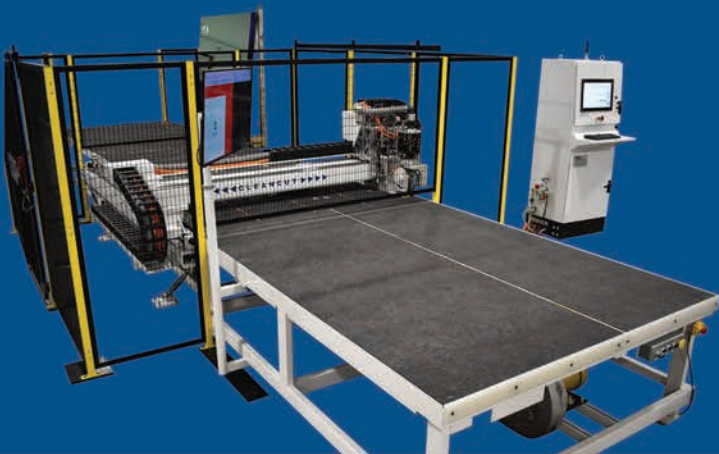
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On the cover: An insulating glass unit enters the oven at Crystal Window and Door Systems' Pennsylvania location, one of the companies on this year's Window + Door Top Manufacturers list.

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Mike Rowe on Making Work Cool Again

By Laurie Cowin



Explain Energy Efficiency to Close More Sales

By Tom Herron, National Fenestration Rating Council, nffc.org

Nearly all customers ask about price and nearly half of retailers said this is the No. 1 factor in making a purchase. However, two-thirds said they consider energy efficiency as the most important factor, and retailers rank energy efficiency in the top three factors for homeowners buying windows.

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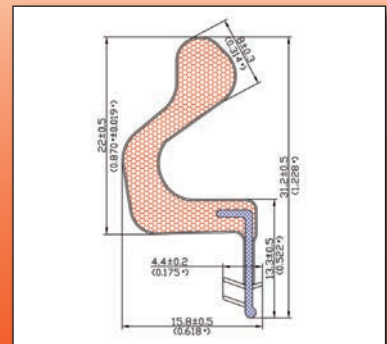
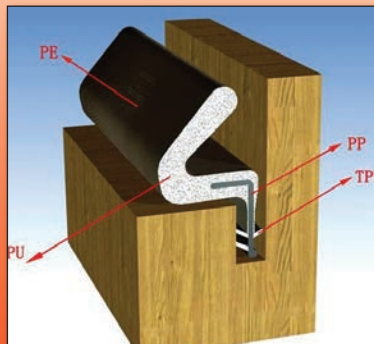
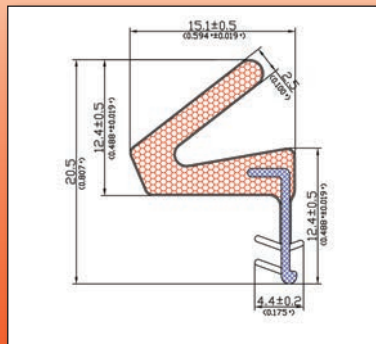


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News



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GlassBuild America Returns to Atlanta in September

NGA announced GlassBuild America: The Glass, Window & Door Expo is on schedule for Sept. 13-15 in Atlanta at the Georgia World Congress Center. The 18th edition of the largest glass, glazing, window, and door event in the western hemisphere returns with the theme of “Back to Business. Back to GlassBuild.”

“We are eager to get back to business and for our industry to get back to buying and selling in person,” says Nicole Harris, NGA president & CEO. “The construction industry is busier than ever and more challenged to meet demand; precisely the reason to make the time to get to Atlanta for the show this year.”

Attendee and exhibitor safety is always a priority and will be elevated this year. Equally important is providing the right venue for learning better ways to innovate and grow. GlassBuild America is poised to welcome exhibitors who are ready to deliver the new products and services glass and fenestration companies need most.

Presented by NGA, along with association sponsor Fenestration and Glazing Industry Alliance, GlassBuild America is a comprehensive and united event connecting the glass and fenestration industry to share common challenges and solutions.

Registration for the 2021 event is open at glassbuild.com.

Pandemic a Boon for US Home Improvement, says Harvard

While the U.S. economy shrank by 3.5 percent in 2020, spending on home improvements and repairs grew more than 3 percent, to nearly \$420 billion, as households modified living spaces

for work, school and leisure in response to the COVID-19 pandemic, according to Improving America’s Housing 2021, a report by the Harvard Joint Center for Housing Studies.

The unexpected strength of the home remodeling market made 2020 the 10th consecutive year of expansion for the industry, but the pandemic disrupted several long-term trends. “From 2010 to 2019, homeowners largely relied on professional contractors, and remodeling activity was heavily concentrated in coastal metros,” says Kermit Baker, director of the Remodeling Futures Program at the Joint Center for Housing Studies. “But in 2020, amid concerns about having contractors in the home, DIY projects gained new popularity.”

The increasing incidence and severity of climate-related disasters in the U.S. caused spending on disaster repairs to climb to 10 percent of homeowner improvement expenditures by 2019, double its historical share and setting a new high of \$26 billion. Much of this spending was due to hurricanes and tornadoes with repairs heavily concentrated in the southern region of the U.S.

While there are still large segments of the population that have not yet recovered from the steep economic recession caused by the pandemic, sustained growth in home remodeling is expected. “In the short term, many homeowners who deferred projects in 2020 are expected to complete those renovations once the pandemic is over,” says Baker. “Additionally, there has been an upturn in homeownership as younger households look to purchase homes, the number of multigenerational households has been growing, and remote work has given people more locational flexibility and the desire to modify their homes.”

IN THE NEWS:

Month in Review

Cornerstone Building Brands

acquired Prime Window Systems, a vinyl window and door manufacturer.

Mad City Windows, a subsidiary of **Titan Home Improvement**, acquired Minnesota-based **New Windows for America**, which offers replacement windows, bathrooms and other home improvement products.

Marvin and **Halio** established an agreement to bring smart glass to the residential construction market and **Masonite** partnered with **Ring** and **Yale Home** to integrate power and internet connectivity to residential doors.

Several companies are expanding their facilities. **ProVia** is undergoing a three-part, 150,000-square-foot entry door manufacturing facility expansion near Walnut Creek, Ohio. Also in Ohio, **MFM Building Products** plans to add nearly 50,000 square feet to its production area, as well as acquire new production equipment. **Jeld-Wen's** CEO, Gary S. Michel, cited plans for continued growth in its North Wilkesboro, North Carolina, plant, and **Glo European Windows** is expanding its window and door dealer network.

Andersen Corp. and its subsidiaries, **ProVia** and **SoftLite Windows & Doors** received 2021 Energy Star Partner of the Year—Sustained Excellence Awards from the U.S. Environmental Protection Agency.

And, **Anthony Innovations** is celebrating its 70th anniversary this year.



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The Tight Supply Side

Companies in every part of the supply chain are wrangling with material shortages, high costs and long lead times



By
Laurie Cowin
EDITOR



Online
READ MORE FROM THE
CONVERSATION WITH
DAN GRAY AT
WINDOWANDDOOR.COM

Last fall, my husband and I purchased a new dishwasher. We both like to research items before we purchase them, and after hours scouring Consumer Reports and online reviews, we narrowed down our selection to several makes and models.

Upon visiting our local home improvement stores, however, we couldn't secure any of them. The appliances manager explained to us that they couldn't get dishwashers in stock, couldn't keep dishwashers in stock and, even if they could get the actual appliance, there was a high likelihood they couldn't get the appropriate connection hoses for installation.

Ultimately, we asked what was in stock in our price range, were presented with only one option, and we went for it. The dishwasher was installed just a few weeks later and we've been happy with the product.

Our dishwasher buying experience is illustrative of what many companies in every part of the supply chain wrangle with every day: they can't get product and, when they do, struggle to keep adequate product levels.

I had the chance to sit down with Dan Gray, director of sales at Roto North America, in February to discuss supply chain. He explained how at the pandemic's onset, most customers predicted a 20 to 40 percent decline for the second half of 2020. After the unexpected market strength, however, companies were actually up 20 to 30 percent, which Gray told me "created a lot of complexity to try to maintain inventory levels accordingly for customers." Today, after completing four months of activity in 2021, demand has "soared to unprecedented heights," he said.

Material shortages are also rampant. Lumber prices are rising remarkably high, but the problem is more widespread than just lumber. Gray referenced a global surge in steel demand, which

has backlogged Roto's steel supplier and resulted in some extended lead times for Roto's hardware. Gray quoted a recent article from Bank of America that supports this: "The pandemic brought the American steel industry to its knees last spring, forcing manufacturers to shut down production as they struggled to survive the imploding economy. But as the recovery got underway, mills were slow to resume production, and that created a massive steel shortage."

Global logistic costs are rising sharply, also. Roto has to pay what Gray describes as "premium dollar" to even secure a shipping container to transport goods from China to North America, a phenomenon he says nearly all companies that do business in China are likely experiencing. What had taken five to six weeks door to door now takes eight to 10 weeks.

I asked Dan what his top advice is for companies struggling with supply-side challenges. "Communication is key," he said. Dialog needs to involve talking about growth initiatives in the context of verifying the supplier can handle growth. He also said it's important to be willing to place blanket orders for core products. "You cannot afford to run out of key raw material that is used in your manufacturing process because then your whole labor is shut down, and Roto is working to validate alternative suppliers for raw materials."

Much of this year's Top Manufacturers report, p. 26, reflects Gray's story. Almost 90 percent of respondents indicated material costs had risen in the past year and 62 percent said their backlogs are longer than a year ago.

But the report also verifies what we all know: the market is solid, demand is high and the industry is set to have a terrific year. As Gray said: "There are a lot of challenges, but the upside is fantastic. ... We remain vigilant on the perspective that our industry has been very robust with its activities." ■

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Safety Matters

A plant accident investigation protocol can prevent future incidents



By Janice
Yglesias

Workplace safety is the most important facet of working in and managing a plant. Mitigating the risk of injury or even death is motivation enough for maintaining a strong safety program, but in-plant accidents can also impact a company in direct and indirect forms that are not often anticipated. These potentially include:

- Time lost from work by injured employees, fellow employees and their supervisor(s)
- Loss of efficiency due to breakup of crew and training costs for new or replacement workers
- Damage to facilities, tools and equipment, and time they are out of service
- Loss of production for remainder of the day and possible failure to fill orders or meet deadlines, as well as overhead costs while work is disrupted
- Insurance premium increases, fines or lawsuits
- Intangible costs of human tragedy, injured morale and damage to the company's reputation

Fenestration and Glazing Industry Alliance member Mike Troutman, vice president of environmental, health and safety excellence for MI Windows and Doors and co-chair of the FGIA Fenestration Safety Committee, spoke at the FGIA Virtual Annual Conference about the importance of reporting incidents and protocol for doing so.

According to Troutman's research, 95 percent of accidents stem from unsafe or inappropriate behaviors in the workplace. Hazardous conditions account for between 3 to 5 percent, while uncontrollable acts account for 2 percent of workplace accidents. "We, as management, control a lot of factors that couple with behaviors, which we can allow or influence," he said. "A lot of responsibility for the incident rests on our shoulders."

Through poor system design, accidents can, in effect, be unintentionally planned.

Protocol road map

The FGIA Fenestration Safety Committee offered an accident investigation protocol road map based on finding root causes of actual and potential accidents and removing the associated hazards.

An effective accident investigation program involves:

- **Written procedures.** These provide uniform guidance for the investigator(s) to ensure the same quality and details are uniformly captured whenever an incident occurs. This could be as simple as a form used the same way every time.
- **Defined responsibility for conducting investigations.** The area supervisor usually takes the lead, but specialized help should be available for major incidents, such as engineering, maintenance, safety and/or HR.
- **Formal investigator training.** Accident investigation courses are available through the National Safety Council, state outreach programs or insurance providers.
- **A focus on facts,** not assigning blame.
- **Written reports.** Documented reports are helpful for future reference in case an incident turns into a claim. Also, they permit identification and analysis of emerging hazardous trends.
- **Follow-up recommendations.** Develop recommendations for improvement of the process that failed, which is an important step toward prevention.
- **Review of the accident to share best practices.** Share details of the accident, omitting names of involved personnel, so others can learn best practices and prevent recurrence of similar situations in other departments or locations.

Note that "near misses"—incidents where no property was damaged and no personal injury sustained but, given a slight shift in time or position, a bad outcome could easily have occurred—offer opportunities for improvement, as well as actual



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occurrences that do result in a problem or injury. “A near miss is like a second chance,” said Troutman.

Incident investigation steps

A well-established accident response and investigation procedure will help ensure that people do not panic, stay focused and act quickly. Recommended steps include:

1. Secure and isolate the site to prevent additional injuries and disturbance of physical evidence.
2. Preserve and document the scene. Visually record the layout of the site with pictures and/or large, legible sketches or drawings.

