

WINDOW+ DOOR

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STRENGTH AMID THE STORM



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THE MARKET
REMAINS
STRONG AMID
SUPPLY CHAIN
AND LABOR
CHALLENGES,
ACCORDING TO
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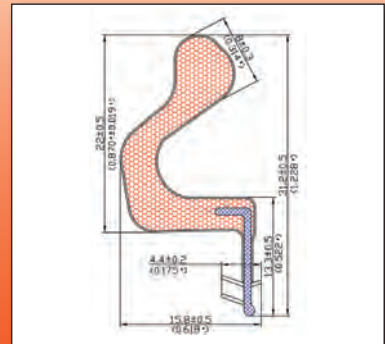
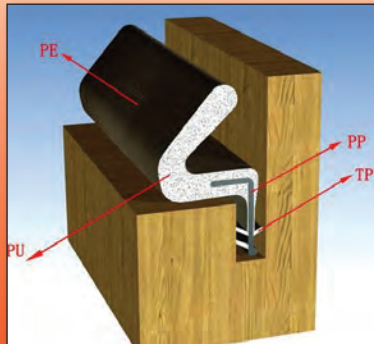
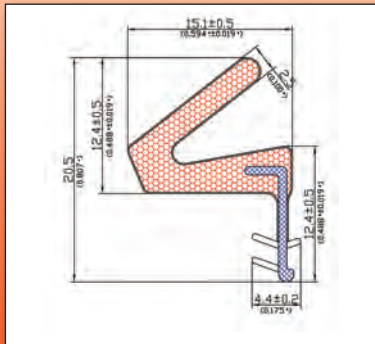


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Residential fenestration coverage, from source to sale // windowanddoor.com // Vol. 30, No. 1 // January/February 2022

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The Window + Door Awards recognize the innovations in the residential fenestration products industry. Judges reviewed entries in eight categories this year to determine which products exemplified innovation and answered a market need in a unique, effective way

■ Exclusive coverage from the International Builders' Show in Orlando

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➔ The Talk // Blogs of the Month

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Photovoltaic Glass: Benefits and Technologies to Bring it to Market

By Mike Thoman



How to Choose the Right Software System for Your Company

By Chris Kammer



Don't Forget the Frame: Thermal Barriers and Energy Efficiency

By Tammy Schroeder

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News

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Mergers, Acquisitions Continue

Great Day Improvements LLC acquired Champion Windows, expanding its portfolio of direct-to-consumer brands of home improvement products and services. Great Day Improvements is also the parent company of Patio Enclosures, Stanek Windows, APEX Energy Solutions, Hartshorn Custom Contracting and Universal Windows Direct. Michael Hoy, CEO of Great Day Improvements, will lead the combined companies; Todd Dickson, CEO of Champion Windows, will continue to lead Champion's executive team.

Novatech Group acquired Ontario-based vinyl and aluminum patio door manufacturer Sunview Patio Doors. With this transaction, the Ontario plant, which will operate under the name Novatech, becomes the seventh production site for this product line. "The acquisition of Sunview Patio Doors and the addition of more than 200 new colleagues to the Novatech family have enabled us to accelerate our development ambitions in the Canadian and American markets," says Harold Savard, president and CEO of Novatech Group. The Sunview management team will remain in place, while several of its members will become shareholders of the newly formed Patio Doors Ontario division.

Compusoft, Soft Tech's parent company, and 2020, FeneTech's parent company, completed a merger in December. As a result, Soft Tech and FeneTech will be included in a window and door vertical group that also includes First Degree Systems and AccessIT, publishers of the contractERP software. "Although the journey has just started, the excitement level is very high as we begin to uncover the capabilities that

collectively we can provide," says Ron Crowl, managing director of FeneTech.

Leaf Home completed its acquisition of WindowWorks and Comfort Shower and Bath, marking its seventh acquisition in the past 18 months.

Engineered Profiles LLC acquired West Virginia-based Co-Ex Plastic Tooling, a plastics extrusion company. The Co-Ex team will join Engineered Profiles at its new 93,000-square-foot production facility in Ironton, Ohio. The company expects the expansion will create 55 new jobs with a total payroll of more than \$2.2 million within the next five years.

New Product Lines, Expansions

Masonite International Corp. unveiled its M-Pwr Smart Doors, residential exterior fiberglass doors that integrate power, lights, a video doorbell and a smart lock.

As a result of previously announced collaborations with Ring and Yale Home, the doors have fully integrated Ring Video Doorbells and Yale smart locks that do not require individual device batteries.

Jeld-Wen released the luxury IWP Aurora Fiberglass exterior door line. Doors can be up to 4 feet wide by 10 feet tall and have options for decorative glass, privacy glass, simulated divided lites and grilles.

IN THE NEWS:

Month in Review

Andersen Corp. published its first Environmental Product Declaration for the Andersen E-Series casement/awning, double-hung, gliding and picture windows. The EPD works to standardize lifecycle assessments and communicate product transparency, as well as identify the largest impacts related to carbon emissions and climate change, quantify water usage and break down the impacts of individual processes.

The company also paid out \$31.6 million, or \$3,200 per eligible employee, in 2021 to eligible employees as part of its annual profit-sharing program.

Quanex Building Products' Cambridge, Ohio, facility earned the ISO 45001-2018 designation for occupational health and safety management. The facility earned high marks in its business and legal resources training modules, 3E system for easy employee access to safety data sheets, layered safety audits, behavior-based safety audits and safety committees.

Vinyl window manufacturer **Vinylmax** announced plans to invest \$4 million into its Hamilton, Ohio, facility, which will include a 150,000-square-foot expansion, expected to be ready for 2023. The company also plans to add 150 new jobs over the next five years.

In event news, **FGIA** opened registration for its 2022 FGIA Hybrid Annual Conference, Feb. 28 - March 3. The in-person event will take place at the Omni Amelia Island Resort in Amelia Island, Florida. And, **Fensterbau Frontale** is postponed from March 29-April 1 to July 12-15.



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Supply Chain Struggles Continue

The industry prepares to enter another year rife with supply chain and labor concerns. Hardware supplier INOX shares its perspective about how companies can navigate this tricky time.



By Laurie Cowin
EDITOR

We're all back at work full-steam ahead after one of my favorite times of the year. I take great joy in baking cookies and distributing cookie platters, seeing my Christmas tree lights twinkle, singing and exercising to festive music, and witnessing my three-year-old son's enthusiasm for the season.

But another great joy of the holiday season is that it runs parallel to Window + Door's Industry Pulse report, giving me the opportunity to talk with companies across the entire supply chain of the residential fenestration industry. It's a delight to reconnect with companies, as well as meet new companies and introduce their voices to our pages.

It wasn't any surprise that the two hot topics in this year's survey were labor and the supply chain, with supply challenges trumping labor in nearly everyone's eyes. (See the Industry Pulse on page 30 for more insights and analysis.)

Last fall I had the chance to virtually sit down with Qianyan Cheng, co-founder/vice-president of product development, and Chris Rankin, product marketing manager, with hardware supplier INOX, where we discussed the supply chain landscape and how INOX is navigating it. "We're having to be creative," says Rankin. "You can't have any assumptions that the way things have worked in the past is the right way to do things anymore."

Following is an excerpt from our conversation:

Q: How is INOX navigating the supply chain landscape?

Cheng: Because of the unavailability or delays in shipping containers, we've had to airfreight because we can't wait for the container. But the cost of airfreighting is double, triple or sometimes even quadruple; the airfreight could be more expensive than the product costs. We're at the point where everything is so "unnatural," you just have to do what you have to do. It's worse to lose a customer.

There are [other shipping options] available, such as [using] a smaller vessel that skips Orange County, where much of the port congestion is, and goes straight to smaller ports such as Oakland. Smaller boats also cross the ocean more quickly. Another strategy is to get whatever's available, which we call less container load. That means if you have eight pallets of product, just book it. (A container usually holds 20 to 22 pallets.) It's more expensive per pallet that way, but it's going to cut down your time and is still less than airfreight.

Q: How have shipping times changed?

Cheng: The average time from China to the West Coast ports is about 90 to 120 days; it used to take 25 days.

Rankin: With ships sitting there waiting to be unloaded, they're making fewer trips across the ocean. The impact there is not only us missing bookings with our products because the ship hasn't come in to pick it up, but the cost to run these ships hasn't gone down. Ships are making half the number of crossings they normally do, which means the pricing of getting a booking is increasing at a phenomenal rate so they can continue to run these ships.

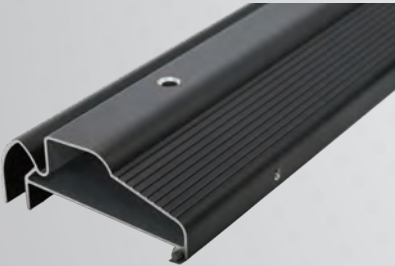
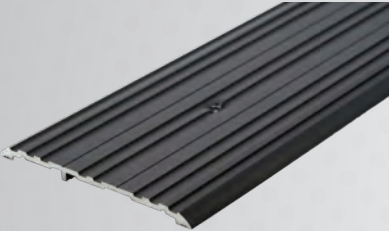
Cheng: Before COVID, a 20-foot container from Shanghai to Oakland ran \$1,500 to \$2,500. Right now it's around \$15,000. We recently received a quote for \$20,000 for a 40-foot container, which used to cost \$3,000 tops. And you still can't guarantee a booking.

Q: What does all this mean for the industry?

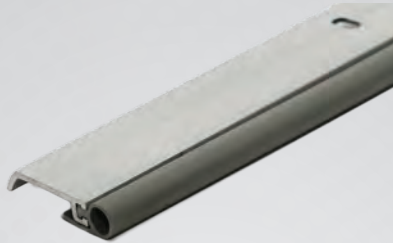
Cheng: The shipping surcharge has been 6 to 7 percent on the lower end to 12 to 15 percent on the higher end just to compensate for additional freight costs. That's on top of previous pricing increases

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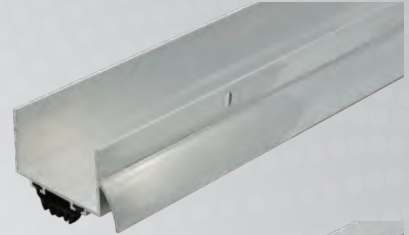
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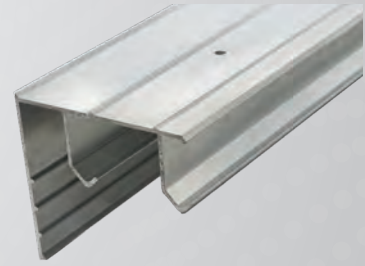
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➔ Observation Desk

from importation costs or Covid costs. Adding both up, we're seeing a major increase in the cost of building materials for the construction industry.

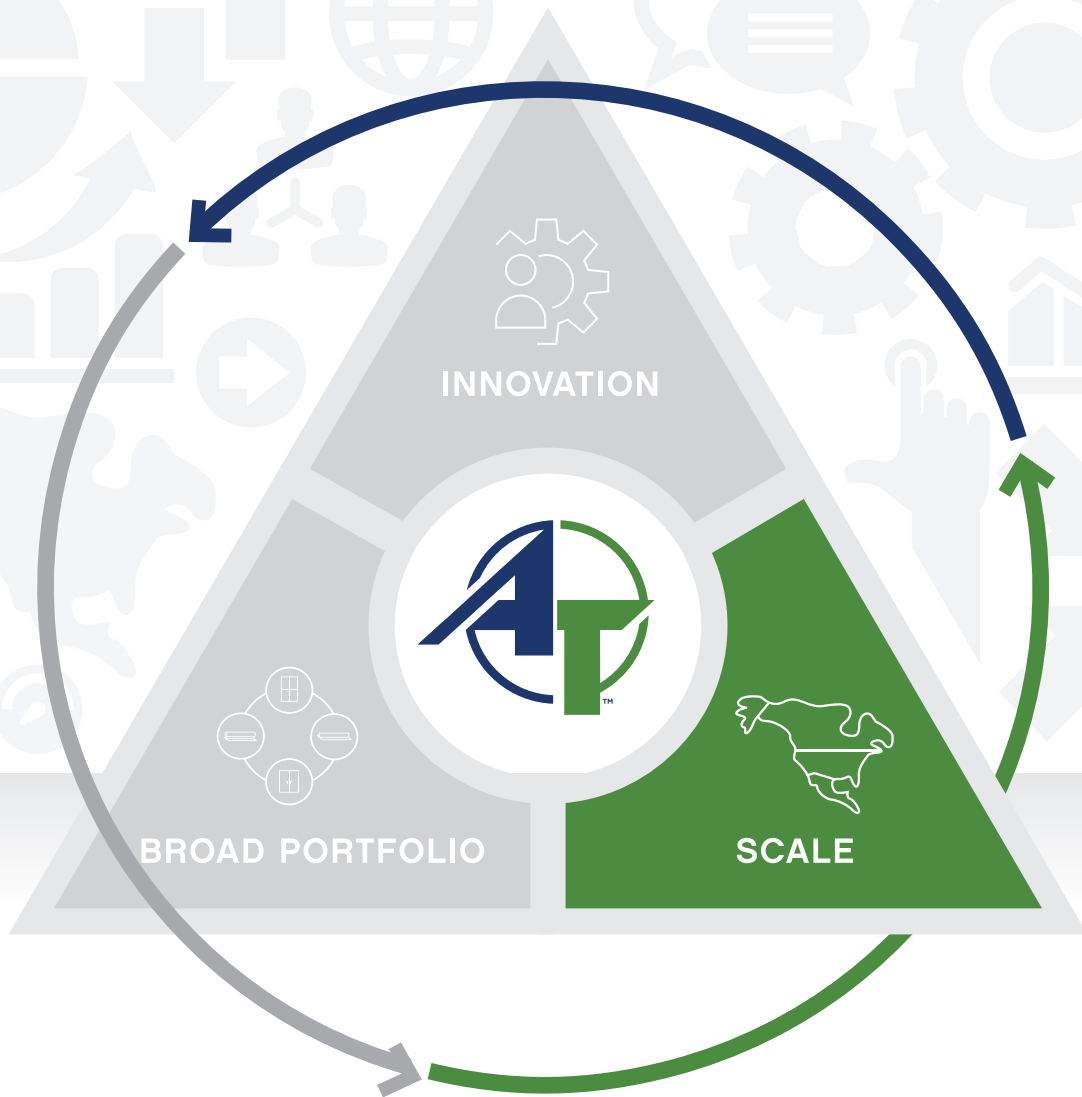
Q: When do you see an easing of these challenges?

