

# WINDOW + DOOR

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Residential fenestration coverage, from source to sale // windowanddoor.com // Vol. 28, No. 2 // March/April 2020

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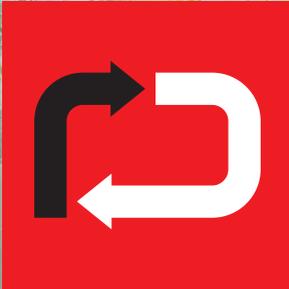
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Go to windowanddoor.com for even more content related to this issue, including:

- A photo gallery of multi-panel doors
- A guide to helping customers choose the right multi-panel option
- Insider perspective on rebuilding efforts after natural disasters
- Lead generation channels for window and door professionals
- A closer look at architectural style

## ➔ The Talk // Blogs of the Month

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



### Vinyl Trends

By Laurie Cowin, Window + Door magazine,  
windowanddoor.com



### Six Keys to a Thriving Business

By Rich Harshaw, Level 10 Contractor, level10contractor.com



### Trust, Market Optimism and Growing Framing Diversity

By Eric Thompson, Quanex Building Products, quanex.com

“ Consumer trust is what it takes for a new product to succeed. They must believe in our ability to meet their needs from a performance perspective, and to fit their aesthetic tastes inside their homes. It's good to see that window and door manufacturers have recognized this opportunity with new options for consumers. ”

QUOTED

# WINDOW+DOOR

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## Two San Diego County Firms Settle with EPA for Lead Violations

The U.S. Environmental Protection Agency made two settlements in San Diego County, California, for violations of federal regulations related to lead. Home Remodeling Center, based in San Marcos, will pay a \$22,275 penalty. Kaminskiy Design and Remodeling, based in San Diego, will pay a \$20,454 penalty. These companies failed to comply with the Renovation, Repair and Painting Rule.

EPA inspections found that Home Remodeling Center and Kaminskiy Design and Remodeling performed renovations at multiple homes in the San Diego area without being EPA-certified to conduct such work in pre-1978 housing, where lead-based paint is assumed to be present. The companies also reportedly failed to keep records indicating compliance with lead-safe work practices and did not ensure that a certified renovator was involved as required.

In addition to the penalties, each company committed to make corrections to their operations, including becoming EPA-certified.

## High-performance Building Practices Prevalent in Residential Home Building

Home builders across the country are prioritizing high-performance building practices in their projects, regardless if they consider the home they are building to be green, according to new research published in the 2020 Green Single Family and Multifamily Homes SmartMarket Brief by Dodge Data & Analytics in partnership with the National Association of Home Builders. The study finds that almost all builders incorporate energy-efficient practices and over two-thirds also use practices designed to improve indoor air quality and water efficiency.

Builders reported that practices promoting energy efficiency are commonly used in homes, whether they are considered green or not. The report found that energy efficiency and durability are the top influential green attributes in product/system selection. And, 88 percent of builders surveyed for the study called out a tight building envelope; 61 percent use high-performance ventilation.

### IN THE NEWS:

## Month in Review

The fenestration industry kicked off the first few months of the year with a number of notable acquisitions. **PGT Innovations Inc.** completed its acquisition of **NewSouth Window Solutions**—PGT signed a definitive agreement in December to acquire the company for \$92 million. PGTI, which celebrates 40 years of business this year, reports the move will enable it to enter the direct-to-consumer channel and underscores its strategy to grow in geographic areas outside of its core markets.

**Sierra Pacific Windows** reached an agreement to acquire the assets of Merrill, Wisconsin-based **Semco Windows and Doors**. Sierra Pacific, which already has operations in Merrill, acquired Semco's 275,000-square-foot, main manufacturing facility, along with all production equipment.

**Cascade Windows** acquired the assets of **Amerimax Windows and Doors**, which company officials say better positions Cascade to serve customers across the western U.S. And, **The Voilap Group** finalized an agreement to purchase 80 percent of the share capital of **Mecal**, an Italian company that manufactures machinery and systems for processing aluminum and light alloys. Full implementation of this operation is planned during the first quarter of 2020.

The industry also saw many product and campaign launches at January's International Builders' Show, coverage of which is featured on windowanddoor.com. Just after the event, **Andersen Windows & Doors** announced just after the event that it refreshed its branding, including a new logo, tagline and national marketing campaign set to launch this spring.

Other companies making recent Window + Door headlines include **FlexScreen**, which was featured on the popular TV show Shark Tank, where it hooked a deal with Lori Greiner. The company is also a top three finalist for the 2020 Edison Awards.



### Don't Miss a Headline

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# On the Road Again

*With IBS 2020 in the rearview, Window + Door is headed to Germany*



By **Emily Kay Thompson**  
Editor-in-Chief,  
Window + Door

With spring in full swing, so is travel season for fenestration professionals. Kicking off with the International Builders' Show in January and culminating with Fensterbau in Nuremburg this March—not to mention the meetings and events between these two big tradeshow—I think I've crossed paths with a good chunk of our industry face-to-face. (And if I haven't yet, I'm positive I'll catch you at GlassBuild America Sept. 15-17 in Las Vegas.)