3. Obtain eyewitness information, if possible.
4. Develop the sequence of events leading up to the incident.
5. Determine and state the root cause of the incident, using much the same corrective action process as employed in quality management.
6. Recommend improvements. Identify the person or position responsible for accomplishing the corrective action and establish a mutually agreeable date for completion. Recommendations for corrective and preventive action should be specific to the situation.

7. Write the incident report, including a complete description of the incident and a statement of the root cause.
8. Communicate the results, including corrective actions and associated system improvements.

Developing such an investigative program is a key element of instilling a “safety-first culture” that includes clear work rules, eliminates confusion and forestalls potential injuries. ■

Janice Yglesias is the executive director of FGIA overseeing the full organization. She joined the association in 1999 and can be reached at jyglesias@fgiaonline.org.



The image shows a computer monitor displaying the A+W iCut software interface. The background is a blurred view of a glass house under construction with several A-frame structures. The software interface includes a main workspace with a diagram of a glass pane, a left sidebar with a project tree, and a right sidebar with various settings and options. A callout box points to a specific part of the diagram with the text: "In this example IGU, shape and spacing information". Another callout box points to a button in the right sidebar with the text: "Possible to import a cut file".

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3 Tactics to Contend with Lengthy Lead Times

How to get products to customers in a timely manner despite the ongoing shortages of raw materials and labor



By Eric Thompson

Ask around the industry these days, and lead times have become a hot topic of discussion. In some instances, homeowners who have purchased new windows are waiting months before installation, and it's created a situation like we've seldom seen.

There are a few factors at work here. First and foremost, raw materials have been hard to come by, with short supplies lengthening lead times from the outset of the process. Second, the ongoing labor shortage continues to challenge manufacturers to do more with less, particularly in light of our third factor: a hot housing market and big demand for new windows in both new construction and retrofit projects.

But getting quality products into our customers' hands in a timely manner is our responsibility, and we need to be doing whatever's in our power to do it. To those ends, here are a few things I've been thinking about recently:

1. Automate what you can, when you can.

The benefits of automation on the manufacturing floor are well-documented, helping window and door makers make higher volumes of insulating glass and move workers to high-value tasks with less overhead investment. But not all businesses are in the position to invest in a brand-new high-speed line—nor are those lines necessarily readily available at the present moment. Due to demand, machinery suppliers are seeing lengthy lead times, too.

What can you do in the interim? Look into what's available and cost-effective for your needs. Semiautomated tools for IG, like fixed-head secondary sealers and spacer applicators, can allow a small team to produce anywhere from 400 to 700 insulating glass units in a normal shift. Compared with manual equipment, this kind of improvement can noticeably increase your capacity.

2. Strategic alignment with your suppliers is more important than ever.

Given the challenges we've seen around supply

throughout the value chain, close collaboration and alignment with your suppliers are more important than they have perhaps ever been.

If you're manufacturing vinyl-framed windows, for example, working closely with your vinyl vendors to ensure supply reliability and quality consistency can be beneficial in times like these. Particularly as ready availability of raw materials may vary, knowing your vinyl supplier is aligned with reliable raw material suppliers is essential to secure a source for your window and door manufacturing business.

3. Consider your outsourcing options.

When you need to produce completed window units more efficiently, one beneficial strategy can be to outsource production items more easily produced by vendors that specialize in that product.

Think about your window and door screens—manufacturing includes frame cutting, punching corners, frame assembly and rolling screen mesh. This is hard, skilled work, and if you're already struggling for labor, the process can become a major headache.

But quality screens are your customers' expectation, and there's no room to cut corners. If screens production is a problem spot in your plant, it's even possible that you're able to build more windows in a day than you are screens. And that's a problem.

In this scenario, it's worth considering outsourcing your screens production with a supplier you can trust. This strategy allows you to refocus your labor toward what makes you money, with screens delivered in step with your production.

At the end of the day, demand is up, and that's a good problem for our industry to have. But it also means we need to keep thinking about new ways we can produce quality products to meet the demands of our customers in a reasonable amount of time. ■

Eric Thompson is the commercial sales manager for Quanex Building Products. Email him at eric.thompson@quanex.com.

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Risk Management

Recognize risk in your business to promptly manage it before a problem manifests



By Paul R. Gary

Perhaps Donald Rumsfeld put it best when he said, “There are known knowns, things we know that we know; and there are known unknowns, things that we know we don’t know. But there are also unknown unknowns, things we do not know we don’t know.”

Or maybe not.

To be sure, recognition, response and resolution are fundamental goals within the realm of legal risk management. As Rumsfeld was likely getting at—the greatest among these is recognition.

Recognition is the ability to see risks within the business segments of the manufacture and sale of windows and doors before a problem manifests. Success requires a solid understanding in two areas:

1. The nature of the operations and products, and
2. The legal repercussions of the management choices.

As with many manufacturing enterprises, the legal impact can manifest anywhere from personal injury to regulatory to contractual liability.

Unchecked, the probability that latent risk will become a real or threatened liability dramatically increases in direct proportion to significant growth in business volume because growth in volume is built upon a repetitive reliance on the business’s actions and decisions inherently required for the operation of your business. Many of these choices

represent an independent opportunity for loss; more repeated reliance yields greater probability.

For example, if a single unwitting choice to use an inadequate component is repeated in 1,000 products, there is a risk. The manufacture of 1 million products expands the probability of liability by several orders of magnitude. As your company matures, it is important to make the effort to recognize its risks. Stated another way, continued justification of not analyzing your business risk by reliance on the conclusion that “nothing bad has happened” can be foolhardy.

As you grow, the need to address risk becomes more dramatic, but the elements to be considered remain relatively static. Design, procurement, manufacture, certification, instruction, marketing, sales, shipping and service each carry signature risks. The goal is to enable the business leader’s recognition of risk and prompt a consideration of management of them. ■



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Paul R. Gary is the principal of The Gary Law Group, a law firm based in Portland, Oregon, emphasizing legal issues facing manufacturers of windows and doors. He welcomes feedback about articles published in Window + Door and can be reached at 503/227-8424 or paul@prgarylaw.com.



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4 Tips to Maximize Your Social Media Strategy

Ask pointed questions, set company goals and establish processes to help build a social media plan that fits into your overall marketing strategy



By Steve Chen

Social media is part of doing business in today's digital environment. Depending on the nature of your business, whether you sell directly to consumers, only to other businesses, or a combination of both, your company probably has embraced digital communications across a few or several social media platforms, such as Facebook, LinkedIn, YouTube and Twitter.

Many businesses in the fenestration industry, especially ones that do not sell directly to homeowners, may have been uncertain if using social media would be a worthwhile investment of effort. My company, Crystal Window & Door Systems, for decades has had a robust marketing and sales communications effort established that was working very well. Nevertheless, several years ago we initiated basic Facebook and LinkedIn presences, wanting to see whether the social media trend would take hold before making a bigger commitment. As it became clear that social media and digital communications were here to stay, Crystal steadily developed its online presence to add platforms, followers and content.

Social media allows you to tell your story your way, almost in real time. If managed strategically, social media can be a tremendous way of transmitting new information and reinforcing the positive image you've worked diligently to build with your customers, suppliers and other audiences.

During the past year with the global pandemic lockdowns and challenges, we found it hard to reach new customers, and in the beginning, difficult to communicate easily with existing customers. We immediately ramped up our efforts with social media and it paid off greatly to keep our trade customers, design and construction professionals, and suppliers up-to-date with the latest company developments.

Following are four insights Crystal has learned about making online social media tools effective and valuable.

1. Make a plan for social media management

While social media can appear spontaneous and casual, really effective use of social media starts with a plan, even if it's informal. If your company launched its social media presence haphazardly in your eagerness to jump on board with this trend, now you can take a step back and assess where you want to take it as part of your overall marketing program.

What are your goals and who are you trying to reach? It is important to establish who your audiences are to create content that is meaningful and engaging. Do you sell directly to homeowners? Do you work through distributors and installers? What about your suppliers? Content should reflect what you want your audiences to know about your company.

What level of resources are you willing to dedicate to social media? While social media is relatively inexpensive, it's not free. Having a successful online presence requires people to direct





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and manage content. If your company treats social media as a catch-as-catch-can endeavor, posting whenever the mood strikes, it likely will not be an effective communication tool.

How will you attract followers to your social media platforms? Consider how you will announce your online presence and ask for contacts to become followers. Incorporate social media links in all your sales literature and marketing materials to boost awareness.

2. Be realistic

Maintaining a great social media presence must be balanced with competing corporate priorities and resources. Your company is in the fenestration business after all, not the digital technology business, so it is important to consider how content for posting will be created and managed.

Who is responsible for developing content? If your social media coordinators ask employees, such as your sales representatives, to contribute material for social media posts, make sure they understand the value of social media and how it can be used proactively to engage with their customers. Also stress the focus of your marketing messages and what's appropriate for posting. What you think is interesting may not have much relevance for your customers or suppliers, so objectivity is key. A planned schedule of post topics can go a long way in managing content easily without burning out your staff.

How often should new content be posted and followers updated? Again, it's important to maintain balance. If posts are infrequent or outdated, social media will not have the impact you are expecting. If posts are too frequent, followers may tune out, since endless notifications of new posts could become annoying.

3. Get feedback and make adjustments

Feedback on your social media efforts is important and can help your digital marketing team allocate its resources efficiently.

Ask your customers, suppliers and other followers for their impressions of your social media content, including its value, timeliness and what topics they'd like to see. For example, in New York, our largest sales operation by volume, Crystal surveyed its customers to find out what installation issues they have and then created step-by-step videos to address those issues by demonstrating proper installation of products and

hardware. These are now available on Crystal's dedicated YouTube channel.

Which social media sites do your followers use? Individuals may prefer one platform over another, so it will rarely be one-size-fits-all. For example, many of Crystal's sales representatives try to match the platforms they direct their customers to with their preferences to keep it effective.

How often do your followers want to be notified of new posts? They are busy people, and the tidal wave of digital input today can be overwhelming, leading them to disengage if they have to wade through too many posts.

4. Don't abandon other forms of communication

Especially during these economically stressed times, it might be tempting to focus exclusively on marketing through social media. Its relatively low cost and ability to reach large numbers of contacts quickly are certainly attractive. However, for many the jury is still out on the long-term effectiveness of social media.

When it comes to communicating and doing business, the fenestration industry has one foot in traditional ways and one foot in new ways. In our experience, customers run the gamut of technology preference and use. Some customers handle sales quotes and orders via fax, while others love to use our online self-ordering system. Some prefer phone calls and in-person meetings, while others are comfortable with online meeting tools.

An effective marketing strategy uses many forms of communications—social media, websites, print, broadcast and mail—to reach intended audiences, share information and drive sales. Social media should be just one tool in your vast marketing communications toolbox.

However your company chooses to use social media, a well-planned approach, engagement of your sales team in its use, and integration of social media messages with all your other marketing communications will go a long way to ensure its effectiveness and success. ■

Steve Chen is president of Crystal Window & Door Systems, with overall responsibility for all the operations of the Crystal family of companies and its five major production facilities across the country. As the second generation of company leadership, Chen guides strategic policy and sets direction for future growth.

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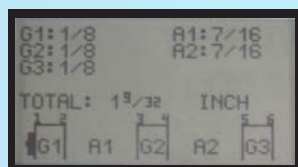
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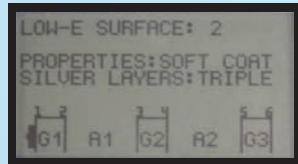


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Above: Display example for thickness.

Below: Display example for Low-E.



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The Top Manufacturers Report

TODAY'S MANUFACTURERS ARE KEEPING PACE WITH A ROBUST RESIDENTIAL MARKET WHILE GRAPPLING WITH SUPPLY-SIDE CHALLENGES

By Laurie Cowin

The economic reports of a year ago painted a daunting picture. Much of the economy was shut down, data from the Bureau of Labor Statistics showed unemployment levels hit nearly 15 percent and little was known about COVID. The uncertainty caused many economists to issue dour predictions about

the economy as a whole and about most facets of construction.

Certainly no one foresaw the residential construction and remodeling boom that started last summer and continues today.

This year's Top Manufacturers list reflects the unexpected strength of the market. Nearly all companies

(93 percent) cited higher or static sales compared to last year, with an equal number continuing a five-year measurable growth pattern.

Before diving too far into this year's report, however, it's important to examine the current market manufacturers are serving and what the outlook is for the coming year.



AN INSULATING GLASS UNIT ENTERS THE OVEN AT CRYSTAL WINDOW AND DOOR SYSTEMS' PENNSYLVANIA LOCATION.



The Current State of the Market

The Housing Market: What Manufacturers Need to Keep Pace With



Window and door manufacturers are operating in a housing market with consistently strong performance, both in new construction and remodeling. It's important to understand the strength of these markets to understand the demand product manufacturers are facing and will continue to face.