Cheng: I don't see this as any better for at least another year. Our logistics importer doesn't predict things will get better until 2023, when there will be new vessel lines and new vessels released into operation. They're also hoping COVID will be more contained so there are more people handling logistics at the port. Right now, there is nobody to operate the chassis, which is what the containers are unloaded onto from the boat. Because there's a shortage of chassis, containers are being stacked and can't move.

Q: What recommendations do you have for companies to navigate the supply chain landscape?

Cheng: One, you have to keep your customers happy by doing whatever it takes because you don't want to lose that relationship. Two, keep calm and look for what's booking right now to find a solution to a pain spot. If you can bring value to your supply chain, that makes you the one that survives. Crises can be opportunities. You have to work harder. We have no choice; we have to put in the extra brain juice to tackle it, keep cool and get through this. It's not a month or two; it's a couple years.

Rankin: Innovation is key to survival in this kind of situation. It's very difficult because innovation requires you to question everything that used to work. [It's] the whole concept of "if it isn't broken, don't fix it." You have to assume everything is broken and you have to re-assess. That takes extra time and effort. I think in the long run we're going to see a lot of amazing things come out of this. ■



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Balancing Thermal and Acoustic Demands for Total In-Home Comfort

As homeowners seek to make improvements, it's important to offer solutions that offer a range of high-performance benefits.



By Joe Erb and Eric Thompson

Delivering the proper balance of thermal and acoustic performance requires evaluating the window system holistically.

Throughout the past couple years, people have been evaluating their homes with a more critical eye and haven't been shy about making upgrades.

As it pertains to residential windows, comfort is key. Thermal performance has long been one of the most important performance characteristics of a new window. Another characteristic is acoustic performance and how well a window is able to mitigate sound transmission from outdoor environments into a home.

Recently, acoustic performance has generated a bit more chatter. Why? Since COVID-19's onset, millions of people are spending more time at home, and remote work is set to continue. Peace and quiet is perhaps more important than ever before. Meanwhile, developers in the multifamily space are

eyeing construction sites near train tracks, elevated lines or major freeways in certain regions of the country, where noise can be irksome unless the proper measures are taken.

This all means those in the fenestration and glass industries might have started to pay closer attention to things like Sound Transmission Class (STC) and Outdoor/Indoor Transmission Class (OITC) ratings, which determine how much sound is transmitted through a window. For fenestration professionals serving the residential market, it's a burgeoning area of need.

Delivering the proper balance of thermal and acoustic performance requires evaluating the window system holistically and putting together components that will reduce sound transmission while maintaining the thermal benefits. Here are some considerations:

3 glass and glazing configurations

Glass mass, asymmetrical insulating glass and multicavity glazing are all popular and effective choices to improve acoustic performance in fenestration design.

1. The glass mass law states that doubling the mass per unit area can improve sound transmission loss by 6 decibels. Therefore, increasing glass thickness on one or more lites of an insulating glass unit can impact acoustics.

2. Asymmetrical glazing, or different thicknesses of glass in the same IG, can also improve acoustics by disrupting sound waves. Windowmakers can accomplish this using double- or triple-pane glazing design. The use of multicavity glazing will also make significant improvements with thermal performance and occupant comfort. It's also worth considering skinny or thin triples, a technology that utilizes an ultrathin center lite. Skinny triples can fit within the same frame space as a conventional double-paned unit and don't create additional weight. Acoustic performance of a skinny triple is comparable to a conventional triple.

3. Laminating glass interlayer options can help address performance requirements in security, impact and acoustics. These interlayer materials can be tuned to meet specific acoustic performance targets using various thicknesses and plies. The laminated glass configurations act as an acoustic shock absorber or dampening material; consult your interlayer supplier for specific design requirements.

High-performance vinyl

Another area to consider closely is framing and how it contributes to both thermal and acoustic performance. Vinyl has long been the dominant material choice in the residential space, with nearly 80 percent of market share, and inherently demonstrates higher acoustical properties than metallic choices.



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➔ In the Trenches

But not all vinyl framing is created equal. Multichambered vinyl extrusions can help dampen noise versus single-chamber options. Further, options that include an integrated insulating core can help drive acoustic performance even higher while helping improve U-factors by as much as 15 percent over hollow vinyl window frames. Along with high-performing warm-edge spacer systems and sealant materials, this kind of framing technology can help window manufacturers deliver outstanding performance and meet several demands at once.

Take the holistic view

These are just a few ways you might improve acoustic performance in windows and doors to deliver on evolving homeowner demands. But the most important thing to remember when designing window and door systems for acoustic performance is to consider the system as a whole. Find the balance—don't sacrifice one area of performance for another.

It's also important to work with your component suppliers and an acoustic engineer to select the most effective solutions. In acoustic design, the system's performance is only as good as the weakest link. Physical testing is the only way you will truly know the impact of the materials and the assembly methods for your system. With all of these considerations in mind, you'll be sure to find success in delivering a final product that delivers high performance in all of today's most important areas. ■

Joe Erb and Eric Thompson are commercial sales specialists for Quanex Building Products.

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What Comes After the Champlain Tower Collapse?

As homeowners seek to make improvements, it's important to offer solutions that offer a range of high-performance benefits.



By Thom Zaremba

Editor's Note: Although this article is geared toward the multifamily space, many window companies supply to multifamily and light commercial structures. It is critical to stay on top of the latest code discussions for the building space, particularly as they may pertain to the fenestration and glazing industries.

On June 24, 2021, Champlain South Tower collapsed in Surfside, Florida, killing 98 people. The National Institute of Standards & Technology, or NIST, immediately began an investigation. Although no timetable for the identification of the causes of the collapse has been announced, the NIST investigation is expected to take two years or more. Congress has authorized \$22 million to fund that effort. So far, at least seven other buildings in South Florida have been evacuated due to safety concerns.

How could this happen from a building code enforcement standpoint?

The current state of code enforcement

Typically, the authority of building code officials begins with the submission of construction drawings and ends when a Certificate of Occupancy is issued after inspections, intended to ensure compliance with all building code requirements, are complete.

The Florida building code also includes a “threshold inspection law,” which was adopted in the wake of the 1981 Harbor Bay Condominium collapse, which was caused by numerous deviations from the building’s approved construction drawings. Florida’s threshold inspection law requires all structural elements of large-occupancy buildings (500 or more) to be inspected

by a third-party “threshold inspector” to ensure compliance with approved construction drawings and Florida’s building codes. However, Florida’s threshold inspection law did not extend the authority of building code officials to include post-occupancy inspections.

Beyond its relatively unique threshold inspection law, Florida has some of the U.S.’s most stringent storm-specific building code requirements. These came about after Hurricane Andrew destroyed more than 25,000 homes and damaged 100,000 more in 1992. Nevertheless, even the changes made to Florida’s building

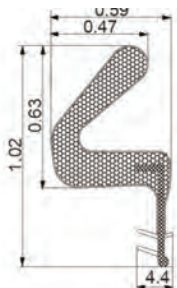


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Part Number	Length	Variation	PC/Box	Box/Pallet	PC/Pallet
03-3681	81	Bronze	150	30	4500
03-3697	97	Bronze	125	30	3750
03-3781	81	White	150	30	4500
03-3797	97	White	125	30	3750
03-3881	81	Beige	150	30	4500
03-3897	97	Beige	125	30	3750
03-3981	81	Black	150	30	4500
03-3997	97	Black	125	30	3750

Material Polyethylene Clad Urethane Foam

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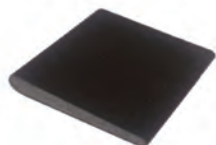


UL 1784 Air Leakage Rating

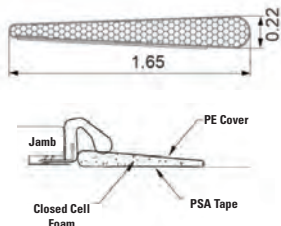


UL 10C, UL10B, ULC S104, 3H, Fire Rating

CORNER PAD



Part No. 03-9000-B



Part Number	Length	Variation	PC/Box	Box/Pallet	PC/Pallet
03-9000-B		Bronze	1500	60	90000
03-4697-W		White	1500	60	90000

Notes:

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➔ Decoded

codes following Hurricane Andrew did not require any post-occupancy building inspections.

Only two Florida counties, Miami-Dade and Broward, require mandatory recertification inspections, and these are only required after 40 years of occupancy.

What's next?

Recertification inspections, coupled with specific compliance periods and potential penalties for noncompliance, seem likely. Recent recommendations from the Florida Bar Association and the Architects & Engineers Task Force back up these predictions.

The Florida Bar Association created a task force to develop proposed legislation to address the Surfside collapse. Among its recommendations:

Regular inspections. Florida has more than 1.5 million residential condos, and of those, nearly 600,000 are at least 40 years old, with an estimated 2 million people living in condos 30 years old or older.

The Bar task force recommends structural inspections every five years. That should provide timely notice of any significant deterioration and give condo associations time to budget for repairs.

Strengthening reserves. Condos typically fund major repair projects by using reserves or levying special assessments on unit owners. But existing loopholes allow condo associations to waive or reduce these reserves, which may be more financially palatable to unit owners, but can also defer much-needed repairs.

The task force recommends tightening condominium laws to close loopholes that allow reserves to be waived or reduced, thus providing money for long-term maintenance and repair. Likewise, this would make it easier for condo associations to levy assessments or borrow money for major repairs, in turn, funding projects necessary to safely prolong building life.

Increase transparency. The Bar task

force would also increase transparency so that condo boards, unit owners and government building officials would all be more informed about the structural integrity of their buildings and plans for keeping them safe. Florida law currently has no requirement for reporting or tracking a condo's maintenance records.

The task force recommends a standard template for inspection records and more document-sharing between local governments, condo

associations and property owners and buyers. Having more eyes on the state of these buildings, and in real time, could keep more needed repairs from falling through the cracks.

A Florida Task Force of Architects and Engineers released similar recommendations. Some of its recommendations are:

- Florida should require that nearly all large buildings be inspected for structural problems within their first 30 years, with follow-ups every 10 years.

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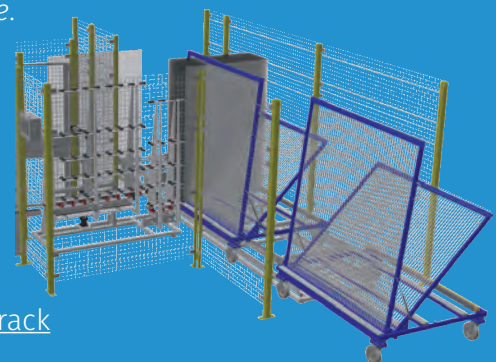
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- For buildings within three miles of salt water, such as Champlain Towers, inspections should be done within the first 20 years of occupancy, with follow-ups every seven years.
- These inspections would apply to condominiums, office buildings and any other buildings that exceed 10 occupants, are greater than 2,000 square feet and that are covered by the state's building code. Only one- and two-family dwellings and town-

houses three stories or smaller would be exempt from this requirement.

- Inspections would be conducted in phases. Phase 1 inspections would be visual observations under the direction of a licensed professional engineer or architect. At a minimum, they would include random inspections of garages, pool decks, roof parapets, common areas and accessible exterior areas of the structure, including at least 33 percent of the balconies and handrails.

- If structural distress is found during Phase 1, a Phase 2 inspection would be done by an experienced engineer or architect. The inspection would be far more thorough and potentially include destructive testing and the use of outside specialists.

What does this mean for our industry?

Tragedies propel changes to our building codes. As changes following the Champlain Towers collapse are considered, other changes to our building codes should also be considered. Specifically, the consequences of climate change (fires, floods and drought) can be as tragic as a building collapse.

The glazing industry can have a major role in ensuring the energy efficiency of our existing building stock. Consider this: buildings account for approximately 40 percent of the energy consumed in the U.S. Windows built of monolithic glass in metal frames were very common before 1960. These types of windows are horribly energy-inefficient but can last for 100 years or more. Unless these types of windows are replaced with insulating glass units, this can result in an extraordinary waste of energy, especially considering that 70 percent of all buildings in at least 30 cities throughout the U.S. were built before 1960. However, even if monolithic glass windows are replaced with IGUs, those IGUs will lose their argon gas fills over time, and seals will eventually fail.

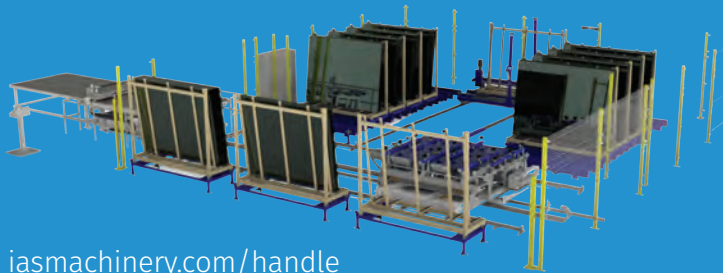
This posits an important question: should post-occupancy inspections of buildings include windows?

The tragedy of the Champlain Tower collapse demonstrates the importance of regular post-occupancy inspections. It's clear that significant energy can be saved and the pace of climate change slowed by including windows in any post-occupancy inspections or other building code changes that may result from this tragedy. ■

Thom Zaremba is a partner at Roetzel & Address and code consultant for the National Glass Association and the Glazing Industry Code Committee.

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8 Tips to Deal with the Labor Shortage



By Janice Yglesias

Supply chain issues and skilled labor unavailability are suppressing the demand-driven residential construction boom. Shortages are overwhelmingly reported for workers in all types of jobs, the worst being in framing crews, and rough and finish carpenters. But labor shortages in the manufacturing sector are also contributing to the shortage of the needed construction materials and equipment.

Why the shortage?

Among the factors economists and business leaders identified as culpable for the current labor shortages are:

- The COVID shutdowns and government unemployment/stimulus payments have given many people a sequestered opportunity to hit “pause” and rethink their futures.
- Large blocks of aging skilled workers are retiring.
- A lack of basic skills training for non-college-bound students, poor employability skills (attendance, timeliness, etc.), and the inability to work well in a team environment.
- A distinct aversion to construction and manufacturing environments among the younger generation, which they tend to perceive as rough, low-wage, low-prestige and involving potentially dangerous work.

8 Tips to Help

Industry and business consultants offer the following suggestions:

1. Plan your recruiting effort as a key ongoing company function. Involve employees in recruiting and onboarding. Existing employees can help attract top talent by showing potential hires they also could be happy at your business.

2. Partner with community colleges and universities, allied nonprofits and other organizations. Connect with candidates by attending job fairs, sponsoring events and holding open-house days. Focus on hiring veteran military talent, which is likely to come with needed

employability skills.

3. Raise pay and/or increase benefits. More money, in the form of signing bonuses or higher entry-level pay, or special benefits, such as covering college tuition, can effectively draw more applicants. Get creative with your total compensation package to shift dollars toward the most important benefits.

4. Sell your company culture. Recruiting is becoming more like marketing. Adopt brand thinking to position your company among competitors for the target talent pool. Know the company’s mission and values and identify the most important skills and values you need.

5. Invest in scholarship, apprenticeship and internship programs. Be willing to invest in teaching raw young recruits and re-training those from other fields. Offer apprenticeships and/or internships that offer education they cannot get in school. Explore trade associations that offer professional certifications like the FGIA InstallationMasters Program.

6. Build an employee-focused culture. Show your appreciation for your workers through employee-recognition programs, performance bonuses and comfortable work environments.

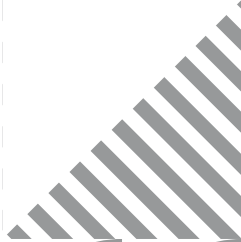
7. Assist during the interview process. Employers should explain to candidates what the interview process entails and give them tips to prepare. Provide clear, concise job descriptions free of company jargon that offer clear explanations of the job and its importance to what the company does.

8. Connect online. Social media is a good place for potential younger employees to search and to be found. It’s also a good platform to share information about the company.

What some have termed “the fourth industrial revolution” is rapidly changing our world. New advanced manufacturing technologies bring about whole new careers, requiring a skilled workforce interested in pursuing them. ■

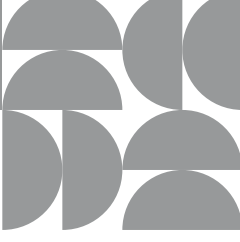
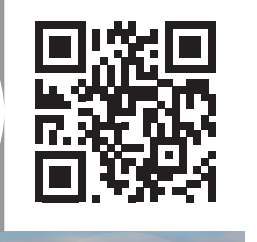
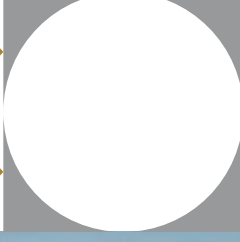
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Janice Yglesias is the executive director of FGIA overseeing the full organization. She joined the association in 1999 and can be reached at jyglesias@FGIAonline.org.



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NAFS: The More You Know

Performance requirements in NAFS go beyond air, water and structural performance certification



By Susan MacKay

Labels carry many meanings in the legal world. Some inform. Some caution. Some warn. All are communications from a manufacturer that can either create or deflect liability.

A key component of AAMA/WDMA/CSA 101/1.S.2/A440-17, North American Fenestration Standard/Specifications for windows, doors, and skylights (“NAFS”) is labeling. Ask anyone to explain the purpose of the NAFS program and most responses would undoubtedly focus on certification for air, water and structural performance. That is absolutely true. But, they are not the only performance requirements in the standard.

In addition to detailing the air, water, structural and forced entry requirements needed for certification, there are a host of other requirements found in the 237-page document. On top of that, there are 12 pages of other incorporated standards in Clause 2 that play a role in the NAFS certification process.

Labels defined in Clause 1.5 guide the reader to the type of performance requirement addressed in a particular clause. AWS (air, water, structural) is one label, but there are also labels for performance requirements relating to DL (durability and longevity), CPM (component parts and materials) and HS (health and safety).

Even when applying the usual Gold Label, NAFS includes requirements for the many individual components of a window. Clause 10 details material tolerances, as well as requirements for glazing, frame,

sash, panel and leaf materials. Clause 11 provides requirements for components such as hardware, weatherstripping, insect screens, sealants and fasteners, to name a few. And each of these components has its own standards detailing performance requirements. Each time a label is applied, there is an embedded representation that a manufacturer has tried to ensure compliance with these other clauses as well.

Component manufacturers generally procure a spot on the Verified Components List, taking much of the responsibility out of the hands of the fenestration manufacturer. However, a prudent fenestration manufacturer should ensure that the component manufacturer’s product is on the VCL and that the verifications are kept up to date. Additionally, the fenestration manufacturer may be responsible for ensuring compliance with relevant standards for specialty items such as painted or laminated frames.

NAFS labels carry more than just Performance Grade representations. If that surprises you, consider taking a careful look at the standard to confirm whether your products and their components meet all the requirements, and be sure you can prove it. ■

Susan MacKay is an attorney with The Gary Law Group, a law firm based in Portland, Oregon, that focuses on legal issues facing manufacturers of windows and doors. She can be reached at 503/620-6615 or susan@prgarylaw.com.



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Get a Head Start on 2022 Sales



By Gregg Hicks

January is the right time for contractors to pay attention to developing their 2022 pipeline for new window and door projects. Here are some reasons why it's time to start generating leads, and what steps to take now.

1. Consumer interest in home improvement projects rebounds sharply in January

Historically, the beginning of the new year brings a surge of homeowner interest for window and door work. Why? With family obligations and holiday travel driving attention from Thanksgiving through New Year's, most homeowners do not have the bandwidth to think about and budget for home improvement. But after the holiday craze, New Year's resolutions kick in, including replacing drafty windows and doors.

2. Booming values provide new equity that homeowners can tap into

Homeowners are well aware of the recent boom in home values, and many are ready to put that value back into improvements. Fortune reported that between August 2020 and August 2021, U.S. home prices rose 19.8 percent—the largest uptick on record. Although that makes things harder for first-time home buyers, the latest Modernize Home Services survey shows that 57 percent of window and door prospects have been in the same home for more than 10 years. With homeowners having more equity to borrow against, contractors should expect strong demand going into 2022.

3. Homeowners are adjusting expectations about "getting in line"

The pandemic has altered so many facets of our lives, including timelines and expectations. After years of becoming accustomed to near-instant gratification from companies like Amazon, consumers must now tolerate supply chain challenges.

If homeowners are hesitant to begin their projects because of the long lead times, reassure them that they should place their orders as soon as possible so contractors can secure their materials.

Some contractors also find success by offering incentives for homeowners to be patient, such as extended warranties, a price freeze or rebates applicable to add-on services.

4. Stay ahead of your optimistic and aggressive competitors

Do not let your competitors go unchallenged in taking advantage of homeowner interest this January. An early look at research we're currently running shows a large majority of contractors feel optimistic about their business outlook. Don't let other contractors steal market share from you.

WHAT YOU CAN DO NOW

1. Nurture your late-2021 leads

Homeowners who started exploring the improvement process just before or during the holidays are ideal prospects to start with in early 2022.

When homeowners make inquiries in December, it is easy for them to get distracted. Too often contractors drop those leads when there's no immediate appointment or specific progress. A study from our partner Hatch showed that 15 percent of window replacement inquiries take longer than 30 days to close. Put those leads back in the oven and see what crisps up.

2. Use digital marketing to turn on lead flow quickly, affordably and easily

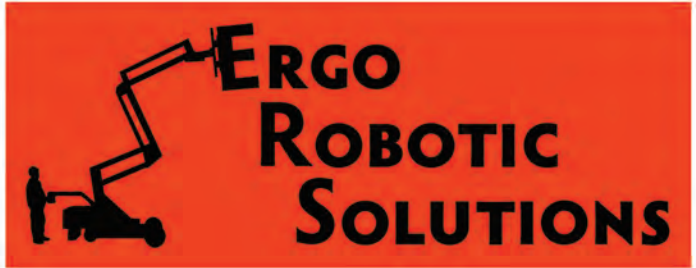
Whether it's through your own purchase of Google search terms, locally oriented display ads, or leads from a service, digital marketing is one of the fastest ways to turn on your lead flow. Implementing a digital marketing strategy now while demand is high is a quick and scalable way to help you stay ahead of the competition.

So, start this year off strong, lean in and capture as much business as you can handle! ■

Gregg Hicks is a longtime marketer of home improvement services. He is a new business leader for Modernize and has 20 years' experience across web analytics, SEO, social, SEM and affiliate marketing.

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Strength Amid the Storm

The annual Window + Door Industry Pulse survey had few surprises: the market is strong, business is booming and no aspect of the supply chain is exempt from the persistent supply and labor challenges. **By Laurie Cowin**



The industry entered 2021 after a surprisingly strong second half of 2020, but in an environment still rife with uncertainty around the coronavirus pandemic and economic factors. Although supply chain and labor constraints affected companies across the entire spectrum of the residential fenestration industry, the situation rapidly devolved throughout the year, worsened by ongoing labor issues, rising costs and soaring demand.

“The demand from the market is at incredibly high levels coming off the fourth quarter of last year,” says Dan Gray, director of sales, Roto North America. “We didn’t anticipate it would continue throughout the entire year and now we can see the current cycle is likely to continue at a minimum through the first half of 2022. Lead times are greatly extended from the normal expectations. Supply chain continues to be compromised everywhere you look. Labor continues to be a challenge at every turn. It appears as though the level of activity will remain very strong through the first half of next year.”

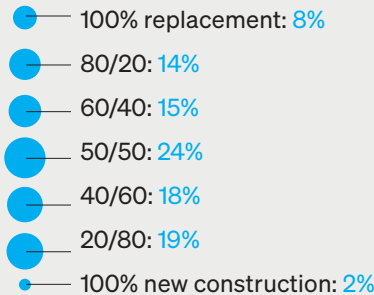
This year’s annual Industry Pulse survey takes stock of how the industry is responding to supply chain and labor challenges, as well as where companies are focusing on business and product growth.

Editor’s Note: Survey responses from which the statistics are derived were collected in November and December 2021.

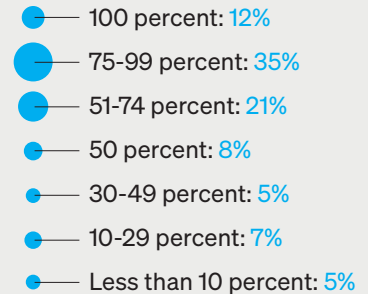
Meet the Respondents

Manufacturers, suppliers and dealers/distributors contribute to the Industry Pulse each year. See the breakdown of this year’s response base, where their key business focus is and what business investment plans they have.

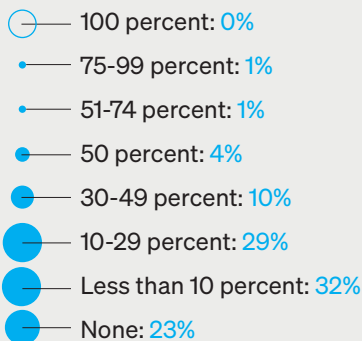
About what percentage of your business was replacement versus new construction in 2021? (replacement/new construction)



About what percentage of your business is residential windows?



About what percentage of your business is in residential entry doors?



Where do you plan to focus your investments in 2022?



*Respondents could select more than one option

Biggest challenges: Staffing, supply chain, material availability, allocation, labor, shipping container shortage, cash flow, lead times

Biggest opportunities: Increased sales, gaining market share, cash flow, strong housing market, production line optimization, new product launches, increased production, luxury market, logistics management



Sales Realities and Expectations

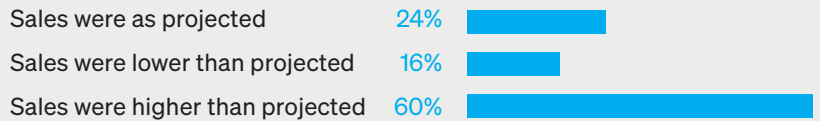
Sales for many companies went gangbusters in 2021, and the only thing stopping them from further growing in 2022 is a lack of labor and inability to get materials. “Our customers say they’re up 30 percent and could be up another 30 percent if they could just get some people and materials,” says Darryl Huber, VP global customer strategy, Soft Tech.

“Back when COVID started, we had a very dismal outlook of what we thought could happen, but that changed pretty rapidly,” says Tony Mehringer, vice president of sales and marketing, Sturtz Machinery Inc. “We had an unbelievable order intake in 2020, and with that a huge expectation with shipments and installations throughout 2021. We have installations already booked through the first half of next year. We don’t see signs of a slowdown, and expect a similar 2022 to 2021.”

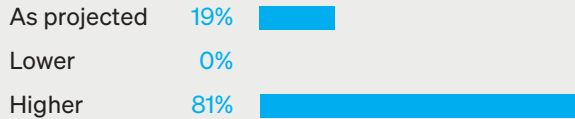
“It’s been two great years when you look at the results only,” says Gray. “We hope to get the delivery service back on track for the benefit of our customers and get to a point where we can grow the business once again as well.”

Did 2021 meet your projections?

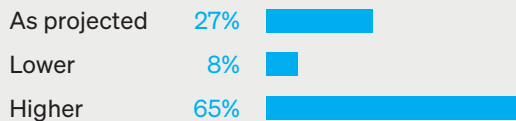
Overall



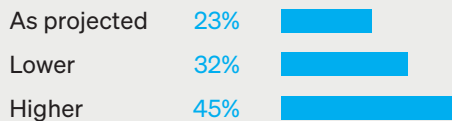
Suppliers



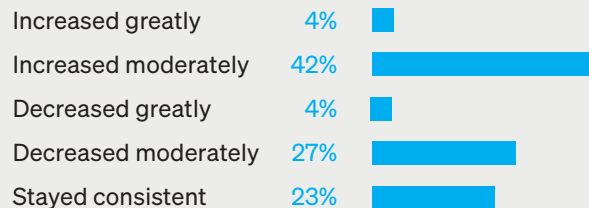
Manufacturers



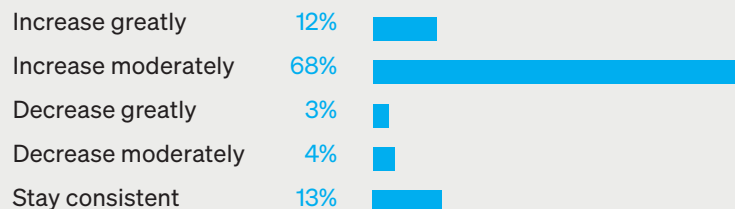
Dealers



How did profit margins in 2021 compare to 2020?



What are your sales expectations for 2022?