Here's a look at the current state of the overall residential market.

New Construction

March housing starts increased 19.4 percent, marking the fastest pace for combined single-family and multifamily construction since June 2006, according to a report from the U.S. Department of Housing and Urban Development and the U.S. Census Bureau. Within that number, single-family starts increased 15.3 percent to a 1.24 million seasonally adjusted annual rate. Year-over-year first quarter

single-family starts are up 19.6 percent. Single-family permits also rose in March by 4.6 percent.

These numbers are buoying builder confidence, even as they struggle with rising lumber and material prices and supply chain issues, according to the National Association of Home Builders/Wells Fargo Housing Market Index.

"Demand remains solid due to low mortgage interest rates and a thin level of inventory in the resale market, which is spurring the need for additional supply," says Robert Dietz, NAHB chief economist. "The test for the industry this year will be balancing growth and higher construction costs, given ongoing housing affordability challenges."

Remodeling

Remodeling is likewise healthy. The Leading Indicator of Remodeling Activity by the Remodeling Futures Program

from the Joint Center for Housing Studies of Harvard University projects mid-single digit gains in annual home renovation and repair spending this year, with 4.8 percent growth by the first quarter of next year.

"Although the recent surge in DIY activity is slackening as the economy continues to open up, homeowners are undertaking larger discretionary renovations that had been deferred during the pandemic," says Abbe Will, associate project director in the Remodeling Futures Program at the Center. "A shift to more professional projects should boost annual homeowner remodeling expenditures to \$370 billion by early next year."

NAHB's Remodeling Market Index posted a reading of 86 in the first quarter of 2021, a

year-over-year increase of 38 points. Steve Cunningham, NAHB Remodelers chair, attributes this confidence to increased household savings during the pandemic and more money available for projects. "However," he says, "demand is stronger than many remodelers can handle, resulting in being forced to turn work away."

"The large year-over-year increase in the RMI signals a very strong recovery in remodeling activity since the onset of the pandemic, and activity should continue to grow into 2021 as the economy accelerates with an easing of the pandemic," says Dietz. "However, material availability and prices continue to be a challenge for remodelers and their customers."

Manufacturing Outlooks



National Outlook Across All Manufacturing Sectors

According to the National Association of Manufacturers First Quarter 2021 Manufacturers' Outlook Survey, which surveys manufacturers across all industrial sectors, nearly 90 percent (87.6 percent) of

manufacturers felt "somewhat" or "very positive" about their company's outlook. This is the third consecutive quarter in which manufacturers reported increased optimism. Comparatively, the Q2 2020 was only 33.9 percent, the worst reading since the Great Recession.

NAM Manufacturers' Outlook Survey Takeaways

Sales

4.9%

increase in sales expected over the next 12 months

56%

feel orders will rise 5 percent or more

Production

4.9%

increase in production expected over the next 12 months

79%

forecast output to rise over the coming months; only 6.9 percent expect a decline

Hiring

60%

anticipate full-time hiring over the next year

25%

predict employment growth of 5 percent or more

Top worries of manufacturers were

76%

Increased cost of raw materials

66%

Inability to attract and retain talent

50.9%

Rising health care and insurance costs

50.2%

Transportation and logistics costs

48.7%

Supply chain challenges with inventory management

44%

Unfavorable business climate, including taxes and regulations

Source: National Association of Manufacturers First Quarter 2021 Manufacturers' Outlook Survey

Manufacturing Outlook for Remodeling and Replacement Products

The remodeling and replacement surge that came in the second half of 2020 created challenges for manufacturers, distributors and builders and contractors, said Bob Tancula, senior vice president – building product manufacturers advisory services at Zonda, during a March webinar.

Even operating at full capacity, manufacturers couldn't fulfill demand because of shutdowns and other COVID adjustments, absenteeism, lack of material inputs, low inventories and supply chain challenges, including raw material availability, said Tancula.

He continued to explain those challenges trickled down to distributors, many of whom had to source products from other suppliers. Builders and contractors, meanwhile, struggled to obtain materials, had to adjust project schedules and couldn't commit to certain projects.

Tancula said pro dealers' remodeling and replacement income grew from \$15 billion to \$19 billion in 2020. Home improvement R&R sales grew \$24 billion last year, or about 17 percent growth. "This type of growth won't happen again anytime soon," he said.

Consumers spent \$17 billion in 2020 on windows and doors remodeling, a year-over-year

increase of 9 percent, according to Zonda research.

Research also revealed project cost is increasing faster than units. Windows experienced a 3 percent increase in units, but 9 percent increase in dollars spent. Doors, meanwhile, saw a 5 percent increase in units and a 10 percent increase in dollars spent.

Tancula also believes unit growth in 2020 would have been even stronger if supply could have kept pace with demand.

"There's a lot of opportunity for growth in 2021," he said, with the replacement market looking to be very strong overall. He estimates 3 to 4

percent growth in projects and units in the R&R segment and 5 to 6 percent growth in revenues at channel prices.

Year-over-year comparisons will likely drop in the second half of 2021. However, given the strong growth in the second half of 2020, "those numbers will be tough to repeat," he said. "It'll be a very strong year, despite likely negative year-over-year comparisons later this year.

"We're in a good position for 2021," he concluded. "Our outlook is continued strength and a lot of momentum."



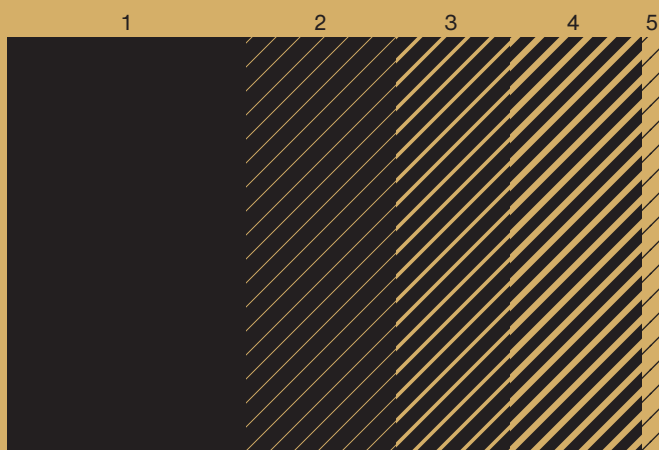
The State of Residential Fenestration Manufacturers

This year's respondents to the Top Manufacturers survey indicated supply side challenges and continuing labor concerns are among their top concerns. But the spirit of innovation and advancement is strong across the board, with dual focuses on manufacturing processes and product development.

About 73 percent of companies indicated they increased production in 2020, and that is likely to continue this year. Top ways companies said they added production capacity include new manufacturing space, additional equipment, more hiring, adding product lines and acquisitions.

In what ways will you innovate in 2021?

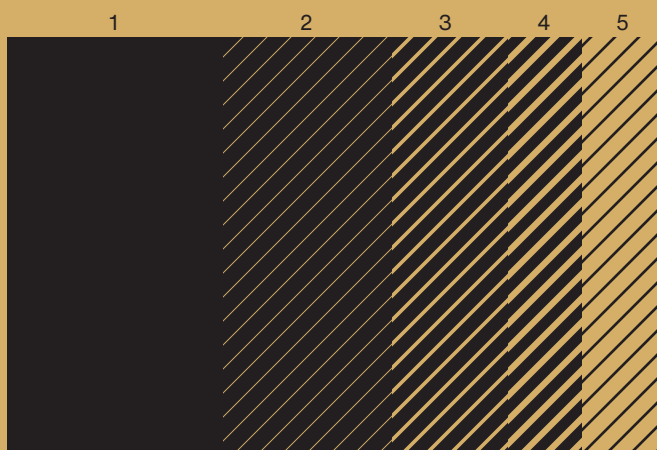
1 Equipment updates	67%
2 Software updates	42%
3 R&D/Testing	32%
4 Introduce new products	37%
5 Other*	6%



*Other includes additional capacity and facility expansions.

In what ways will you innovate in 2021?

1 Larger windows/doors	39%
2 Energy-efficient products	50%
3 Impact-rated products	27%
4 Sound abatement	17%
5 Other*	19%



*Other includes design options, such as color, thin frames, large glass, hardware options, finishes and historical accuracy, as well as smart technology.

Answers total more than 100% as respondents could select more than one option.

Material Costs

Lumber prices have tripled in the past year, adding approximately \$36,000 to the price of an average new single-family home, according to data from the National Association of Home Builders. In March, NAHB was one of three dozen organizations that co-signed a letter to Gina M. Raimondo, Secretary of the U.S.

Department of Commerce, urging immediate attention to lumber prices, including a “thorough examination of the lumber supply chain and seek remedies that will increase production.”

Speaking at the Window & Door Manufacturers Association’s Spring Virtual Meeting and Legislative Conference,

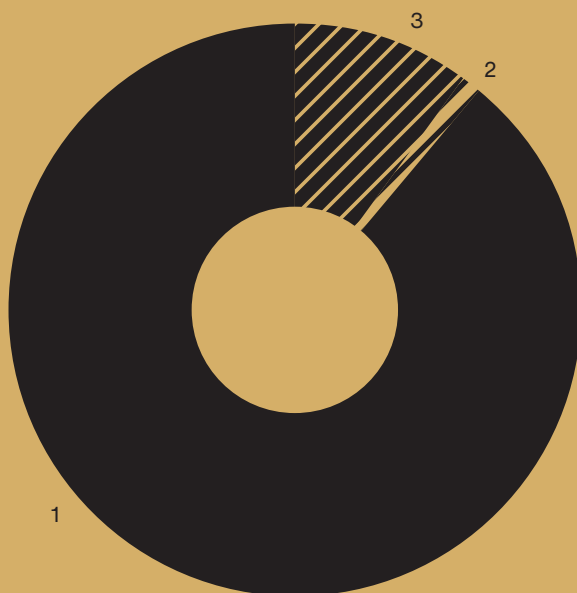
Rep. Tom Emmer (R-Minn.) described it as “critical” to get a softwood lumber agreement with Canada done “quickly and correctly.”

Steel, aluminum and other imported materials also face rising prices. In the face of such costs, some manufacturers are looking, or considering looking,

elsewhere for materials. The Bureau of Labor Statistics’ Producer Price Index indicates building materials prices have declined just twice since December 2019. The same report shows prices paid for goods used in residential construction have increased nearly 7 percent over the past 12 months.

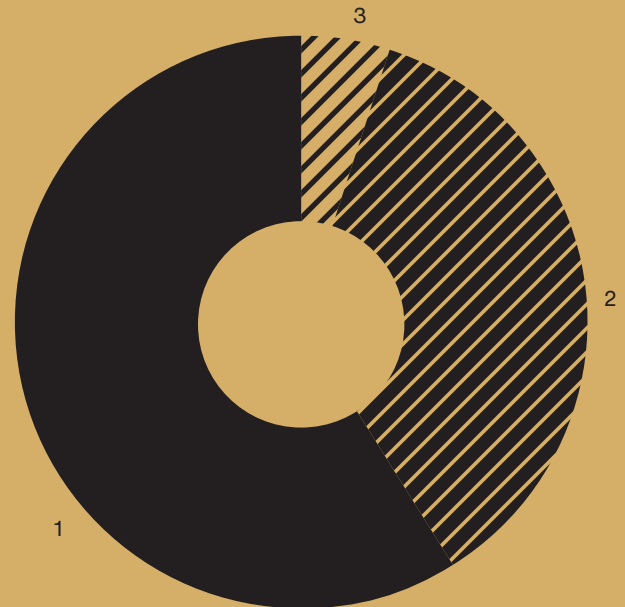
Did your material prices rise this past year?

1 Yes	89%
2 No	1%
3 Unsure	10%



How much did material prices increase?

1 0-15%	59%
2 15-30%	36%
3 30-45%	5%



Unless indicated otherwise, source for all charts: Window + Door Top Manufacturers survey.



The Supply Chain

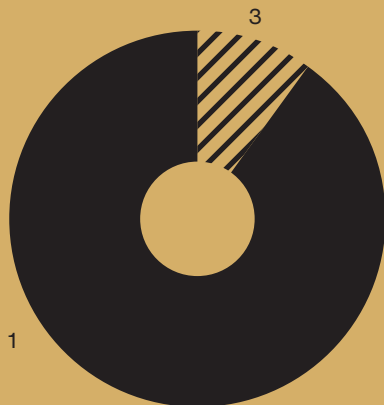
The COVID pandemic, material shortages and Suez Canal blockage earlier this year all negatively impacted the supply chain. Yet, in the midst of these challenges, companies report increased demand almost across the board, which is resulting in extended lead times and longer backlogs.

Among the solutions this year's Top Manufacturers companies employ to mitigate

some of the supply chain pains are using local shipping partners and renting trucks to fill customer needs, using an internal fleet, integration and coordination among multiple production facilities, carrying more raw material inventory, increasing freight surcharges, upping communication efforts and expanding in-house logistics teams.