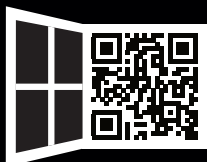


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The Supply Chain

Long lead times and uncertainty are a regular, if unwelcome, part of today's manufacturing environment that companies are tasked with managing, mitigating and communicating.

Mitigation strategies

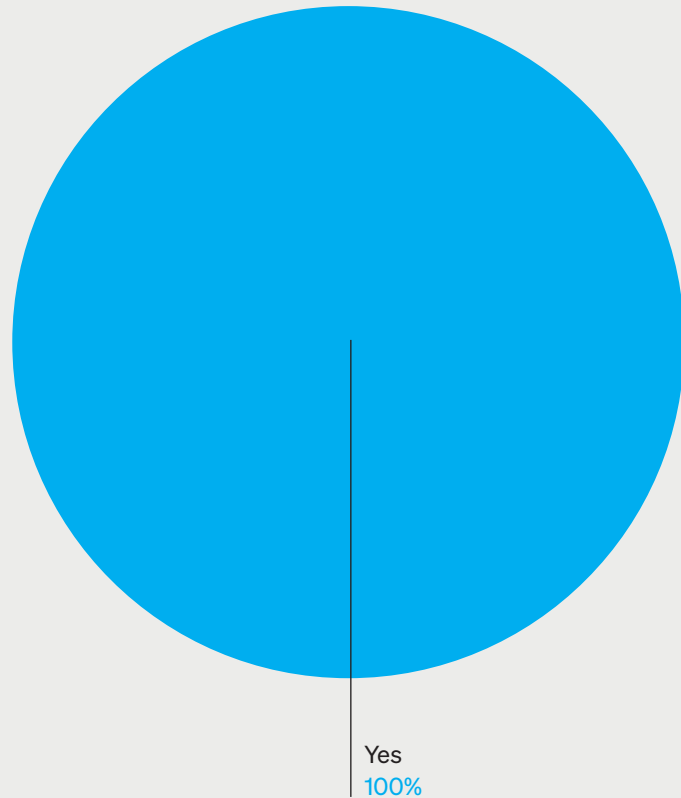
Mehringer says Sturtz has mitigated some of its supply chain challenges by placing orders further in advance and negotiating with its worldwide long-term supplier partners. "We had to go through our whole product mix and work hard on bottleneck areas or components that are harder to get," he says.

Erdman Automation Corp. orders in advance, and switches brands when necessary as well as sources components online, says Jessica Metz, marketing, Erdman Automation.

Meanwhile, Roto bolstered its inventory levels by carrying more goods it imports from Europe and Asia, which necessitated expanding its footprint in Connecticut to include an offsite warehouse so that new equipment can come into the building. Additionally, new hires help the company strategically navigate the operational side of the business. "It's been a multi-pronged approach," Gray explains.

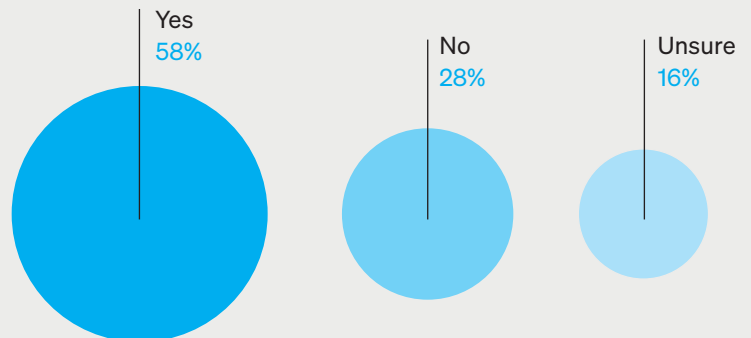
Did your material costs increase in 2021?

Every respondent indicated material costs increased last year. Nearly half indicated their material costs increased 15 to 30 percent, with another third having increases from 30 to 60 percent. A small number (3 percent) indicated increases of more than 75 percent.



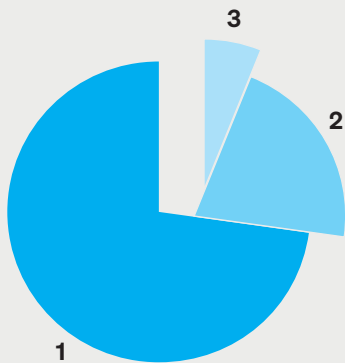
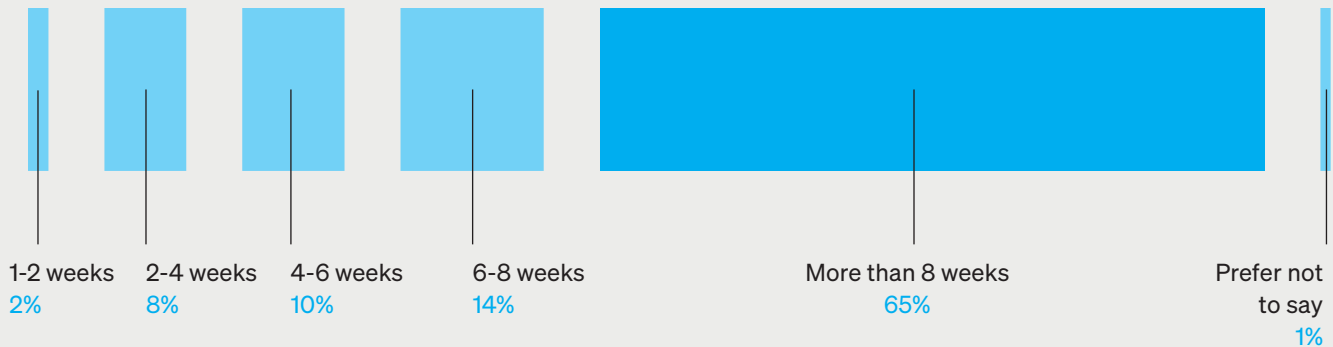
Do you have strategic alliances within the supply chain?

Among the cited benefits of strategic alliances: preferential access and a steady supply of raw materials, cost management, better communication and consistent quality.



How far out is your backlog?

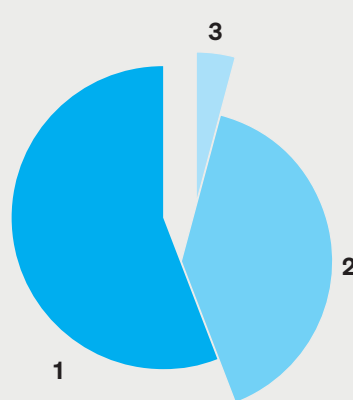
A full 82 percent of respondents said their backlog is longer than last year. Only 3 percent had a shorter backlog than last year, with the remaining 15 percent saying it stayed the same.



- 1. Yes 58%
- 2. No 21%
- 3. Unsure 6%

Have supply chain concerns required you to order material in bulk to keep up with production?

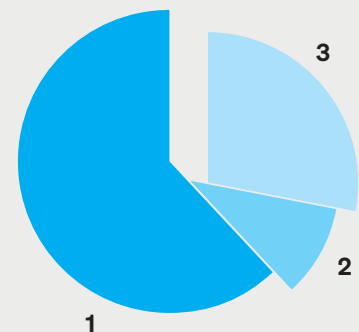
Most respondents (73 percent) said their facility was already big enough to store extra products, with the remaining respondents having leased, bought or built space for the additional product, or stored it outside on their property.



- 1. Yes 56%
- 2. No 40%
- 3. Unsure 4%

Did you try a new supplier during 2021?

Allocation, increased turnaround time, material availability and pricing were among the top reasons companies tried new suppliers.



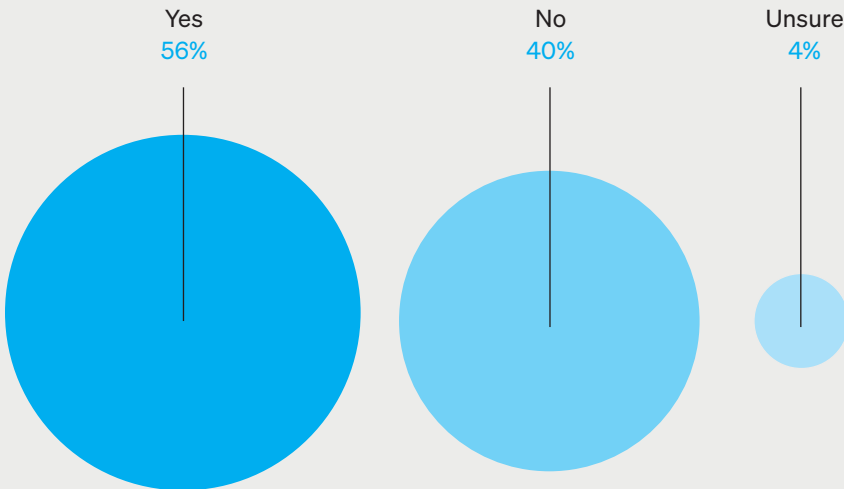
- 1. Yes 62%
- 2. No 10%
- 3. Unsure 28%

Do you plan to try a new supplier in 2022?

Respondents will try new suppliers to protect the supply chain and keep up with customer requirements.

Do you source materials internationally?

Although 56 percent of respondents sourced materials internationally in 2021, supply chain concerns have many looking closer to home for materials in 2022. Most respondents (73 percent) said they will consider looking for domestic sources in 2022. The most common reasons they cited include fewer risks, international shipping issues, time and price reduction, and freight logistics.



Frequent, clear communication from all parties is critical to set expectations, which can be difficult to determine in today's climate. "Companies are under-committing and over-delivering, and I think more of that will continue," predicts Dave Rapp, CEO, PDS IG Holding.

GED officials, including Tim McGlinchy, executive VP, engineering and R&D; John Moore, VP, marketing; Joe Shaheen, VP, sales; and Kevin Felix, VP, operations, say the company strives to be transparent with customers about supply delays and shortages, and the potential impact those challenges will have on shipment schedules. Beyond communications, GED also sources alternative solutions where possible to provide stopgap measures and keep product flowing.

Rapp expects companies will seek shorter supply chains. "I've always been a proponent of the idea that manufactured goods are regional, meaning Asia, Europe and the Americas," he says. "The impact of a long and laborious supply chain is starting to show it's a problem."

AmesburyTruth also has a large North American manufacturing footprint with "already established redundancy" for many processes, says Bob Burns, president. Its global supply chain scale also mitigates supply chain disruptions to customers.

YKK AP America keeps some diversity in its supply base, but believes in partnering with suppliers and working closely to maintain long-term relationships, according to Oliver Stepe, YKK AP America president. "We realize they have to be successful and profitable for them to be a good supplier, and we return that relationship," he says. He recalls a supplier that provides an aluminum component that put YKK AP on allocation for the extrusions. YKK AP arranged to provide the extrusion to that company so they could then make the finished product to sell back to YKK AP, as well as selling to other manufacturers. "There's a lot of partnering going on and working together on finding ways to try to mitigate the situation," he says.

Costs, allocation

By all appearances, this trend in rising costs is set to continue. In fact, 92 percent of respondents in this year's survey predict further material cost increases in 2022, with 78 percent considering looking for different material suppliers.

Stepe says he has never experienced the current degree of materials, parts and supplies inaccessibility. Despite having what he describes as a robust supply chain management organization, the on-time performance percentage in aggregate for the entire supply base is down 10 basis points since April and the average number of days a supplier misses their date to YKK AP is up about 30 percent.

He also notes this is the first time in his career suppliers put the company on allocation, especially for glass, paint and chemicals, which is an industry-wide phenomenon.

Larry Johnson, VP of sales, Quanex Building Products, says price increases and allocations will affect them going into the first half of their fiscal year 2022, which began Nov. 1, 2021. "We're to a point now where when we're putting in orders for raw materials we're not even getting a ship date or price on our order acknowledgements," he says. "We get what we get, and get it when get it. At one point we had several containers on the water we couldn't even track and didn't have the material we thought we'd get. 2022 is going to be a very difficult year for everybody, with pricing all over the boards."

For example, Quanex can only get about half as much silicone as it normally buys, and Johnson describes price increases as "through the roof." Quanex has also been put on allocation with screen material and Johnson notes price increases in aluminum and steel, though those materials are easier to obtain than a year ago. As such, Quanex put its customers on allocations for spacer products and screens in late 2021.

Even material shortages from a year ago are still affecting today's performance. Although Gray says Roto's Toronto facility is performing to a high level, its casement and awning operators in Connecticut struggled when

global availability for steel became very short last year. “Our supplier of 25 years began to have very short deliveries to us, which compromised our delivery service performance,” says Gray. “Raw material dried up for several months and demand continued to be at very high levels, which just accentuated the problems. We’ve been playing catch up all year long and continue to do so as we head toward 2022.”

Materials = growth

Materials may even determine how and which products can be developed. “The materials selection process will be very key in product development decisions and engineering changes,” says Burns. “In particular, with steel and powder paint, but also with chemicals, including resins, future upstream supply will be aided by a more streamlined set of materials to manage into both the hardware and seals factories in North America.”

“We can bring out a lot more business and have a lot more potential customers calling us every day, but we’ve had to look selectively at who we can bring on and what we can do. You’re used to going after new business and talking to customers one way, and now you’re talking to them another way because you’re putting them on allocation or communicating price increases,” says Johnson. “If we could get the materials, we’d be running full steam ahead this year.”

Similarly, Roto sees an opportunity for growth this year if material availability loosens. “We’ll have tremendous upside opportunity to gain new business in the casement and awning product category,” says Gray. “We get multiple calls a week from customers asking if we can supply them with casement hardware and at the current time we have to turn them away because we’re trying to keep up with demand from our existing customers.”

Steppe doesn’t predict an end to supply chain disruptions. “If there’s one fire we put out, another pops up. I don’t see any end in sight at this point. It is a very difficult situation right now.”