Are you experiencing increased demand compared to last year?

1 Yes	91%
2 No	0%
3 Unsure	9%

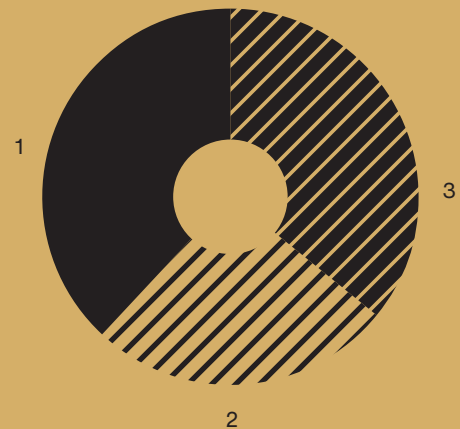


Factors leading to increased demand include a healthy market with new home sales and remodeling, increased consumer spending in home

improvement, low interest rates and regional geographic growth.

Do you anticipate needing to evaluate and make changes to your supplier partners?

1 Yes	36%
2 No	26%
3 Unsure	38%



Do you have strategic alliances with your suppliers?

1 Yes	59%
2 No	19%
3 Unsure	22%



Respondents cited benefits such as getting product and priority status, reliable supply, strong support, better supply chain management,

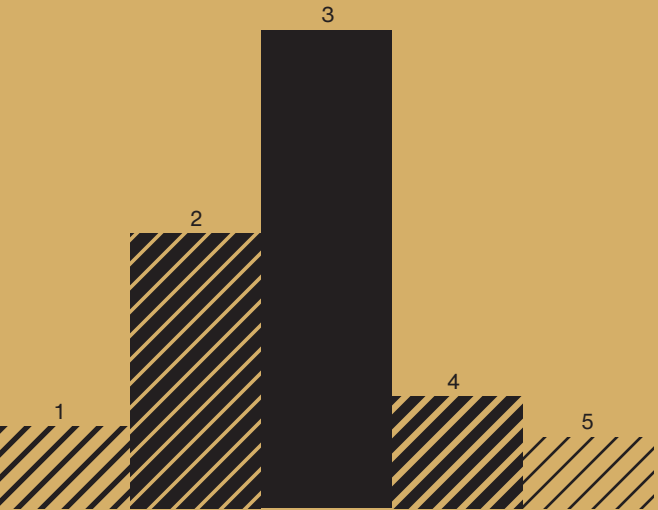
communication and partnering for mutual success, price protection, longevity and trust, risk sharing and capacity guarantees.



Steves & Sons specializes in the manufacture of wood, steel and fiberglass interior and exterior doors.

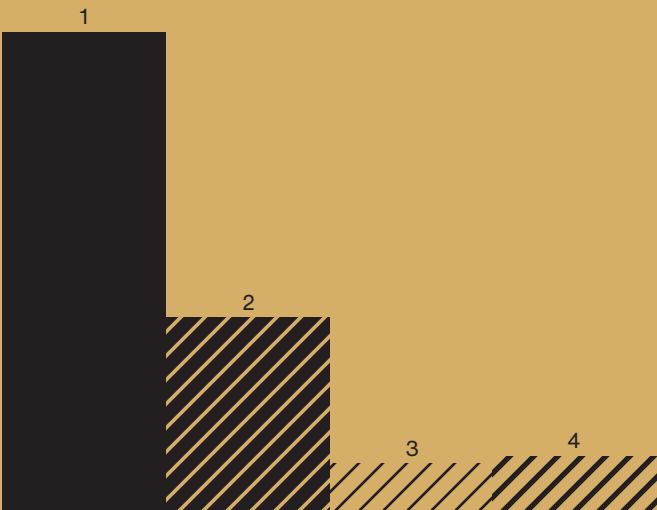
How far out is your backlog?

1	1-2 weeks	8%
2	2-4 weeks	27%
3	4-8 weeks	47%
4	8-12 weeks	11%
5	Longer	7%



How does this compare to last year?

1	Longer	62%
2	About the same	25%
3	Shorter	6%
4	Unsure	7%





The Supply Chain

Not only are some responding manufacturers from this year's Top Manufacturers survey looking elsewhere for product, but the pandemic-induced supply chain issues caused some architects, contractors and builders to also explore other options.

Building product manufacturers must be aware that customer leverage is growing like never before, said panelists during a webinar by Farnsworth Group and Venveo, and today's environment is about meeting the customer where they are and delivering information how they want it. And, because there are more jobs to be done than there are hours in a day, products that accommodate faster installation are selling points, they said.

Have you tried a new brand during the pandemic?*

1 Yes	61.4%
2 No	35.6%
3 Unsure	3%



*Source: The Farnsworth Group and Venveo



Left to right: Vinyl window manufacturer Quaker Window Products has installed enhanced equipment throughout its facilities to safely move larger windows.

Andersen's growth in the past five years has included a 60,000-square-foot manufacturing facility in Bayport, Minnesota; groundbreaking of a 500,000-square-foot manufacturing and distribution campus in Goodyear, Arizona; and a 350,000-square-foot expansion at its Renewal by Andersen manufacturing campus in Cottage Grove, Minnesota.

Vytex Windows reports it increased sales by nearly 115 percent over the past five years, increased its workforce by 215 employees and more than doubled production in the same timeframe.

Have you tried a new supplier during the pandemic?*

Residential and general building contractor/remodeler

1	Yes	15%
2	No	81%
3	Unsure	4%



Residential specialty tradesmen

1	Yes	22.3%
2	No	77.2%
3	Unsure	0.5%





The Labor Market and Automation

The construction industry faces a shortfall of 200,000 workers, according to an April 2021 report from the Home Builders Institute.

The numbers reported pertain to labor directly employed by builders, though builders employ additional workers

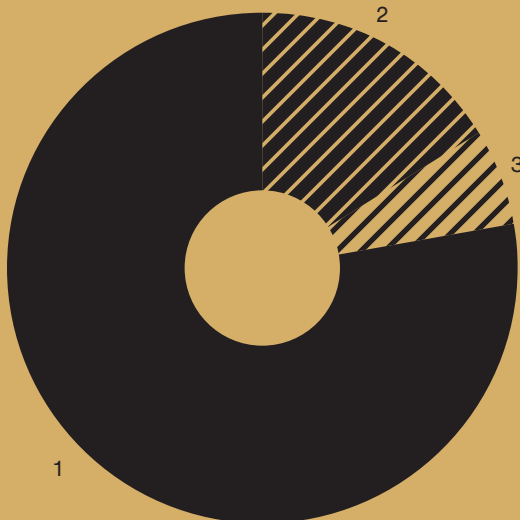
through subcontractors. “We estimate that builders subcontract more than 80 percent of the construction in the typical home they build,” says Ed Brady, president and CEO of the HBI. “And worker shortages for subcontractors continue to be even more severe.”

Labor represents an estimated 30 to 40 percent of the cost of a typical new home. The scarcity of labor snowballs into construction delays, which creates further costs. Brady asserts this can negatively affect housing supply and affordability.

On a broader construction level, the Bureau of Labor Statistics indicates construction employment in March is 182,000 below its February 2020 level. (Manufacturing employment, meanwhile, is down by 515,000 since February 2020.)

Did you have more difficulty finding workers in 2020 compared to 2019?

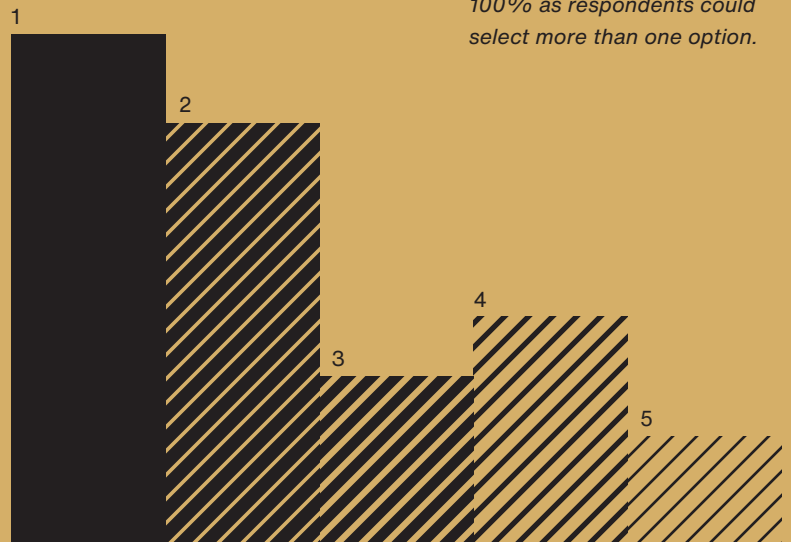
1 Yes	78%
2 No	16%
3 Unsure	6%



Recruitment was the biggest challenge (65%), followed by retention and training.

What are the biggest benefits of automation?

1 Increased output	43%
2 Increased quality	37%
3 Labor savings	20%
4 Cost savings	24%
5 Operational transparency	16%



Answers total more than 100% as respondents could select more than one option.

Automation can ease the labor shortage pains in many cases. A full 83 percent of survey respondents employ automation in their factories.

The Top Manufacturers Index

More than \$1 Billion

Andersen Windows & Doors
Cornerstone Building Brands
Jeld-Wen*
Marvin Windows and Doors*
Masonite*
Pella Corp.
Velux USA*

\$500 Million to \$1 Billion

KÖMMERLING USA
MI Windows and Doors
PGT Innovations
Starline Windows*
Therma-Tru Doors
YKK AP America Inc.

\$300 Million to \$500 Million

Associated Materials
Harvey Building Products
Woodgrain Millwork*

\$200 Million to \$300 Million

Cascade Windows
Champion*
Earthwise Group LLC
Kolbe & Kolbe Millwork Co.*
Polaris Windows & Doors*
ProVia
Sierra Pacific Windows*
Steves & Sons Inc.
Weather Shield Mfg.*

\$100 Million to \$200 Million

All Weather Windows*
Atis Group Inc.*
Boral Windows LLC*
Crystal Window & Door
Systems
Plastpro
Quaker Windows and Doors

Vinyl Window Designs*
Trimlite
United Window & Door Mfg.
Wincore Windows and Doors

\$75 Million to \$100 Million

International Window Corp.*
Loewen Windows and Doors
Simpson Door Co.
Thompson Creek Window Co.*
Trinity Glass International*
Wallside Windows
Window Mart

\$50 Million to \$75 Million

Air Master Windows and Doors
Anlin Window Systems
Arcadia Custom*
Builders FirstSource*
Conservation Windows
Durabuilt Windows & Doors*
Fenplast*
LePage Millwork*
Lincoln Windows
Lux Windows and Doors
Midway Windows & Doors
Tru Tech Doors
Viwinco Inc.
ViWinTech Window & Door Inc.
Vytex Windows

\$40 Million to \$50 Million

ATI Windows
Croft LLC*
Elevate Windows and Doors
Gerkin Windows and Doors
Hayfield Window & Door Co.
Novatech*
Okna Windows Manufacturing*
Solaris International*
WinDor

\$30 Million to \$40 Million

Frontline Building Products*
GlassCraft Door Co.
Madero
Mathews Brothers Co.
NT Window Inc.
Stanley Doors*
Taylor Entrance Systems
The Coeur d'Alene Window
Company
Thermal Windows Inc.*

\$20 Million to \$30 Million

Comfort View Products
Gilkey Window
Ideal Window*
Inline Fiberglass Ltd.*
Joyce Manufacturing Co. Inc.
Moss Supply Co.
North East Windows USA Inc./
Quality Lineals USA Inc.*
Sun Windows and Doors
Vector Windows
Vinyl Kraft Inc.
Winchester Industries

\$15 Million to \$20 Million

Assura Windows and Doors*
Centra Windows
Climate Solutions Windows &
Doors
Interstate Window & Door Co.
Kensington HPP Inc.

Less Than \$15 Million

Burris Windows
Glass-Rite
Glo European Windows
Seaway Mfg. Corp.
Solar Innovations
Stewart Brannen Millworks



The List

The Top Manufacturers list details North America's largest manufacturers of residential windows, doors, skylights and related products, based on sales volume

More than \$1 Billion

Andersen Windows & Doors

Bayport, Minn.

andersenwindows.com

800/426-4261

Product Lines: Wood, composite, vinyl-clad wood windows, aluminum and fiberglass windows, entry doors, and patio doors sold under the Andersen Windows and Doors, Renewal by Andersen, Heritage, MQ and Weiland brand names.

Brands include Renewal by Andersen

Cornerstone Building Brands

Cary, N.C.

cornerstonebuildingbrands.com

888/624-8677

Product Lines: Vinyl windows, aluminum-clad windows, aluminum windows, wood composite windows, vinyl patio doors, aluminum-clad patio doors, aluminum patio doors, wood composite patio doors; multi-slide patio doors

Brands include Ply Gem Windows & Doors, Silver Line Windows & Doors, Simonton Windows & Doors, Atrium Windows & Doors, American

Craftsman Windows & Doors, Great Lakes Window and Ply Gem Canada

Jeld-Wen*

Charlotte, N.C.

jeld-wen.com

800/535-3936

Product Lines: Wood, vinyl and aluminum windows and patio doors; wood, steel and composite entry doors

Brands include Aneeta Window Systems, Breezway, Dooria, Karona, LaCantina, Trend Windows and Doors, and VPI Quality Windows

Marvin Windows and Doors*

Warroad, Minn.

marvin.com

888/537-7828

Product Lines: Aluminum and fiberglass doors, wood and aluminum-clad windows and doors, fiberglass windows and doors, interior doors, impact-resistant windows and doors, impact-resistant garage doors, fiberglass skylights and smart skylights, aluminum and fiberglass Skycove units

Subsidiaries include Infinity from Marvin Replacement Windows, TruStile Doors, Tecton

Products and SIW Windows & Doors

Masonite*

Tampa, Fla.

masonite.com

800/895-2723

Product Lines: Interior solid, hollow and wood doors; exterior fiberglass, steel and wood doors

Pella Corp.

Pella, Iowa

pella.com

877/473-5527

Product Lines: Wood windows and patio doors, vinyl windows and patio doors, fiberglass windows and patio doors, wood entry doors, multi-slide doors, pivot doors

Subsidiaries include Duratherm Windows, Custom Window Solutions, Avanti Inc., Avanti Install California, Bonelli, Bonelli Southwest and Reilly Windows

Velux USA*

Greenwood, S.C.

veluxusa.com

803/396-5700

Product Lines: Residential skylights, tubular skylights, commercial dome skylights,

structural framed skylights, barrel vault skylights, polycarbonate panels, modular commercial skylights, flashing systems, electronic controls and blinds

\$500 Million to \$1 Billion

KÖMMERLING USA

Huntsville, Ala.

kommerling.us

800/330-2239

Product Lines: Lift-and-slide patio doors, tilt-and-turn windows, balcony doors, residential doors, large fixed lights

KÖMMERLING is a profine Group company

MI Windows and Doors

Gratz, Pa.

miwindows.com

717/365-3300

Product Lines: Vinyl and aluminum windows and patio doors

Subsidiaries include Milgard Windows & Doors and Sunrise Windows & Doors

PGT Innovations

North Venice, Fla.

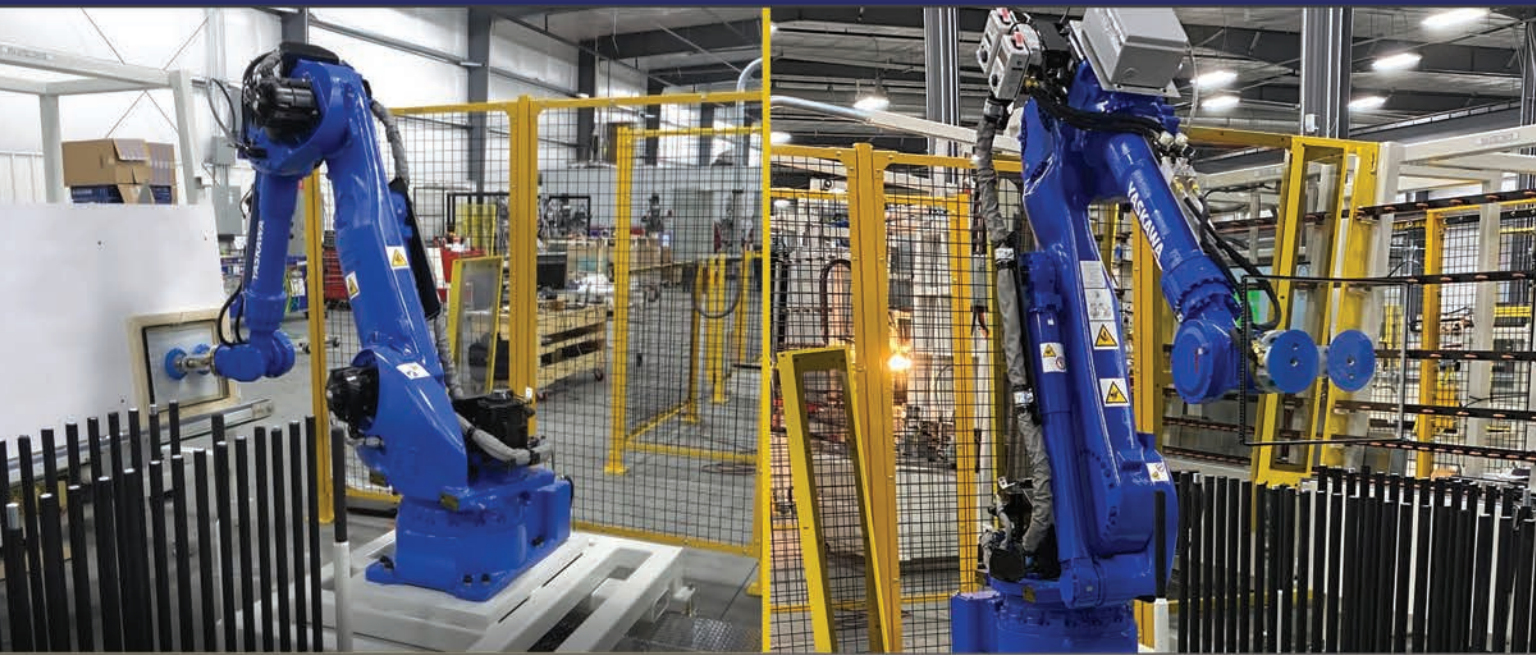
pgtinnovations.com

941/480-1600

Product Lines: Vinyl and aluminum windows, sliding glass doors and French doors; aluminum entry doors; aluminum commercial storefront system; porch and patio enclosures; impact-resistant products

Subsidiaries include CGI, PGT Custom Windows and Doors, WinDoor, Western Window Systems, Eze-Breeze, CGI Commercial, NewSouth Window Solutions, Eco Window Systems

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**Starline Windows***

Surrey, British Columbia,
Canada

starlinewindows.com
604/882-5100

Product Lines: Aluminum window wall, unitized curtain wall, patio doors, sliding sealing doors, patio doors and swing doors; vinyl windows, patio doors, sliding sealing doors, patio doors and swing doors; and entry doors

Subsidiaries include Starline Installations Ltd.

Therma-Tru Doors

Maumee, Ohio
thermatru.com
800/843-7628

Product Lines: Fiberglass and steel entry doors, impact-rated fiberglass doors, door system components

Subsidiaries and sister companies include Moen, Perrin & Rowe, Riobel, ROHL, Shaws Victoria + Albert, LARSON, Fiberon, Fypon, Master Lock, American Lock SentrySafe, and MasterBrand Cabinets

Therma-Tru's parent organization is Fortune Brands Home Security

YKK AP America Inc.

Austell, Ga.
ykkap.com
866/348-9091

Product Lines: Vinyl new construction and replacement windows and doors; sliding patio doors; hurricane windows and doors

Subsidiaries include Erie Architectural Products Inc.

YKK AP America's parent company is YKK AP Inc.

\$300 Million to \$500 Million**Associated Materials**

Cuyahoga Falls, Ohio
associatedmaterials.com
800/922-6009

Product Lines: Vinyl windows and patio doors, multi-panel vinyl doors

Brands include Alside, Gentek, Alpine Windows, Preservation

Harvey Building Products

Waltham, Mass.
harveybuildingproducts.com
800/598-5400

Product Lines: Vinyl windows and patio doors; fiberglass entry doors; wood windows; steel entry doors

Subsidiaries include Harvey Windows + Doors, SoftLite Windows & Doors, Thermo-Tech Windows and Doors, Northeast Building Products

Woodgrain Millwork*

Fruitland, Idaho
woodgrain.com
888/783-5485

Product Lines: Wood-clad, wood, aluminum-clad, composite and vinyl windows; wood-clad and vinyl patio doors; wood-clad, wood, aluminum-clad, and fiberglass entry doors via the Windsor Windows & Doors, Ashworth, and Monarch Windows and Doors brand names

\$200 Million to \$300 Million**Cascade Windows**

Spokane, Wash.
cascadewindows.com

800/442-8544

Product Lines: Vinyl windows and patio doors, and multi-panel vinyl doors

Champion*

Cincinnati, Ohio
championwindow.com
877/424-2674

Product Lines: Vinyl windows; steel and fiberglass entry doors; vinyl patio doors

Earthwise Group LLC

Liberty Township, Ohio
earthwisewindows.com
513/755-6707

Product Lines: Vinyl windows and patio doors, fiberglass entry doors, steel entry doors, sunrooms, storm windows, storm doors

Subsidiaries include Advanced Window Products, American Window & Glass, D&W Windows, Dasan Glass & Windows, Eastern Architectural Systems, Energy Shield Windows and Doors, EW7 Products, Home Guard Industries, JetAlum, Lindsay Window & Door, RJT Industries, Showcase Windows, Slocomb Windows and Doors, Sprouse Windows, Synergy Windows, Tri-State Wholesale, Vinylmax Windows, Western Window

Kolbe & Kolbe Millwork Co.*

Wausau, Wis.
kolbewindows.com
715/842-5666

Product Lines: Wood, vinyl and aluminum windows and patio doors; wood and fiberglass entry doors

Polaris Windows & Doors*

Austintown, Ohio

polariswindows.com
216/926-6151

Product Lines: Vinyl windows and patio doors; steel and fiberglass entry doors

Polaris is part of Modern Builders Supply

ProVia

Sugarcreek, Ohio
provia.com
330/852-4711

Product Lines: Wood-clad and vinyl windows and patio doors; steel and fiberglass entry doors; aluminum storm doors and storm windows

Sierra Pacific Windows*

Red Bluff, Calif.
sierrapacificwindows.com
800/824-7744

Product Lines: Clad/wood windows, bi-fold windows, multi-slide windows, patio doors, bi-fold doors, multi-slide doors, lift-and-slide doors and pivot doors; all-wood windows, bi-fold windows, patio doors, bi-fold door; timber curtain wall systems; vinyl windows and patio doors

Sierra is part of Sierra Pacific Industries

Steves & Sons Inc.

San Antonio
stevesdoors.com
800/627-5111

Product Lines: Steel, fiberglass and wood entry doors; interior slab and pre-hung doors; barn doors; bi-fold doors

Weather Shield Mfg.*

Medford, Wis.
weathershield.com
800/222-2995

Product Lines: Wood, aluminum-clad wood, aluminum, vinyl-clad wood, vinyl, fiber-

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AVERAGE COST

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**\$100 Million to
\$200 Million**

All Weather Windows*

Edmonton, Alberta, Canada
allweatherwindows.com
780/451-0670

Product Lines: Vinyl windows, clad windows, fiberglass and steel entry doors, patio doors, and multi-panel vinyl doors

Atis Group Inc.*

Longueuil, Quebec, Canada
atisgroup.ca
450/928-0101

Product Lines: Wood, aluminum-clad and vinyl patio doors; steel and fiberglass entry doors; wood, vinyl, composite and aluminum windows

Subsidiaries include La-Flamme Doors and Windows, Solarcan, ViMat Windows & Doors, Melco, VinylBilt, Allsco, Altek, and JM Ferron

Boral Windows LLC*

Atlanta
boralwindows.com
469/862-5178

Product Lines: Vinyl and aluminum windows and aluminum patio doors

Boral's parent organization is Boral North America

Crystal Window & Door Systems

Flushing, N.Y.
crystalwindows.com
718/961-7300

Product Lines: Vinyl windows and sliding patio doors; uPVC windows and sliding doors; and aluminum windows, sliding patio and swing terrace doors,

and aluminum window wall systems

Subsidiaries include Crystal California Window & Door Systems, Crystal Window & Door Illinois Manufacturing (Crystal Chicago), Crystal Pennsylvania Window & Door Systems

Plastpro

Los Angeles
plastproinc.com
310/693-8600

Product Lines: Fiberglass entry doors, polyfiber door frames, glass inserts, vinyl planking and wainscoting

Subsidiaries include JM Eagle

Quaker Windows and Doors

Freeburg, Mo.
quakerwindows.com
800/347-0438

Product Lines: Wood-clad, vinyl and aluminum windows and patio doors; multi-panel aluminum doors; aluminum and wood terrace doors

Vinyl Window Designs*

Toronto, Ontario, Canada
vinylwindowdesigns.com
416/741-7820

Product Lines: Vinyl windows and patio doors; aluminum windows; steel entry doors; fiberglass entry doors

Subsidiaries include Performance Windows & Doors, The Vinyl Company, Aluminum Window Designs

Trimlite

Renton, Wash.
800/929-3371

Product Lines: Interior doors; wood entry doors; doorlites

Subsidiaries include CODEL Doors

Trimlite's parent organiza-

tion is TriWest Capital Partners

United Window & Door Mfg.