Labor

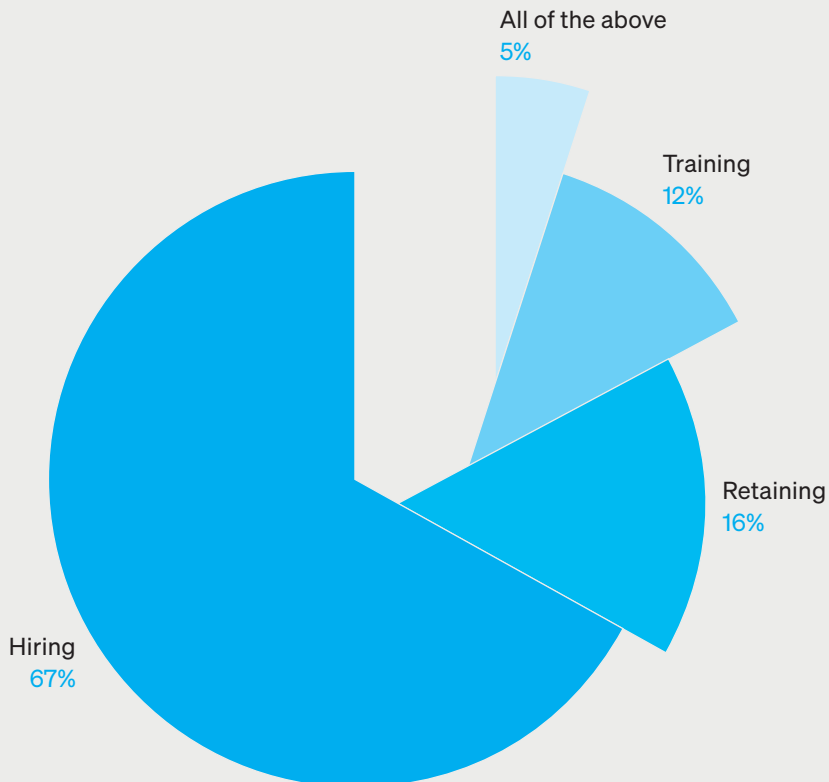
The labor shortage has been a pervasive, persistent topic for years, and it appears to be a worsening situation. From the manufacturing side to office workers to technical and software prowess, no aspect of the industry is exempt from the challenge.

“Hiring people at all levels is difficult for us,” says Soft Tech’s Huber. “I need them to not just understand dot net, I need them to understand configurators, and windows and doors, and manufacturing. They’re unicorns. We’re a very

niche fenestration-only software solution. Teaching someone 25 years’ worth of fenestration knowledge is way harder than teaching them a software language or how to use a configurator.”

Samantha Hudeck, manager of administrative services, FeneTech, says that for every one developer looking for a job there are approximately 200 job options for them. The volume of competition for these candidates, plus people wanting 100 percent remote work, has resulted in some recruiting challenges. “We have

What is your biggest staffing challenge?



such a unique product, and it's such a unique industry that there's a huge benefit to being in the office, even if it's just for a few days," she explains.

Roto has not been able to fully implement a second shift in Connecticut because of recruitment and retention. However, Gray says the company has hired several professional positions this year and finds success through Indeed.com. The company participates in local job fairs through colleges and trade schools to try to bring in production labor.

The type of necessary labor also evolves alongside the industry, such as with automation, explains Rapp. Although an automated line may remove 10 people from a line, they often need to be replaced with four people of a higher skill level because of the required knowledge around automation and maintenance. "It changes what kind of

personnel you really need," he says.

"The employee value proposition is critical for attracting top professional talent," says AmesburyTruth's Burns. "Providing a positive employment experience with a well-aligned fit to the employee's interests and priorities is key. For hourly workers, the work environment, including health and safety elements, are paramount." Burns says the company has mitigated some of the labor struggles with creative and flexible compensation programs, engagement efforts and work schedules through the past year.

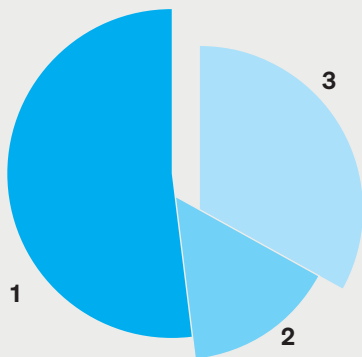
Stepe says the labor situation in Georgia, where YKK AP's main facility is, has started to stabilize, and it's a matter of finding the right people who want to stay long-term. In 2021, the company also established a \$15 per hour minimum wage policy across the board. "We didn't have a lot of workforce below that threshold, but

the largest percentage of the workforce that was just below it was in our residential plant. That policy was a very large positive movement that supported our residential employees and helped our recruitment and retention efforts," he says.

Labor across the industry has adapted in the wake of labor challenges and evolutions brought on by COVID, including the use of more technology and flexible work options. "I've been impressed by how we've adopted new technologies, such as virtual showroom experiences for customers and virtual training for employees," says Christine Marvin, chief marketing + experience officer at Marvin. "It demonstrates just how resilient this industry is. Further, it's amazing to see the kind of work that has shifted to a hybrid work-from-home/work-from-office model. The adaptability we've seen across our workforce is commendable."

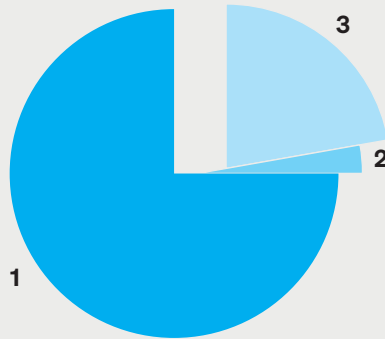
How did your staff levels change in 2021?

- 1. Added staff **52%**
- 2. Eliminated staff **15%**
- 3. Staff levels stayed the same **33%**



How will your staffing levels change in 2022?

- 1. Hire more staff **75%**
- 2. Eliminate staff **3%**
- 3. Unsure **22%**



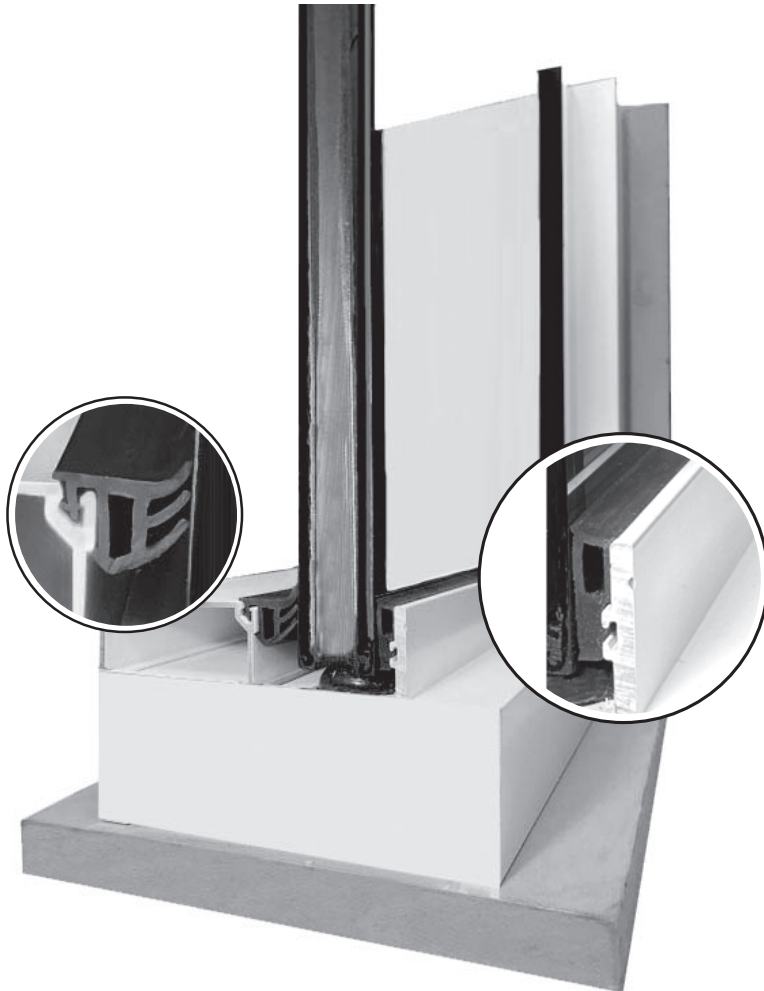
What are your most effective employee recruitment and retention strategies?

- Increased pay
- Bonus and incentive programs
- Good training
- Flexible work options
- Word of mouth
- Local advertising
- Expanded benefits
- Company culture

Some economists predict the labor shortage will be a pain point for many years to come. Do you agree with this?



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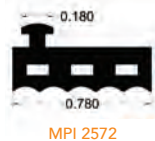
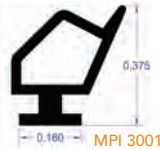
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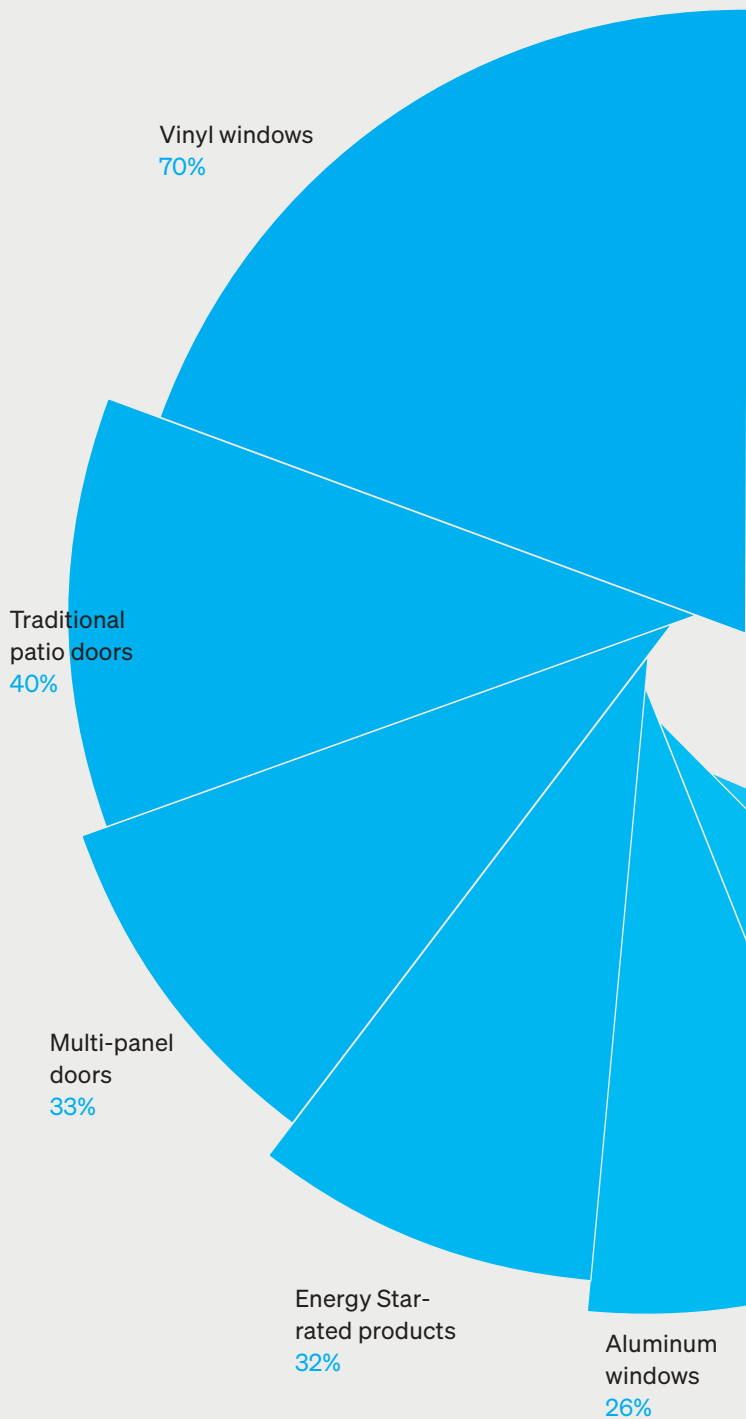
Product Innovation

Products related to energy efficiency, including machinery, components and the finished products themselves, continue to rise in popularity. “Since the publication of the new Energy Star draft, the interest in what we can do for triple pane has gone through the roof,” says Rapp. “We have an automated way to do a single-spacer triple and expect to see more of that in the U.S., particularly if the draft becomes final.” He does note, however, that some IG and window makers indicate the move to triples may result in a stratification of their product offering and accept that some percentage of their products will no longer qualify for an Energy Star rating. “Moving to triples in a significant way in the U.S. will certainly require a pretty significant investment from an equipment standpoint.”

GED also sees growth around machinery related to

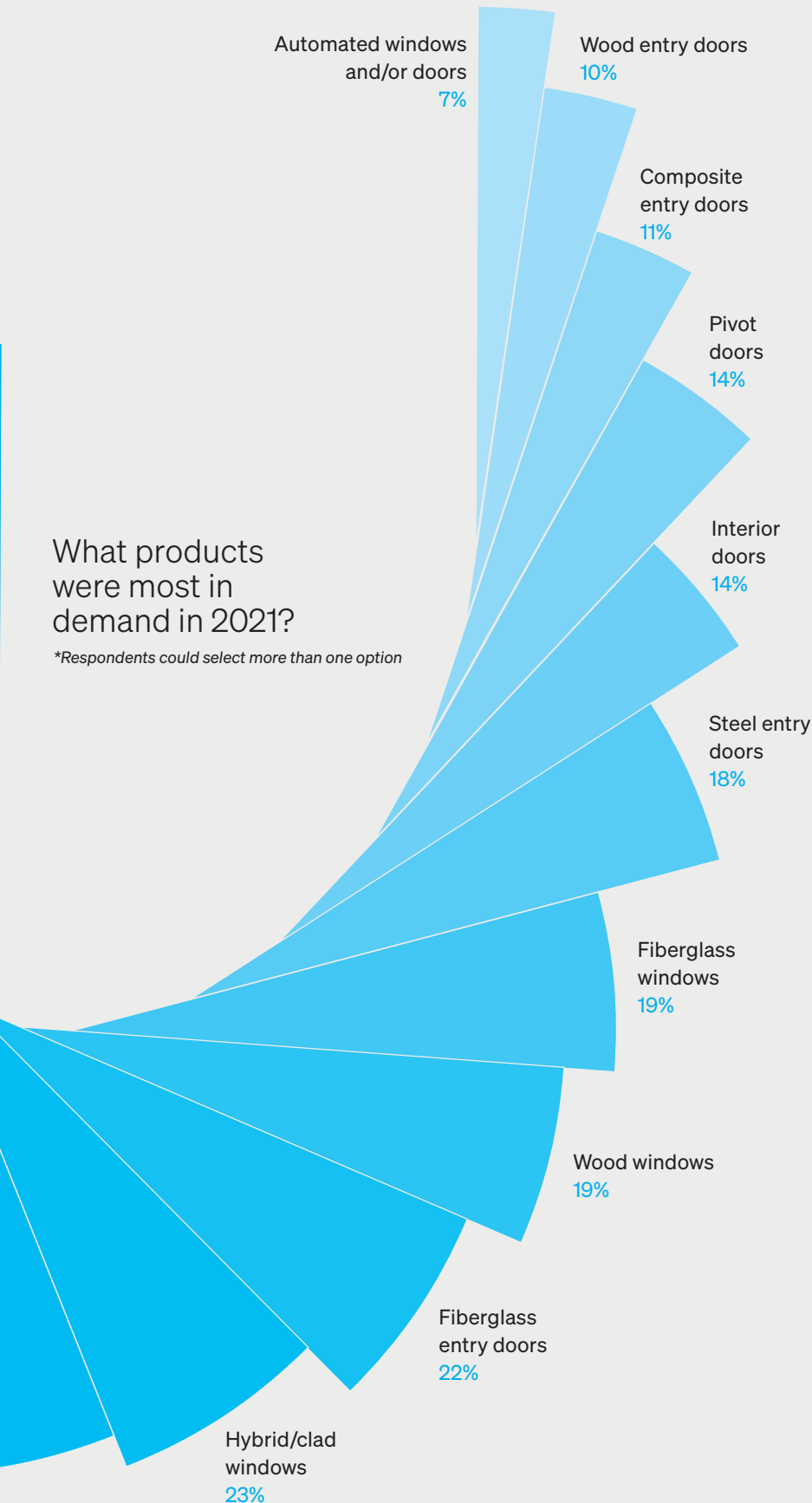
energy efficiency, including automatic gas fill for IGUs. “Energy Star 7.0, though still not in its final form, will promote the implementation of triple IGUs to raise the overall performance of our windows,” say GED representatives. Other product drivers include features that reduce labor dependency, increase throughputs and reduce total system production costs.

“There’s going to be a point where we can’t go any further with the current technology, and we’re getting close to that now,” says Quanex’s Johnson, in regards to energy efficiency. “If you look at the costs of what it might take to achieve an Energy Star window, I think that’ll be another hurdle window companies will have. Some of these smaller players just won’t have the technology or internal engineering force to get the numbers they’re talking about.”

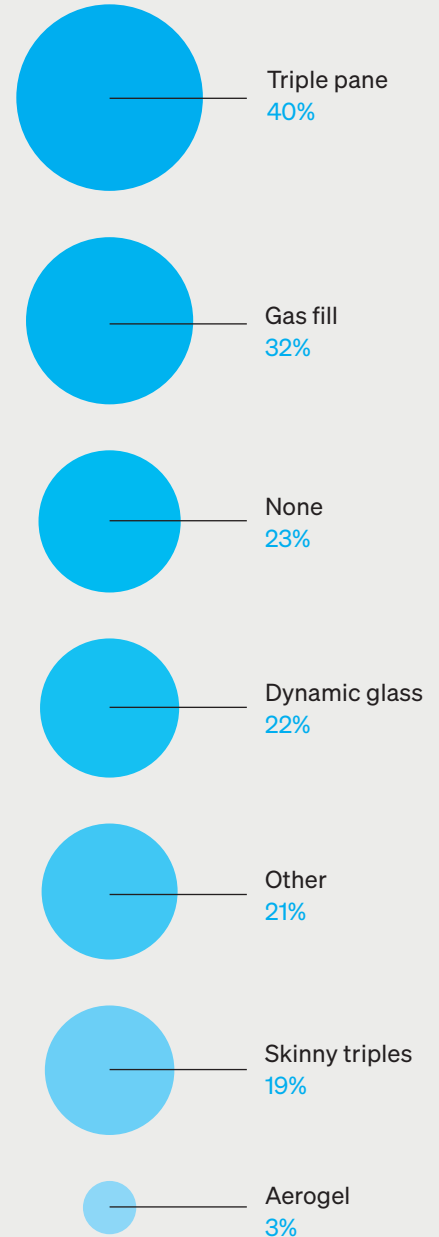


What products were most in demand in 2021?

*Respondents could select more than one option



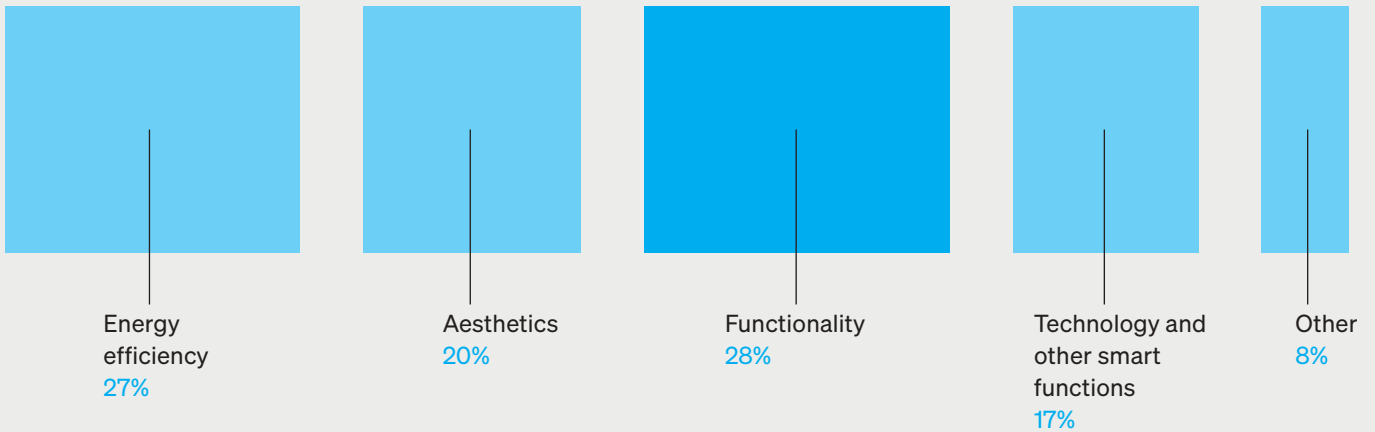
Proposed energy codes may necessitate window and door manufacturers to produce more efficient products. What technologies are you considering to further enhance efficiency?



Other responses include new technology in metal forms, fourth-surface low-E, concealed hardware, thermal steel and thermally broken aluminum.

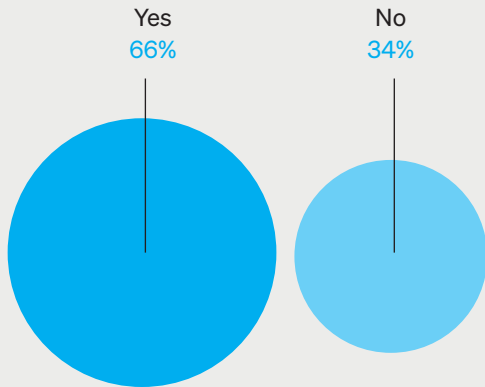
*Respondents could select more than one option

Where will you focus your product development dollars in 2022?



Do you plan to offer new products in 2022?

This is an increase from 2021, when 55 percent of respondents offered new products.

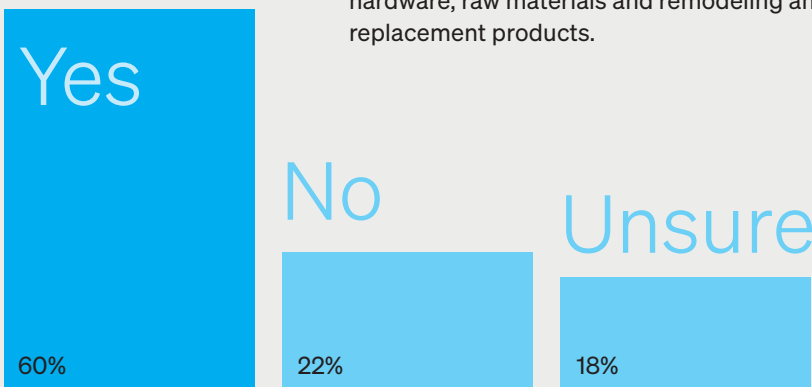


What drives innovation in product development?

- Consumer demands
- Price
- Codes
- Changing aesthetics
- Energy efficiency

Did the pandemic drive up demand for certain products?

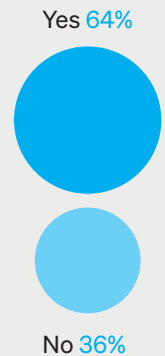
Among the products most-cited as being in higher demand include vinyl windows, aluminum and steel windows and doors, patio door, door hardware, raw materials and remodeling and replacement products.



Did you add production capacity in 2021?



Do you plan to add production capacity in 2022?



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Technology + Automation

Technology

Supply chain, labor and other industry issues kept companies busy in 2021. “People were so busy working in the business; they weren’t working on the business,” says Soft Tech’s Huber. “The amount of effort that’s going in for window and door companies to find labor and materials, alternate suppliers and alternate ways to run their line because of the lack of people is really all-consuming for them.”

But the year ahead could provide an opportunity for companies to shift to working on the business. “There is a push going on in the software sector that people are looking at what smaller- and medium-sized businesses can do to automated processes,” says Alison Renwick, marketing manager, Soft Tech. ERP solutions can also assist with optimization, she says.

Huber cites “rapid growth” in cloud-hosted solutions, particularly as companies looked for business continuity as work from home trends continued. Renwick referenced one small business customer that realized a 28 percent cost savings over a three-year period from having cloud-based, rather than onsite server, solutions.

“Two years of pent-up decision making

on software is finally coming to fruition,” says A+W’s Rudd. “We’re getting ready for a big implementation year in 2022.” Rudd believes the past couple years have been a stark reminder about how valuable individuals are, especially those with higher skill levels. “Software is a means by which you can put the tools in your employees’ hands to get more work done for every given labor hour.” It also assists with lean management principles, such as mistake-proofing, saving footsteps and general overall efficiency.

One such example is a solution that allows customers to enter orders online and get account information. Although it will never be an “end all be all” for such a high-touch industry as fenestration, says Rudd, he expects to see more of a shift toward front-end order entry, which can save time in customer service departments and enhance order accuracy. “There’s a lot of room for swifter order entry coming in from the customer directly,” he says.

Software will just continue to grow, especially as more companies invest in machinery. “You need the right kind of software to manage those transitions and manage everything that will happen from the office to the shop floor. Now is the

time when a lot of folks are taking a look at software to tie their processes together in an efficient manner.”

The pandemic altered software on several levels. One, it caused some companies to put upgrades on the backburner, as Huber referenced. However, it also encouraged some “reluctant companies to be more open to using technology and remote work,” says Matt Batcha, business development, FeneTech.

Now is also the right time to look toward longer-term growth. Batcha challenges companies to ask themselves: “What changes can I make to better prepare me going forward and start taking some of that longer-term planning, as opposed to what do I need to solve now?”

Automation

“Our customers are all bursting at the seams; they can’t get enough materials,” says Batcha. “They’re looking at ways to increase capacity.” He recalls a recent project where the company’s main goal of implementing software solutions was to optimize materials because of allocations.

Batcha describes the cyclical nature of the industry he’s observed in his 20 years with FeneTech. “We had that strong production demand so people were looking at how to automate. Then the Great Recession happened and it turned into companies having plenty of capacity and looking to get sales. Now, the pandemic blew previous levels through the roof and we’re back to how to automate, get more capacity and save on labor and materials.”

Mehring agrees. “It’s still the same thing as it was two or three years ago: further automate where you can, and redeploy those employees to areas on the factory floor that currently are not automation friendly. The automation trends continue in an upward trajectory.”

Automation, however, does need to have purpose, says Rapp, PDS IG. “The industry needs to make sure it’s asking the right questions about why we’re automating and how to make it easier for the user. It’s a never-ending process. It’s time well-spent to make things easier for people to understand and operate. The more you can do that, the more successful you’ll be in pushing whatever type of automation into the market.” ■

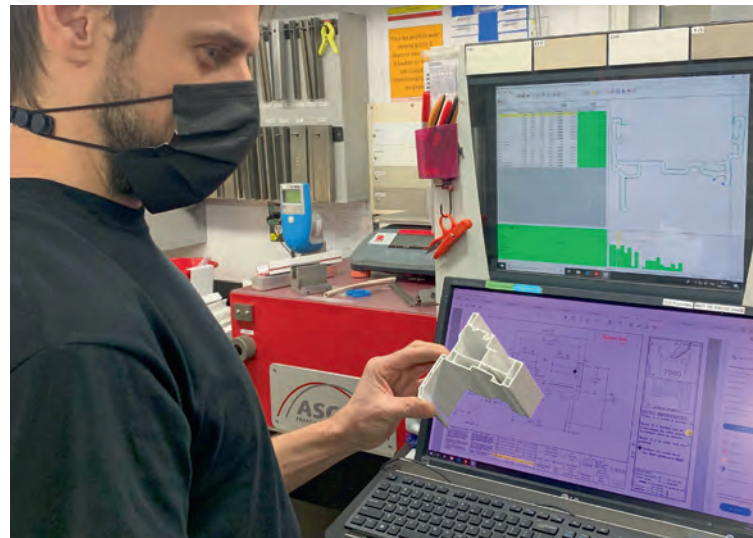
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Economic Growth Continues into 2022

Despite ongoing challenges on the supply and labor side, construction is poised for a robust, well-rounded recovery **By Laurie Cowin**

Robust consumer spending and low interest rates will contribute to continued economic growth in 2022, according to Richard Branch, chief economist, Dodge Data & Analytics, during the Dodge 83rd annual outlook conference in early November.

Branch explained the Dodge Momentum Index ticked up “significantly” since the beginning of 2021 and, perhaps even more importantly, has become more well-balanced toward most types of public and private building projects. The number of projects in bidding also suggests market resilience; the count of general projects is ahead of this time in 2020 and a little bit behind 2019 levels.

“We feel pretty positive about construction starts next year, but cognizant of the many challenges that face the sector,” Branch says.

Challenges

Branch cited prices, productivity and people as the three main challenges. “Regardless of these challenges, we also

need to be aware that within them there are opportunities for you to get a step above the competition,” he says.

1 Prices. Material inflation is in what Branch describes as “uncharted waters” and widespread across most materials in the construction space. Although plants are slowly getting back to normal, trucking and port issues abound. “Supply delays are mounting,” says Branch. “Inflation as it relates to materials will probably last into mid-next year before we start to see prices pull back. But even as they pull back in the back half of 2022, prices should remain fairly high at least through the end of next year.”