Springfield, N.J.
unitedwindowmfg.com
800/848-4550

Product Lines: Vinyl and composite windows and sliding glass doors

Wincore Windows and Doors

Parkersburg W.Va.
wincorewindows.com
304/424-3880

Product Lines: Vinyl windows and patio doors; prefinished fiberglass entry doors; vinyl impact windows and patio doors; impact and non-impact vinyl multi-track patio doors

**\$75 Million to
\$100 Million**

International Window Corp.*

Corona, Calif.
intlwindow.com
800/477-4032

Product Lines: Vinyl window, sliding doors and hinged doors; acoustical sound windows; aluminum windows and doors; and aluminum multi-slide/pocket door systems

Subsidiaries include Vista Security Screens, Precision Screens, International Window Northern CA

Loewen Windows and Doors

Steinbach, Manitoba, Canada
loewen.com
800/563-9367

Product Lines: Clad wood and wood windows; wood patio doors and swing doors;

multi-panel doors; multi-slide pocketing aluminum-clad doors; timber curtain wall; pivot doors; custom doors

Simpson Door Co.

McCleary, Wash.
simpsondoor.com
800/746-7766

Product Lines: Wood exterior and interior doors; custom wood doors

Thompson Creek Window Co.*

Lanham, Md.
thompsoncreek.com
866/572-7335

Product Lines: Replacement vinyl windows and patio doors; steel and fiberglass entry doors

Trinity Glass International*

Federal Way, Wash.
trinityglass.com
253/875-6700

Product Lines: Fiberglass entry doors; wood interior doors; decorative glass; fiberglass patio doors; finishes and stains

Subsidiaries include Signamark, Feather River Doors

Wallside Windows

Taylor, Mich.
wallsidewindows.com
313/292-4400

Product Lines: Vinyl windows and patio doors

Window Mart

Royal, Ark.
windowmart.com
888/283-6278

Product Lines: Vinyl windows and patio doors

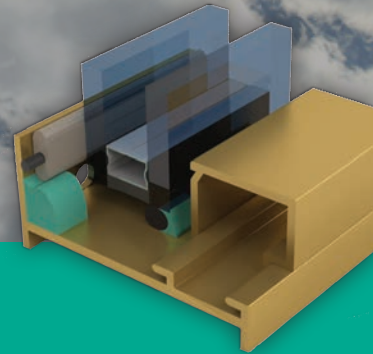
Subsidiaries include Windows USA and WinTransport

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Glazing products for use in commercial construction applications have dramatically evolved over time. Window units have become larger, higher performing glass is available, and performance standards have increased - all placing a greater demand on the glazing materials used to seal and support the glass to or within the surrounding metal.

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Window Mart's parent company is Big4 Companies

**\$50 Million to
\$75 Million**

Air Master Windows and Doors

Barceloneta, Puerto Rico
airmasterpr.com
787/623-1800

Product Lines: Security windows and doors; entry doors; aluminum and glass windows and doors; glass railings; storefronts; skylights; shower enclosures

Subsidiaries include Megalum and sister company is Valmeg LLC

Air Master Windows and Doors' parent company is Air Master Awning LLC

Anlin Window Systems

Clovis, Calif.
anlin.com
800/287-7996

Product Lines: Vinyl windows and patio doors

Arcadia Custom*

Tucson, Ariz.
arcadiacustom.com
520/284-2070

Product Lines: Thermal steel windows, doors, window walls and hurricane impact-rated series; thermal aluminum doors, windows, window walls and hurricane impact-rated series; wood windows and doors; non-thermal aluminum windows and swing doors

Arcadia's parent company is Arcadia Inc.

Builders FirstSource*

Marietta, Ga.
buildwithbmc.com

770/429-9285

Product Lines: Vinyl windows

Conservation Windows

Mount Carmel, Pa.
conservationwindows.com
570/339-3374

Product Lines: Vinyl replacement windows; sliding glass doors; impact- and non-impact replacement windows

Conservation Windows' parent company is Regency Plus

Durabuilt Windows & Doors*

Edmonton, Alberta, Canada
durabuiltwindows.com
800/544-3815

Product Lines: Vinyl windows and sliding patio doors, fiberglass entryways and swing patio doors

Fenplast*

Candiac, Quebec, Canada
fenplast.com
514/990-0012

Product Lines: Vinyl and hybrid windows; vinyl patio doors; entry doors

Subsidiaries include Les Fenêtres Lajeunesse

LePage Millwork*

Quebec, Canada
lepagemillwork.com
877/289-0191

Product Lines: Wood and aluminum-clad windows and doors; vinyl windows and doors; hybrid aluminum/vinyl windows; steel doors

Lincoln Windows

Merrill, Wis.
lincolnwindows.com
800/967-2461

Product Lines: Aluminum-clad, vinyl-clad, wood windows; aluminum-clad and wood patio

doors; aluminum-clad multi-slide and pocketing patio doors

Lux Windows and Doors

Calgary, Alberta, Canada
luxwindows.com
403/276-7770

Product Lines: Aluminum-clad, hybrid and vinyl windows; aluminum-clad and vinyl patio doors; bi-parting and folding doors; fiberglass entry doors; skylights

Midway Windows & Doors

Chicago
midwaywindows.com
708/594-2600

Product Lines: Vinyl windows and patio doors

Tru Tech Doors

Vaughan, Ontario, Canada
trutechdoors.com
888/760-0099

Product Lines: Wood edge steel doors; steel edge steel doors, fiberglass door panels; flush glazed door panels

Viwinco Inc.

Morgantown, Pennsylvania
viwinco.com
610/286-8884

Product Lines: Vinyl windows and sliding doors

ViWinTech Window & Door Inc.

Paducah, Ky.
viwintech.com
800/788-1050

Product Lines: Vinyl windows; sliding and multi-panel patio doors

Vytex Windows

Laurel, Md.
vytexwindows.com
877/747-8735

Product Lines: Vinyl windows and patio doors

**\$40 Million to
\$50 Million**

ATI Windows

Riverside, Calif.
vinylwindows.co
909/946-3697

Product Lines: Vinyl windows and patio doors; aluminum doors

Subsidiaries include ABC Window Systems and Ennion Glass

Croft LLC*

Magnolia, Miss.
croftllc.com
800/222-3195

Product Lines: Aluminum and vinyl windows and patio doors

Elevate Windows and Doors

Grand Prairie, Texas
elevatewindows.net
469/490-1100

Product Lines: Vinyl windows and patio doors

Gerkin Windows and Doors

South Sioux City, Neb.
gerkin.com
402/494-6000

Product Lines: Vinyl windows and patio doors; aluminum windows and doors; storm doors

Hayfield Window & Door Co.

Hayfield, Minn.
hayfieldwindows.com
507/477-3224

Product Lines: Vinyl windows and patio doors

DURABLE AUTOMATION

The **Enduron** is an economical sealing system that applies hot or cold sealant automatically to all four sides of flexible or dual seal metal bar I.G. units.

Standard machine will seal dual or triple glaze units from 6" x 6" to 48" x 80"
Process up to 650 units per 8 hr shift!

Seals a 24" x 36" x 1/2" air spacer unit in under 25 sec.

Unique system ensures no cold joints in any corner

Comes complete with our STE-55, 55-Gallon Hot Melt Pump



Enduron



Sure Seal

The **Sure Seal** is an economical automated wet glazing system. The system applies an even bead of cold or hot sealant to your frame or sash automatically. The Spadix designed laser sensing system assures correct placement of the material.

Economically priced

Standard table will glaze sizes of 8"x8" up to 48"x80"

Glazes up to 4 sashes or frames per minute

Radius or square bead placement in corners

The **Meridian** is a fully automated four-sided screening machine. The operator places a frame, draws across the material, and with the press of a button, the frame is automatically sized and screened.

Standard machine screens frames from 12"x14" to 36"x80"

Automatic size detection and clamping

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The spline is automatically inserted and trimmed in one operation

Four screen roll holders



Meridian



**Spadix
Technologies**

Tel: 732.356.6906

www.spadixtechnologies.com

Please review our website for additional product reviews and sample videos.



Hayfield's parent company is Drum Capital

Novatech*

Sainte-Julie, Quebec, Canada
grouphenovatech.com
844/986-8001

Product Lines: Steel and fiberglass entry doors; vinyl patio doors; door glass; vinyl frames; injection-molded frames; louvers

Subsidiaries include RSL Inc.

Okna Windows Manufacturing*

Bristol, Pa.
oknawindows.com
215/788-7000

Product Lines: Vinyl and composite windows and patio doors

Solaris International*

Quebec, Canada
solaris-intl.com
800/363-0643

Product Lines: Vinyl windows and patio doors, hybrid windows (aluminum exterior, PVC interior)

Solaris' parent company is Solaris Québec Portes et Fenêtres Inc.

WinDor

Brea, Calif.
windorsystems.com
866/244-2193

Product Lines: Vinyl window and patio doors; multi-panel vinyl doors and windows; multi-slide pocketing vinyl doors

**\$30 Million to
\$40 Million**

Frontline Building Products*

Green Bay, Wis.
frontlinebldg.com
800/760-8941

Product Lines: Aluminum-clad entry system, pre-clad door frame, patio door frame system, oversized direct set (wood/clad), wood/clad geometric windows, commercial doors

Subsidiaries include Frontline Building Products, Green Bay; Frontline Building Products, Medford; and Frontline Building Products, Merrill

Frontline's parent company is Bay Family of Companies

GlassCraft Door Co.

Houston
glasscraft.com
713/690-8282

Product Lines: Fiberglass, steel and wood entry doors; interior sliding barn doors

Madero

Saskatoon, Calgary, Winnipeg
madero.ca
800/667-6977

Product Lines: Wood, composite and steel entry doors; interior doors; commercial doors

Subsidiaries include Penner Doors & Hardware, Security Building Supplies, Two Six Creative and West Four Distribution

Madero's parent company is the Westfour Group of Companies

Mathews Brothers Co.

Belfast, Maine
mathewsbros.com
207/338-3360

Product Lines: Vinyl windows and patio doors

NT Window Inc.
Fort Worth, Texas

ntwindow.com
800/969-8830

Product Lines: Vinyl and aluminum windows and patio doors; sunrooms

Stanley Doors*

Joubert, Montreal, Canada
stanleydoorproducts.com
877/290-0941

Product Lines: Fiberglass and steel entry doors; patio doors; decorative glass

Stanley Doors is a subsidiary of Dusco Doors

Taylor Entrance Systems

West Branch, Mich.
taylordoor.com
800/248-3600

Product Lines: Fiberglass and steel entry doors

Sister companies include Waudena Entrance Systems and Diamond Kote Building Products

Taylor's parent company is Wausau Supply Co.

The Coeur d'Alene Window Company

Spokane, Wash.
coeurdalenewindow.com
509/340-0705

Product Lines: Vinyl windows and patio doors

Subsidiaries include McVay Brothers Inc.

Thermal Windows Inc.*

Tulsa, Okla.
thermalwindows.com
918/663-7580

Product Lines: Aluminum and vinyl windows and patio doors

**\$20 Million to
\$30 Million**

Comfort View Products

Newnan, Ga.
comfortviewproducts.com
770/251-4050

Product Lines: Vinyl windows and doors

Gilkey Window

Cincinnati, Ohio
gilkey.com
513/769-4527

Product Lines: Vinyl windows and doors; fiberglass windows and doors

Ideal Window*

Bayonne, N.J.
idealwindow.com
800/631-3400

Product Lines: Vinyl windows and patio doors

Inline Fiberglass Ltd.*

Toronto, Ontario, Canada
inlinefiberglass.com
866/566-5656

Product Lines: Fiberglass windows and patio doors

Joyce Manufacturing Co. Inc.

Berea, Ohio
joycemfg.com
440/239-9100

Product Lines: Vinyl replacement windows and patio doors; sunrooms

Moss Supply Co.

Charlotte, N.C.
mosssupply.com
704/596-8717

Product Lines: Vinyl and aluminum windows; vinyl patio doors



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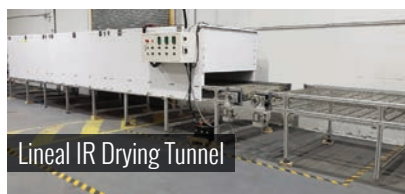
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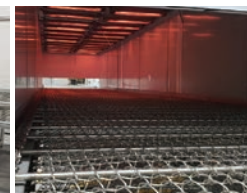
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Turn key coating solution for Doors

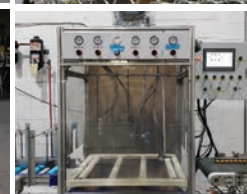
- FlamePro Pre Coat Prep Machine
- LH1100 Automatic Door Painting Machine



Lineal IR Drying Tunnel



Lineal Painter



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**North East Windows
USA Inc./Quality Lineals
USA Inc.***

Merrick, N.Y.
northeastwindowsusa.com
516/378-6577

Product Lines: Vinyl windows
and patio doors

Sun Windows and Doors

Owensboro, Ky.
sunwindows.com
270/684-0691

Product Lines: Aluminum-clad
wood and vinyl windows; clad
multi-slide doors; clad bi-fold
doors

Vector Windows

Fergus Falls, Minn.
vectorwindows.com
800/739-9899

Product Lines: Vinyl windows
and patio doors

Vinyl Kraft Inc.