“Historically, the cure for high prices has been high prices,” Cris deRitis, deputy chief economist for Moody’s Analytics, adds. “We’ll see more business expanding and adding more supply to alleviate supply chain effects, and that should lead to more goods being available. We’ll also see more people enter-

ing [the] market. So, some of the wage inflation should subside as well.”

DeRitis expects hotter inflation to continue for one or two quarters before moderating to a 2.25 percent rate.

2 Productivity. “The ability to do more with less is what will be a critical path forward in terms of increasing your profit margins,” says Branch. Productivity growth, however, is difficult to come by, he says, with the multifamily space being the one exception. Branch urges companies to consider productivity growth beyond just on the jobsite.

DeRitis also says a silver lining to the pandemic has been productivity growth. “Businesses invested more in IT, machine learning, AI and remote work,” he says. “Those are now bearing the fruit in terms of enhanced productivity. Right now it’s about a two percent year-over-year growth rate, compared to a one percent growth rate before the pandemic.”

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“Residential housing will remain robust for the next five years. That’ll keep housing prices from correcting substantially.”

3 People. Despite having just under 350,000 unfilled positions in the construction sector, a figure Branch says has been on the rise since the darkest months of the pandemic, labor shortages aren’t a new phenomenon for the industry. “It’s not temporary,” he cautions. “It’s systemic and could certainly mute construction starts and activity in 2022.”

DeRitis explained how there are currently 10.4 million job openings but only 7.7 million people unemployed. “We’re in this strange time period where we have more job openings than people unemployed, which suggests the labor market has more opportunity today for folks looking for work.” He cites three reasons for this. One, there’s an ongoing pandemic and people are still getting sick. Two, parents are struggling with childcare and women aren’t returning to the workforce as quickly as men are. And, three, boomers retired early, which he says is a structural change whereas the first two reasons are cyclical.

These challenges equate to projects taking nine months longer to break ground than prior to February 2020. “Modest growth is coming in 2022,” Branch says. “But if not for the

challenges and shortages, construction activity would be much stronger than it currently is.”

Residential to ease back, but stay strong

The residential sector has been on “absolute fire,” Branch says, and will likely ease back next year. The sector grew 14 percent in 2020, with much of that growth backloaded in the second half of the year. Branch expects a comparable growth rate in 2021. “Growth in the first half of 2021 was strong, but as we got toward the third quarter, single-family eroded pretty quickly,” he says. “We’re about 10 to 11 percent below where we were at the end of 2020.” Even so, this is the first time since 2006 that the single-family market will exceed 1 million units.

Lower mortgage rates and the flexibility remote work affords should be drivers for this market, says Branch, but cost is affecting the market. In fact, he posits, single-family may be more exposed to high material costs than larger projects. Housing construction is also strongest in smaller, suburban areas.

Branch expects 2022 to bring about a more tepid and sustainable pace. Home

sales may have slowed from the “torrid” pace earlier in 2021 as affordability has weakened, “but we’re not seeing a cataclysmic erosion.” In fact, every state is positive on single-family construction; none are underwater.

DeRitis agrees that housing will slow down but stay strong. Housing prices increased 20 percent year-over-year, which is an even faster rate than the housing boom and bust in 2008-09. “Expect home prices to slow, but we won’t have an actual crash,” he predicts. “Residential housing will remain robust for the next five years. That’ll keep housing prices from correcting substantially.”

A strong multifamily recovery is also on tap with strength not seen since the mid-1980s. Whereas dense, high-rise multifamily buildings ruled the sector in 2018-19, most multifamily buildings today are four to six stories. The number of units per project have also decreased, with buildings with four to ten units seeing the greatest strength.

Takeaways

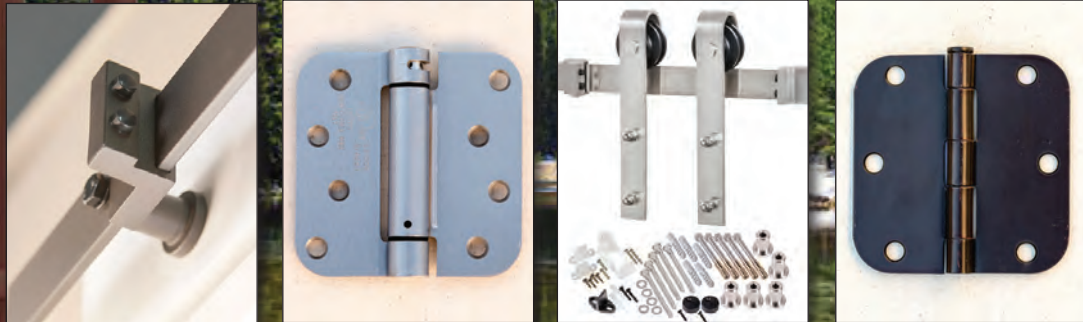
Total construction starts will rise 6 percent in 2022, which is higher than 2019 levels. Much of that growth, however, is skewed toward the residential sector. Taking residential out of consideration, 2022 would be 3 to 4 percent shy of 2019 on a nominal dollar basis, says Branch. “It’s a long road back to full recovery for the construction space,” he says.

Branch concluded with four considerations for the new year:

- 1) Pricing and shortages will remain an issue.
- 2) Shifting demographics and worker shortages will remain an issue. Labor shortages are systemic and will continue beyond 2022.
- 3) Productivity gains will equal profitability. Invest in technologies and new processes.
- 4) Consider market shifts and design changes. For example, should you market into different sectors or geographies, or look into R&R versus new construction? “Make sure you’re flexible enough to stay ahead of changes as they evolve,” he says.



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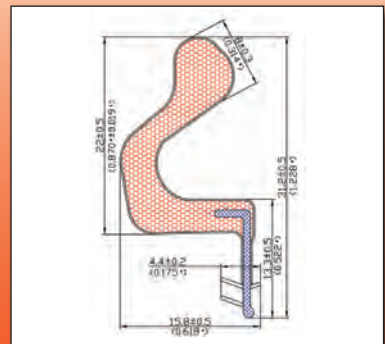
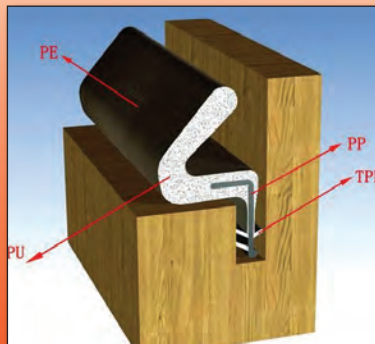
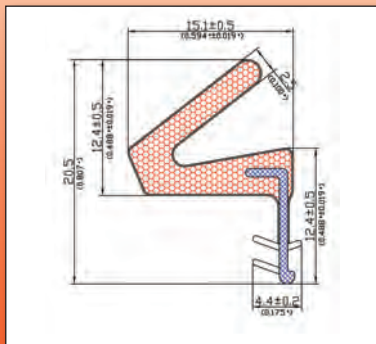


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State of the Market



The residential fenestration M&A market continues to benefit from continued economic growth and buoyant capital markets **By Andrew K. Petryk**

Secular growth and an abundance of liquidity are driving a hot M&A market in residential building products, and the fenestration market is benefiting from this momentum. Strategic and financial buyers are battling for the most sought-after assets, and sellers are enjoying the rewards of more aggressive valuations and financing terms.

Consumers are continuing to invest in housing, with positive de-urbanization trends, repair and remodeling growth, and favorable shifts in demographics cited among the drivers of what industry analysts call a “runway for a multi-year housing cycle upswing.” We are seeing strong demand for all building products for both the new construction and repair and remodeling (R&R) markets. Many of our clients are sold out deep into 2022.

Fundamentals support positive trends

In November 2021, U.S. housing starts reached 1.679 million (preliminary), an increase of 11.8 percent from 1.502 million in October and 8.3 percent above the November 2020 rate of 1.551 million. The National Association of Home Builders

is forecasting total housing starts to increase 2.5 percent in 2022 to a seasonally adjusted rate (SAAR) of 1.605 million units in 2022, up from a projected SAAR of 1.566 million units in 2021.

The Harvard Joint Center for Housing Studies forecasts 9 percent growth in R&R spending in Q4 2021 and projects the pace to maintain into 2022, with annual spending reaching \$400 billion by Q3 2022. “Residential remodeling continues to benefit from a strong housing market with elevated home construction and sales activity and immense house price appreciation in markets across the country,” observes Abbe Will, JCHS senior research associate. “The rapid expansion of owners’ equity is likely to fuel demand for more and larger remodeling projects into next year.”

Home prices continue to rise. The S&P CoreLogic Case-Shiller National Home Price NSA Index rose 19.1 percent in October from a year ago. Builder confidence remains strong, increasing for the fourth consecutive month in December.

The fenestration market is benefiting from market strength:

- Cornerstone Building Brands

(CNR) reported 20 percent pro forma net sales growth in Q3 2021, marking the third consecutive quarter of year-over-year double-digit net sales growth.

- PGT Innovations (PGTI) reported a 26 percent increase in net sales and total organic growth of 14 percent in Q3 2021, citing strong growth in the Western region and Florida. Organic R&R sales grew 8 percent during the quarter, and organic new construction sales grew 22 percent. Backlog is up 74 percent year-over-year. CEO Jeffrey Jackson says: “I’m feeling very good as we look into 2022 because I think we’ll continue to see double-digit growth.”
- Jeld-Wen achieved its fifth consecutive quarter of core revenue growth in Q3 2021. CEO Gary Michel reported accelerating customer demand, citing strong order and backlog growth that was broad-based across its segments.

“Demand for our products in the quarter was and remains robust, and we expect growth to persist as consumers continue to invest in housing,” said

Fortune Brands CEO Nicholas Fink, in the company's Q3 2021 earnings call. Sales in the quarter were \$1.99 billion, a 20 percent increase, and organic sales were up 14 percent.

Inflation is resulting in higher prices

Headwinds of rising labor and input costs remain drags on profitability. Some manufacturing companies have been more successful than others passing along cost increases, but most are realizing a portion of the increase resulting in lower margin.

PGTI announced a 3 percent surcharge in its Florida operations that took effect at the beginning of November 2021, said Jackson in the company's Q3 2021 earnings call. He also highlighted cost increases in aluminum, glass, hardware, vinyl and supplier-based surcharges, citing a 16 percent increase in aluminum spot prices during the third quarter alone. Approximately 60 percent of the company's sales are aluminum products.

Cornerstone Building Brands raised prices across its portfolio, said CFO Jeffrey Lee, also citing cost increases for commodities such as PVC resin, steel and aluminum stemming from supply shortages.

Building materials prices have seen increases of more than three times the level of one year ago, reports the NAHB. Through the 11 months ended November 2021, prices have increased 14.1 percent, which compares to only 3.9 percent for the same period in 2020 and an average year-to-date increase of 1.5 percent between 2015 and 2020.

Cash is king

Cash-rich strategic buyers are seeking acquisitions to boost topline growth through product line, geographic and channel expansion. Strategics are showing selectivity; however, when a high-quality deal comes to market, they are moving faster and are aggressive on valuation and deal terms.

PGTI spent close to \$250 million on three acquisitions in 2021, including Anlin Windows & Doors in October, paying \$126 million and 8.5x EBITDA (pre-synergies), a transaction that the

company expects to be accretive. Consideration consisted of \$113.5 million in cash and \$12.6 million in earnouts linked to 2022 and 2023 performance targets. PGTI expects the acquisition to expand its market presence in the high-growth West Coast region. Anlin achieved sales growth of more than 30 percent in the trailing 12-month period ended Q3 2021 compared to Q3 2020, according to Jackson in the company's Q3 2021 earnings call, illustrating that buyers are paying strong multiples for growth.

In February, PGTI acquired a majority stake (75 percent interest) in Eco Window Systems for \$108 million, comprised of \$100 million in cash and \$8 million in stock. The business generated revenues of \$73 million with upper teens EBITDA margin. With the acquisition, PGTI expects to expand its market position in the Florida commercial market, where it anticipates long-term growth.

One of Cornerstone Building Brands' strategic priorities is to pursue "...inorganic investments to accelerate innovation and growth." The company completed two acquisitions in the fenestration market in 2021, including in October, Cascade Windows for \$245 million in cash (1.53x Revenue) and Prime Window Systems in May for \$95 million (1.57x Revenue), both furthering its market position in vinyl windows in the Western U.S.

In October, Westlake Chemical (WLK) completed the acquisition of Boral's North American building products business. In the company's Q3 2021 earnings call, Albert Yuan Chao said

Barring any unforeseen geopolitical events, we expect the M&A market to remain active into 2022, sustained by continued economic growth and buoyant capital markets.

the deal will "transform" its existing building products business, adding vinyl windows as a new strategic product platform, in addition to other specialty building product sectors including siding, trim and shutters, roofing and decorative stone. WLK flexed its balance sheet muscle to fund the \$2.15 billion all-cash transaction, using \$1 billion of cash on hand and a debt issuance, valuing the business at an estimated ~10x F1H21 EBITDA annualized, pre-synergies. The deal will increase WLK's building products exposure from 28 percent to 37 percent of total company revenues. In terms of geographic expansion, BNA will expand its presence in the South and West, complementing its existing Midwest and Northeast operations. Approximately 50 percent of WLK's building products business is oriented to the repair and remodeling markets, Chao said.

2022

Barring any unforeseen geopolitical events, we expect the M&A market to remain active into 2022, sustained by continued economic growth and buoyant capital markets. Inflationary conditions and rising interest rates could have a dampening effect on expected growth. Valuation multiples should stay strong, but any material upside is unlikely given current pricing levels.

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Products



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01

01 / All Weather Architectural Aluminum Corp.

The Series 6100 is designed to meet Title 24 compliance using the prescriptive method. The window uses a thermal strut system and offers dual and triple glazing, as well as a 3 3/4-inch frame, mitered corners and European corner keys. The series offers fixed, casement, awning and combination configurations, with a maximum casement size of 48 by 96 inches and maximum fixed lite size of 60 square feet.