New Boston, Ohio
vinylkraft.com
740/456-4949

Product Lines: Vinyl windows
and patio doors

Winchester Industries

Saltsburg, Pa.
winchesterwindows.net
724/639-3551

Product Lines: Vinyl reinforced
custom replacement windows;
vinyl patio doors; steel entry
doors

**\$15 Million to \$20
Million****Assura Windows and
Doors***

Pompano Beach, Fla.
assurawindows.com
954/781-4430

Product Lines: Aluminum

impact and non-impact
windows and doors

Assura Windows and Doors'
parent company is Amberley
AWP Finance LLC

Centra Windows

Langley, British Columbia
centra.ca
888/534-3333

Product Lines: Vinyl windows
and patio doors

**Climate Solutions
Windows & Doors**

Franklin Park, Ill.
cswindows.com
847/233-9800

Product Lines: Vinyl windows
and patio doors; insulating
glass units; vinyl windows and
exterior heavy-gauge alumi-
num exterior

**Interstate Window &
Door Co.**

Pittston, Pa.
interstatebldg.com
800/338-9997

Product Lines: Vinyl windows
and patio doors; composite
windows and patio doors;
swing doors

Interstate Window & Door's
parent company is Interstate
Building Materials Inc.

Kensington HPP Inc.

Vandergrift, Pa.
kensingtonhpp.com
724/845-5300

Product Lines: Vinyl windows
and patio doors; insulated
glass

Less Than \$15 Million**Burris Windows**

Carrollton, Texas
burriswindows.com
214/638-6525

Product Lines: Vinyl windows
and patio doors

Glass-Rite

Albuquerque, N.M.
glass-rite.com
505/764-9899

Product Lines: Vinyl windows;
vinyl and aluminum thermal
break windows

Glo European Windows

Missoula, Mont.
glowindows.com
406/721-2741

Product Lines: Aluminum win-
dows and doors; wood-alumi-
num windows and doors; cur-
tain wall windows; multi-panel
lift-and-slide doors; aluminum
entry doors; pivot doors

Seaway Mfg. Corp.

Erie, Pa.
seawaymfg.com
814/899-9900

Product Lines: Vinyl windows
and patio doors; vinyl and
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Pine Grove, Pa.
solarinnovations.com
570/915-1500

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Purposeful

DEFINE YOUR OBJECTIVES AND CAPITAL EXPECTATIONS TO AUTOMATE WITH A PLAN, NOT JUST FOR THE SAKE OF AUTOMATING **BY TIM MCGLINCHY, JOE SHAHEEN AND JOHN MOORE**

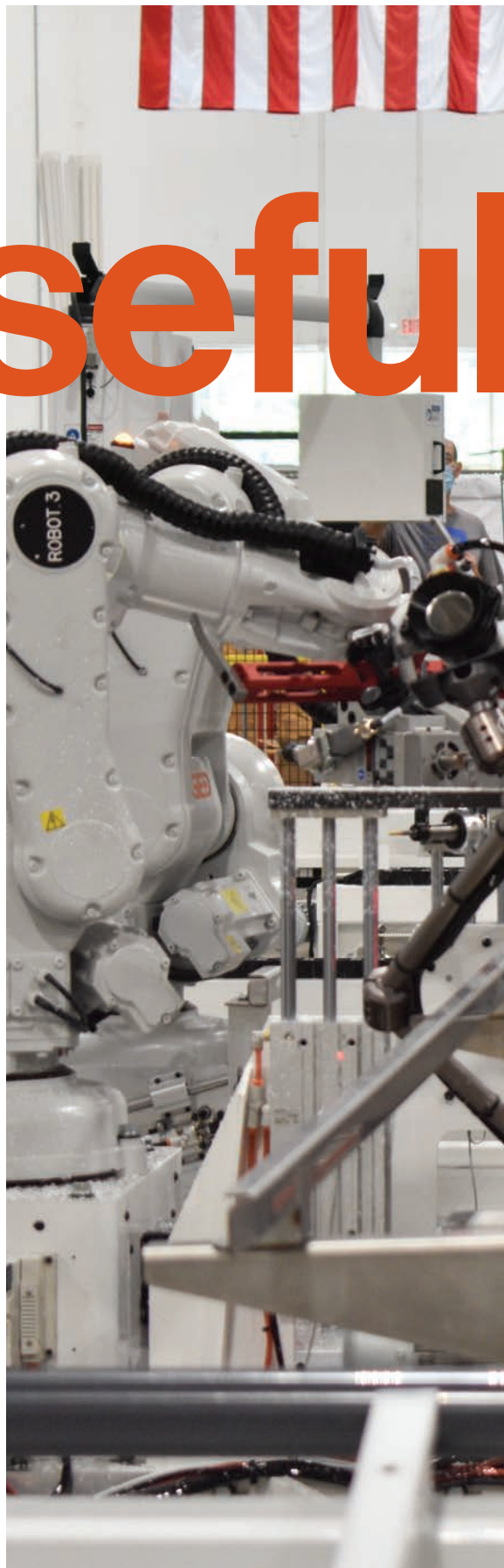


“Automation” is a buzzword we hear daily in the fenestration industry. There are various reasons for automating, including safety and ergonomics for employees, quality and consistency of product, labor shortages and costs. Many times, automation can be the answer to your production challenges.

Customers repeatedly tell us, “I want to automate everything.” This, however, may not be the best choice as you may just be adding cost and footprint to your

production facility without gaining the productivity and return on investment you planned.

Before you jump into automation, clearly state your objectives and what you are trying to achieve, as well as the cost of capital considerations. You also need to ask yourself, “Why are you automating?” and, “What is the right level of automation for your business?” By focusing on these two questions, you can begin to automate with purpose.



Automation



→ GED's RoboFlow PT (pass through) fully automated vinyl welder/cleaner system is designed to take cut vinyl from welding through cleaning with one operator at faster cycle times. The blend of robotics and automation reduces labor, speeds up processes and improves the quality of windows, according to GED.

Define your level of automation

Once you have defined your objectives and capital expectations, it is time to define the level of automation. Sometimes automation is achieved simply through manufacturing execution systems (MES) software that controls the plant floor and communicates with your enterprise resource planning (ERP) system to manage and optimize processes.

Other times, automation requires more advanced systems, such as robotic implementation, that tie in multiple processes. The key is to find the crossover point where labor and software/machinery work best together. This crossover point has changed over the years as labor rates climb, automation capabilities increase and robotic costs decrease.

For example, many of our customers have found the benefit of using robotic automation in frame and sash processing. Historically, this is a time-consuming and labor-intensive task, but robots have challenged the status quo by improving processing, reducing labor requirements, and improving consistency and quality, while increasing productivity and speed.

To illustrate this, robots can weld up to four sashes or frames simultaneously, after which the profiles are moved on conveyors to cleaning. Four robotic cleaning heads reduce cycle times while maintaining the highest levels of precision and repeatability, and the tooling package on each robot head allows for cleaning and fabrication during the cleaning cycle. The blend of robotics and automation reduces labor, speeds up your process and improves your windows.

Robotic capability has increased dramatically throughout the decades. In 1975, robotic capability provided 5 axes of control, according to a McKinsey & Company report in 2017. Today, robots can provide 32- to 64-axis control. Additionally, robotic arms have the capability of managing over 1,000 kilograms today, whereas in 1975 their capacity was 6 kilograms.

Robots have also become more affordable with increased capabilities and flexibility. Robots take on new roles within our industry every day.

Points of focus

As you build your automation plan, focus on labor vs. output vs. cost, worker safety, production adaptability and the life cycle of your product. This will help define your requirements. Although the cost of technology is becoming more affordable, you really must look at it for your shop, product, operators, operation and facility size. Your automation supplier should be able to help identify all those challenges and develop an appropriate solution.

- **Labor:** You must be able to get the output you require with the workers you have. Automation can help achieve greater output with fewer workers, but the type of worker may change. You may find you need a different level of worker, one with knowledge of maintaining automation systems. Be sure to identify where the crossover point is between equipment costs and labor costs.
- **Safety:** Worker safety is a paramount concern. Automation can help keep a worker out of the direct path of working elements of the machine and can improve ergonomics for operators. For example, a robotic arm on a cleaner can help avoid that possible operator-related injury.
- **Output:** Production adaptability is another consideration. It is safe to assume you do not produce the same output every day, all year long. When buying equipment, you want to make sure your equipment is not taxed to more than 70 or 75 percent of your average capacity.
- **Product life cycle:** Look at the stage of the life cycle of your product. If you are planning a product changeover within the year, maybe now is not the time to automate. Look at the expected growth of a given project or given product line in units per labor hour. Automation will lower your labor count, increase the footprint required for machinery and provide a consistent number of units daily, but you may

introduce a constraint on your output. Make sure your units per man-hour exceed what your existing manual and semi-automated lines can achieve. Also, take into consideration your capacity for future growth and the need to service your seasonable fluctuations in demand.

Finish the plan

Now that you have defined your objectives, capital expectations, safety, the level of automation and labor, and production variables, you can finish your plan. This plan should include unique business objectives for different product lines (i.e., your high-volume lines vs. lower-volume lines). Low-volume products will not achieve the same ROI high-volume lines will provide.

Make sure you have clearly defined financial and productivity goals so you do not spin your wheels, resulting in scope creep. Stick to your plan and what you define up front. Your automation partner should be able to walk you through what you can expect and what is not feasible.

Identify what you are going to invest and what you expect to get out of it. Measure and validate your production as you implement your system. Is the ROI what you need and expect? Have you considered the intangibles and soft costs that can be hard to account for on paper, such as safety, quality and consistency? You do not want the homeowner calling your warranty department saying, "I have a problem."

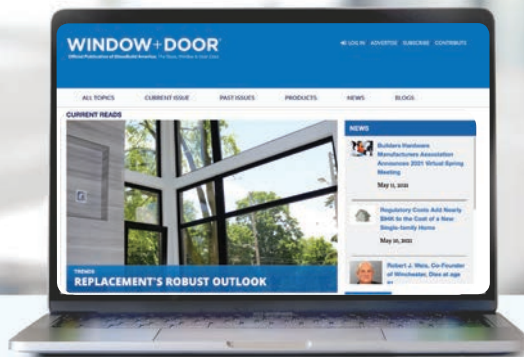
Challenge your automation supplier to help you through the process by providing you with the options to fit your production requirements and optimize the crossover point. We all must justify and rationalize everything we do, so automate when it makes sense for you based on your needs, and then right-size your level of automation. Do not just automate because you want to automate. ■

Tim McGlinchy is EVP – engineering, Joe Shaheen is VP – sales, and John Moore is VP – marketing with GED Integrated Solutions.

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Products



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01



03



02

01 / Marvin Windows

SIW impact-resistant products are now officially Marvin Signature Coastline windows and doors, following Marvin's 2018 acquisition of the company. The reinforced impact glass and solid extruded aluminum frames withstand flying debris and do not require any additional protective measures, according to the company. The Coastline portfolio includes awning windows, casement windows, picture windows, bi-fold doors and multi-slide doors, among others. Coastline windows and doors feature a broad range of product types, sizes and configurations. **888/537-7828 | MARVIN.COM**

02 / AllView

AllView Shutters introduced its AllView Vinyl Shutter Fabrication Program, designed for window fabricators. The program allows users to cut and assemble pre-finished PVC components; the company provides the software, materials and training necessary to build shutters. Users will be in full control of production, lead time and the quality of the product, according to the company. AllView is made from poly resin that is paint-free, VOC-free, formaldehyde-free, recyclable and renewable.

800/737-4569 | ALLVIEWSHUTTERS.COM

03 / AmesburyTruth

AmesburyTruth launched Pinnacle, a block and tackle balance for use in hung windows. The universal mounting clip allows for installation into existing specifications, while still fitting in most standard window profiles. The product yields a reliable lockup directly into the balance that minimizes zing-ups and offers a stronger pivot interlock system, leading to increased window performance ratings, more forgiving manufacturing tolerances, and highly efficient window assembly, say officials.

800/866-7884 | AMESBURYTRUTH.COM

Product/Solution

Nova 45 Direct Glazed Doors (DRS1D/DRF1D) // **Plastpro**

Challenge

Today's customers request timeless, simple designs with low maintenance exteriors. Design shifts around the coronavirus pandemic led customers to seek more indoor/outdoor living products to maximize natural light and fresh air, but without sacrificing energy efficiency.

Solution

Plastpro's Nova 45 Direct Glazed Full Lite Door combines many modern trends in one functional door. Available in a brushed smooth finish or a simple, fir grain, this door features a Craftsman profile, clean lines and a direct glazed glass full lite that maximizes views and natural light.

Impact glass with an energy-efficient, low emissivity coating is a popular, multi-functional option, as well as the standard, clear glass. This door can be customized for any style home with a Simulated Divided Lites Kit. It is available in 6-foot, 8-inch or 8-foot heights and 2-foot; 2-foot, 6-inch; 2-foot, 8-inch; or 3-foot widths.

Each option comes with Plastpro's HydroShield Technology—only composite materials; there is no exposed wood. This design allows the door to resist warping, rotting and weather damage; doors will be maintainable for decades with minimal effort and hassle for modern homeowners.



The Nova 45 Direct Glazed Full Lite Door is part of Plastpro's Nova Series, which includes two direct glazed glass profiles: the Nova 45 and Nova 90. The Nova 90 doors have a modern, Shaker sticking and smooth skin while the Nova 45 doors feature traditional, Craftsman sticking and smooth and fir skin options.

Case in point

Michael Tull, owner of Tull Sales and Plastpro's sales rep in the Southeast region of the U.S. advocated for developing this product. In his region, the Nova 45 Direct Glazed Full Lite door has been successful as an option for multifamily builders, even as balcony doors. A driving factor for this type of use is that the direct glazed glass is more airtight and waterproof than other

options, while still being able to meet energy efficiency and other accessibility code requirements.

"The Nova 45 Direct Glazed Door brings the glazing practices from over a century-long history of the glass entry door to a modern, clean design, with assembly features not previously available. The dual sealing of the glass into the compression molded, fiberglass, one-piece skin, combined with Plastpro's HydroShield protection on all four edges, is unique to the entire fiberglass door industry. The glazing tape ensures the low-E insulated glass is protected during the assembly process and provides an extra step to make exterior water penetration through the door to glass seal all but impossible, forever ending leak complaints."

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01



02



Without FineLine



With FineLine

03

01 / Masonite International Corp.

Masonite International Corp. launched DuraStyle exterior wood doors with AquaSeal technology, engineered to seal the edges of wood panels and glass inserts with a clear barrier that protects against water penetration. Masonite offers DuraStyle wood doors in an array of door designs, sticking types, panel profiles, wood varieties and glass options. The doors are now available through Masonite distribution partners. **800/663-3667 | MASONITE.COM**

02 / Brass Knuckle Protection

Brass Knuckle Protection released Spectrum, BKFLEX-4040N, safety eyewear that has flexible comfort and anti-fog protection with N-FOG anti-fog lens protection. The protection permanently bonds to the lens and will not wear off or wash off. Spectrum also features bowed, super-flex rubber temples that ratchet for a custom fit. **770/674-8930 | BRASSKNUCKLEPROTECTION.COM**

03 / ProVia

ProVia's FineLine Technology for Endure Vinyl Windows is designed to produce a straight, clean weld line. The technology is available through ProVia dealers and comes standard on all laminated or painted Endure windows, with the option to upgrade on white, beige and sandstone vinyl. Endure replacement windows produced with FineLine technology are Energy Star-certified vinyl windows that can meet Energy Star window standards nationwide, or for specific climate zones, says ProVia. **800/669-4711 | PROVIA.COM**

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Joubert

Jeld-Wen Holding Inc.

nominated *Tracey Joubert*, *Cynthia Marshall* and *David Nord* to its board of directors. Joubert has served as the chief financial officer of Molson Coors Beverage Co. since 2016, Marshall is CEO of the Dallas Mavericks and Nord is executive chairman of Hubbell Inc. These nominations will expand Jeld-Wen's board to 12 members, increasing the number of women to 25 percent and the number of independent directors to 66 percent.



Marshall



Nord



Brezine

Loewen Windows and Doors

welcomed *Dan Brezine* as vice president of market development. In his new role, Brezine will be responsible for market

development planning and implementation to further grow the company's national sales network of fenestration experts.



Hauer

YKK AP America

expanded its residential sales team with the addition of *Tom Hauer* as residential sales representative for the

Florida market. He will be responsible for building strong relationships with window and door dealers in an effort to deepen YKK AP's customer relationships and further develop sales within the state of Florida.



Herbster

Chelsea Building Products

promoted three employees. *Greg Herbster* was promoted to business development manager – windows and doors,

where he will be responsible for assisting the regional sales managers in developing strategies to partner with new window and door businesses throughout North America.

Jessica Funwela was promoted to marketing projects coordinator, where she will be assisting in managing projects and programs within the marketing department.



Eisenhuth

Eric Eisenhuth was promoted to manager of product design, where he will develop and manage the product design program and staff. Eisenhuth will coordinate design and product qualification criteria and documentation along with his staff of product designers, engineers, CAD operators, technical service, testing and certifications and quality assurance teams.



Ackley

Matthew Ackley joined Cornerstone Building Brands Inc.

as president, engineered building systems. In his role, Ackley will lead engineered

building systems for the commercial division, set strategic direction and work closely with customers to deliver long-term performance. He will assume the role effective immediately and will report directly to the Chairman of the Board and CEO, James S. Metcalf.

The company also appointed *Alena Brenner* as executive vice president, general counsel and corporate secretary. Brenner will lead the company's legal, compliance and risk management functions, and reports directly to Metcalf.



Dietz

Winco Window Co., a St.

Louis-based manufacturer of architectural and commercial aluminum windows, announced that its vice president *Joe*

Dietz will be now managing its Midwest sales operations, replacing *Tim Cox*, who has retired. Dietz, who has been with Winco for 11 years, will work as an independent rep covering Missouri, Southern Illinois, Kansas and Nebraska. He will continue to support his current Winco responsibilities until September 2021. Dietz is also opening his own independent company, Dietz Architectural Products LLC.



Creed

Paradigm

appointed *Daniel Creed* as vice president of cloud and information security. As a member of the Paradigm leadership team, Creed will oversee the organization's cloud technology and information security operations.

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Help Wanted



Senior Technician

Stürtz Machinery Inc is seeking talented senior technicians with experience in industrial machine assembly and factory testing preferably in the fenestration industry. Knowledge of PLC's, electronics, wiring schematics and assembly drawings are required. Must be reliable and able to work in a team environment in our Twinsburg OH facility. Occasional travel in the US and Canada is required.

Stürtz Machinery Inc offers a competitive compensation program and an excellent opportunity in a fast-paced growing business committed to success.

Please send resumes to tmehring@sturtz.com.



Field Service Technician

Stürtz Machinery Inc is seeking a field service technician with experience in industrial machinery repair and installation. This person will possess hands on skills and knowledge of PLC's, electronics, wiring schematics and basic computer skills. The position requires self-motivation, accountability, and willingness and ability to travel throughout the US and Canada to support customer needs with installations including operator and maintenance training.

Stürtz Machinery Inc offers a competitive compensation program and an excellent opportunity in a fast-paced growing business committed to success.

Please send resumes to tmehring@sturtz.com.



Service Manager

Stürtz Machinery Inc is seeking a highly talented service manager with experience in the fenestration industry to develop and manage its growing needs. This person will possess hands on skill and knowledge of industrial machinery as well as excellent written and verbal skills. The position will be responsible for CRM development, managing, scheduling, and training field service technicians while working with our operations team in our Twinsburg OH facility. Willingness and ability to travel occasionally throughout the US and Canada is required.

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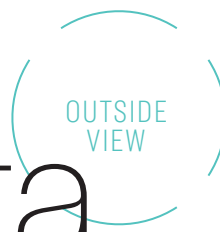
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Market Data



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Healthy Growth Ahead // Remodeling Upturn to Continue into 2022

Growth in home improvement and repair expenditures to owner-occupied homes will remain solid throughout the year and into 2022, according to the Leading Indicator of Remodeling Activity by the Remodeling Futures Program at the Joint Center for Housing Studies of Harvard University. The LIRA projects mid-single digit gains in annual home renovation and repair spending this year, with 4.8 percent growth by the first quarter of next year.

Worker shortage

200,000

worker shortage in the home building industry. Source: Home Builders Institute

New home sales

20.7%

The increase in sales of newly built, single-family homes in March. This is the highest sales pace since September 2006. Source: U.S. Department of Housing and Urban Development and U.S. Census Bureau

Skylight units

1.1M

residential skylight units sold in 2020, a growth rate of 4 percent compared to 2019. Source: Fenestration and Glazing Industry Alliance 2020/2021 U.S. Industry Statistical Review and Forecast

April 2021 window and door
stock index increase:

6.4%

April 2021 S&P 500
increase:

5.7%

Year-over-year return for
window and door index:

60.9%

Year-over-year return for
S&P 500:

47.7%

The growth in housing starts has been driven by a rebound in single-family construction activity across the country; single-family starts were up 40.7 percent compared to the previous year. While the industry is currently working through significant supply constraints, overall demand in the construction market during COVID-19 has continued to accelerate, which will support public valuations and M&A opportunities in building products for the foreseeable future.

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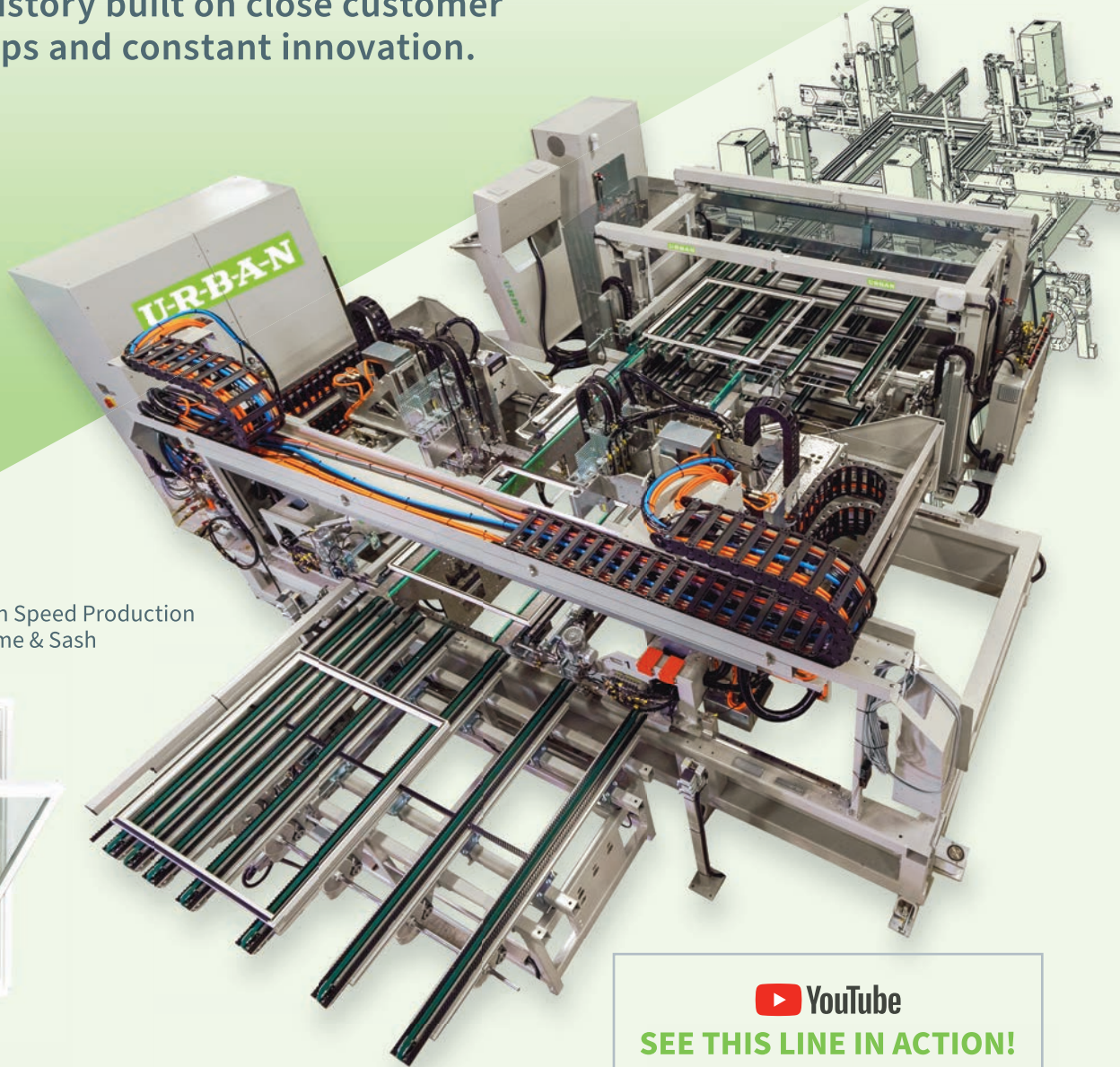
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