800/680-5800 | ALLWEATHERAA.COM

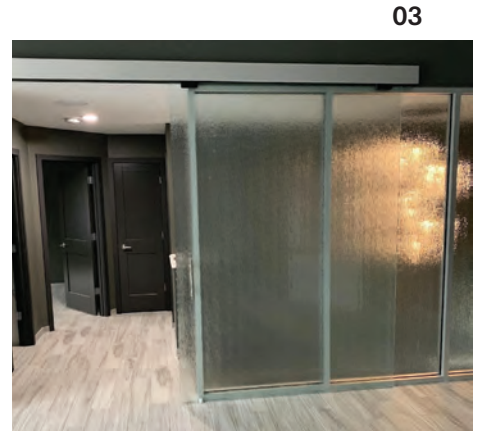


02

02 / Roto North America

The multi-point lock (pictured) and adjustable strikers for a four-point locking system offers hook-style locking points with two opposing primary hooks and an additional outward facing hook 28 inches from each side of the center line. The locks are produced with an anodized aluminum faceplate and 300 series stainless steel and drive rail, while the strikers are produced with 300 series stainless steel plates and a powder-coated zinc housing.

800/526-4996 | ROTONORTHAMERICA.COM



03

03 / Johnson Hardware

The 200WG Sliding-Glass Door Hardware features an extruded aluminum I-beam track that surface-mounts directly to the wall and can support a frameless glass door. Side-mount hangers support 1/2-inch-thick tempered glass doors up to 400 pounds. Each four-wheel hanger is also equipped with nylon-encapsulated, permanently sealed ball bearings. It comes in single-door openings from 2 to 4 feet and double-door sets to fit openings 4 to 8 feet wide.

574/293-5664 | JOHNSONHARDWARE.COM

Product/Solution

4Ever Sill // Worldwide Door Components Inc.

Challenge

Conventional threshold assemblies made of wood or metallic materials are susceptible to damage from mechanical stress and ultraviolet light that degrades the overall appearance of the threshold. In addition, traditional sills tend to be conductive and, therefore, not energy efficient.

Solution

Tradition meets innovation with our newly US Patented, Patent No. 11,047,165 4Ever Sill. Our thermoplastic deck is designed and developed as the next generation of door thresholds. The thresholds are available as a Full Composite Generation 1 or as a Plastic Injected Generation 2 structure. Its UV protection is designed to withstand the intense heat of the summer sun, making it durable and weather resistant.

Thermoplastic materials have additional advantages. One example is they do not hold condensation as conventional metal thresholds, which can create a safety hazard as moisture collects on the surface, thereby reducing friction and making the threshold slippery.

Another difference is thermoplastic thresholds are more durable, dent-resistant, lighter weight and eliminate deck

chatter, which happens over time with an aluminum sill. They are chemically resistant to a wide range of substances; as such, they are not subject to corrosion from paints, finishes, cleaners and various other construction or household chemicals. Thermoplastics are also recyclable and can be remolded.

Case in point

One of our first customer use cases was with a West Coast millwork company that began using our 4Ever Sill in 2019 to replace a metal product. They opted to use our Generation 1 co-extruded thermoplastic material with a fixed deck cover over a PVC composite base, all in one piece to be used on an exterior door opening. They submitted samples to their manufacturing team

for testing and exposure to the elements. After 14 months, the product survived with no color deteriorations or visible cracks, changes in size or deflection.

Their decision to buy the 4Ever Sill product was largely due to the material innovation and the ability to have all components match the color of the deck of the sill. One of the most attractive features of the 4Ever Sill for this California company was the solid PVC, moisture-resistant substrate base that provided a good surface for caulking the sill to the concrete floor.





01

02



01 / Hope's Windows Inc.

Hope's Old World Suite features thin, arrow-shaped steel frame profiles that resemble the "three-point casement" profiles the company used in the early 20th century. The suite, which uses the company's Thermal Evolution technology, has narrow sightlines and can accept monolithic or insulated glass. Suitable for new and replacement interior and exterior projects, the suite includes fixed and operable window configurations and swing, pivot, sliding and folding door systems.

716/665-5124 | HOPESWINDOWS.COM

02 / Weather Shield

The expanded Contemporary Collection and Premium Series includes aluminum-clad windows and patio doors with newly redesigned multislide door systems. With options up to 57 feet, 6 inches wide, the multislide doors are available with two panel variations. The Contemporary Collection comes with narrow stiles and rails that are 3 ¼-inch wide, while the Premium Series offers a 5 ½-inch stile and rail with a height range that can be expanded up 12 feet. The panels for both are 2 ¼-inch thick.

800/222-2995 | WEATHERSHIELD.COM

03 / Magid

Magid's line of personal protective equipment includes ANSI Cut A9 garments that are up to 30 percent lighter than comparable products thanks to using new fibers and yarn wrapping techniques for lighter-weight protection that won't trap heat. Available pieces include tops, chaps, aprons and neck guards that protect vulnerable areas such as neck, underarm, upper inside leg, wrist, chest, upper arm, torso and back.

800/203-0414 | MAGIDGLOVE.COM



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People

ON THE MOVE



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Lang

GED Integrated Solutions Inc. named *Steve Lang* as CEO and president. Lang, who joined GED in 1997 as its chief financial officer,

succeeds *Bill Weaver*, who had held the post of CEO since 2008. Weaver will continue with GED in a senior advisory role. GED also promoted *Heather Cullion* from controller to vice president of finance.



Galvin

Andersen Corp.

promoted *Chris Galvin* to president and chief operating officer. Galvin will continue to lead the Andersen division, as well as enterprise manufacturing, logistics, supply chain, RD&I and information technology.



Yankowich

The RiteScreen Company LLC

appointed *Chris Yankowich* as CEO and a member of its board of directors. Yankowich joins RiteScreen with

a background in strategic, commercial and operational leadership in the building products industry, having most recently served as CEO of Dreamline, a North American shower enclosure company.



Fotouhi

Jeld-Wen welcomed *Farsad Fotouhi* as vice president of sustainability and social governance, where he will be responsible for

the company's environmental, social and governance function globally.

The Jeld-Wen board of directors also elected *Gary S. Michel*, president, CEO and current director of Jeld-Wen, to chairman of the board. Michel has served as a board member since 2018 and replaces *Matthew Ross*, who is stepping down. *Suzanne Stefany* was also appointed lead independent director of the board.



Harris

Nicole Harris, National Glass Association

president & CEO, and two other trade association executives, were appointed to

the CMA's Board of Advisers for 2022. The CMA works within the National Association of Manufacturers. Its mission is focused on bolstering the industry's nationwide grassroots mobilization efforts and improving the competitiveness of manufacturers in the U.S. "I'm honored to join my trade association peers to help articulate manufacturing's key role in our country's economic success," says Harris.



Kunz

PGT Innovations

appointed *John E. Kunz* as senior vice president and chief financial officer. He will lead the company's finance strategy,

budgeting and planning, accounting, financial reporting and investor relations functions, as well as provide strategic direction relating to the company's information technology efforts. *Brad West*, who had been serving as interim CFO, will resume his role as senior vice president of corporate development and treasurer.

The Window & Door Manufacturers Association

named *Craig Drumheller* as the association's new vice president of technical activities. He will be responsible for management and oversight of WDMA's technical, codes and standards activities. Drumheller comes to WDMA from the National Association of Home Builders, where he most recently served as assistant vice president for codes and standards and managed the association's Construction Codes and Standards Department and its member committees.

The National Fenestration Rating

Council's membership approved *Helen Sanders* of Technoform and *Zachary Flora* of Center for Active Design to its board of directors. Each began a three-year term in January.



Garcia

Quanex Building

Products promoted *Kim Garcia* to vice president, chief human resources officer. She will continue to oversee global human

resources and payroll activities, as well as drive recruitment and retention efforts across Quanex's international operations.

The company also appointed *Jason D. Lippert* to its board of directors. *William C. Griffiths* will retire as executive chairman, effective Feb. 21, but plans to continue serving as non-executive chairman of the board. *Joseph D. Rupp* plans to retire as director at the end of his current term and not stand for re-election.

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Patent Nos. 6,479,119 / 6,627,017 / 8,603,629

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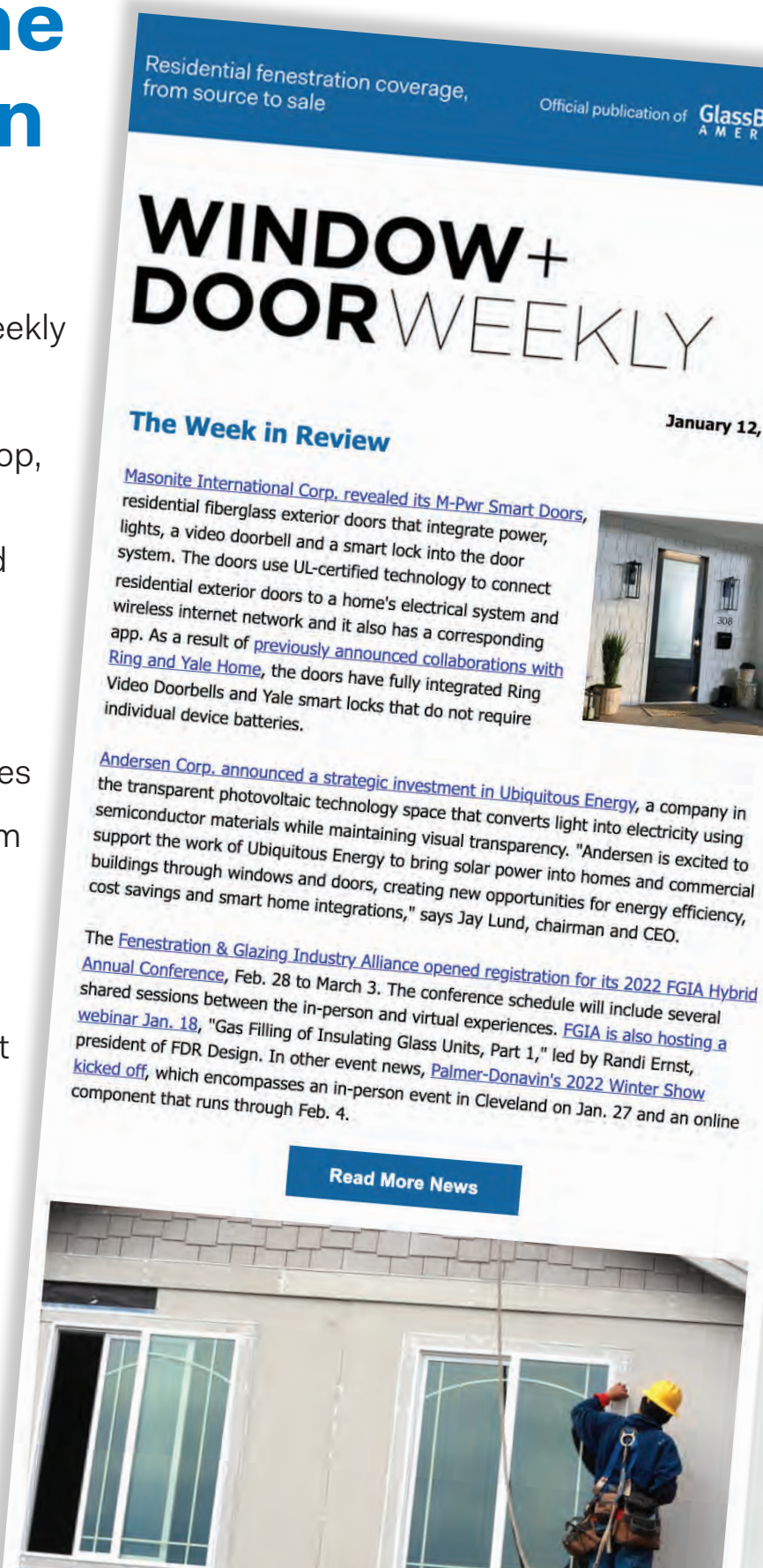
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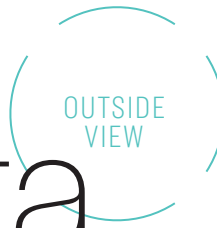
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Market Data

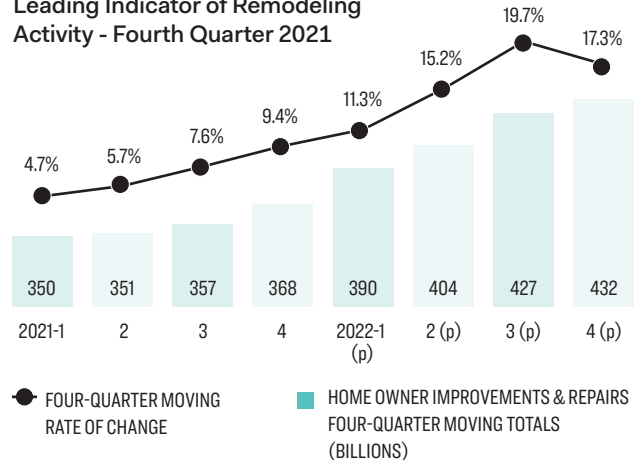


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Remodeling Activity // Boom May Peak in 2022 as Labor, Materials Costs Increase

Spending for home improvements and repairs is expected to expand at a stronger pace in 2022, but signs point to some easing of growth by year end, according to the Leading Indicator of Remodeling Activity. The LIRA projects double-digit gains in annual homeowner renovation and maintenance expenditure will top out in the third quarter of 2022 before beginning a deceleration toward more sustainable rates of growth. *Source: Joint Center for Housing Studies of Harvard University*

Leading Indicator of Remodeling Activity - Fourth Quarter 2021



Single-family starts

13,4%

gain in 2021 single-family housing starts compared to 2020. *Source: U.S. Department of Housing and Urban Development and the U.S. Census Bureau*

Builder Sentiment

84

The builder confidence score in December marked the highest number since February 2021. *Source: National Association of Home Builders/Wells Fargo Housing Market Index*

Supply Chain Delays

152k

single-family units are authorized but haven't started construction because of supply chain effects. *Source: U.S. Department of Housing and Urban Development and the U.S. Census Bureau*

- 12/21 window and door stock increase **4.8%**
- 12/21 S&P 500 increase **5.6%**
- 12-month window and door return **55.2%**
- 12-month S&P 500 return **28.8%**

Building products stocks modestly underperformed the market during the Santa Claus rally to end 2021 as looming interest rate hikes from the Federal Reserve's hawkish monetary policy weigh on investors. However, despite inflation concerns and ongoing production bottlenecks, home builder confidence remained very strong at year's end. The momentum continues to show from the positive earnings reports of home improvement retailers, building products distributors and manufacturers. This has given investors confidence that new construction and repair & remodel markets are in the early innings of the cycle. *Source: Lincoln Financial*

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