Getting out and seeing who and what is happening in our industry is paramount to keeping Window + Door's coverage focused on the topics that relate to your businesses. Here's what I picked up on at IBS:

## 1. Fenestration is a huge piece of the conversation for builders and architects.

Windows and doors showed up big as a product category once again this year. Our industry was represented in all corners of the show—even in kitchen and bath exhibits with some eye-catching hardware that extends to our products. (In that regard, I have two words for you: *satin brass*.)

Attendees are still enthralled by the dimensions window and door manufacturers can offer and, as we know, those dimensions are getting commercially grade massive. Related, indoor/outdoor living continues to be the focal point for modern homes. Fenestration has always been the key piece to that trend, and manufacturers are responding with some truly unique solutions. This issue's installment of Trendhunter on page 32 shows some prime examples and continues the discussion about multi-panel doors.

## 2. Modular construction has arrived in residential.

It's been creating a lot of noise in commercial construction for some time, but modular building

now clearly has big implications for residential. Show Village demonstrated how windows, doors and really all the product categories can fit into this modern way of construction.

There is so much to explore on how this does (and doesn't) fit our industry—expect much more to come on this in future issues of Window + Door. Email me at [ethompson@glass.org](mailto:ethompson@glass.org) if you have something to say about it.

## 3. Innovation itself is getting more innovative.

If there were a word for IBS, it would be innovation. But not just in the sense of the buzzword. The products I saw from the participants in our market truly embody innovation. These products solve problems. The companies behind them dig deep into the realities of the building industry, their customers and end-users, the jobsite and the future of construction to bring those products to market. And not only does this revolution apply to the end result, but manufacturers are innovating processes, technology and even the supply chain. (Note: On the subject of products solving problems, check out our new sponsored content in this issue, Product Solution on page 45.)

The market continues to evolve. The more trends change, the more they stay the same. What's important is for manufacturers to look at how they are evolving with the market including and beyond aesthetics and design.

We'll be venturing even deeper into this concept as we make our way to Germany for Fensterbau. For those who can't make the trip to Deutschland, stay tuned to our Twitter feed, @WindowDoorMag, March 18-21, for live coverage of the massive event and don't miss my recap that I'll post on [windowanddoor.com](http://windowanddoor.com) and in the next issue. Safe travels. ■

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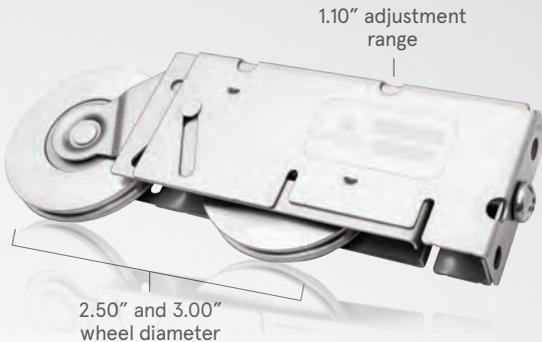
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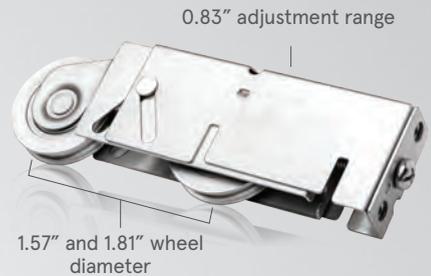
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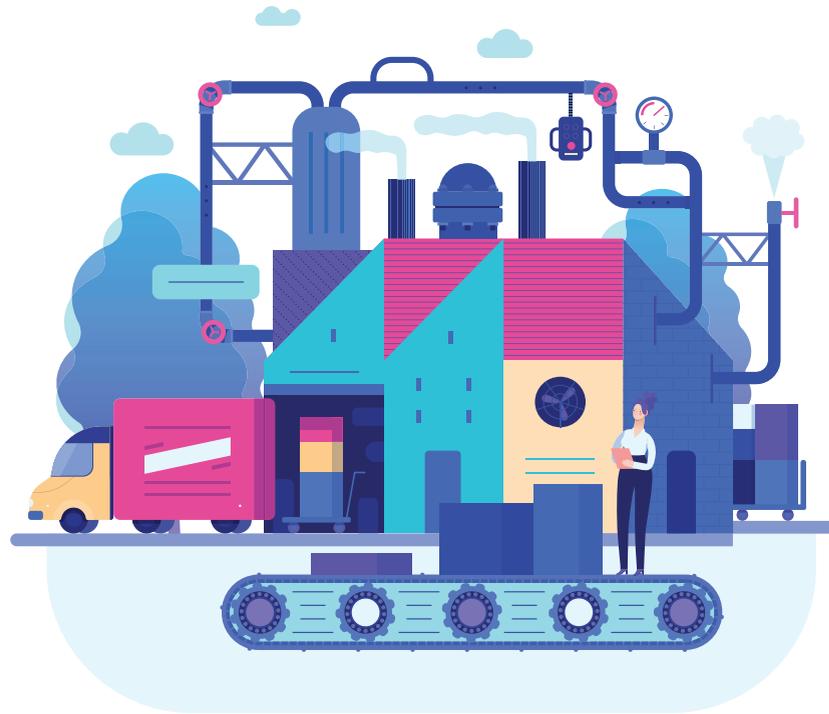
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## Digital Manufacturing

*Five outcomes that true digital intelligence can deliver to manufacturers*



By **Ursula Grün**

Digital transformation strategies may differ from one manufacturer to the next, but many have a common endgame. That is, to become a truly intelligent enterprise, where both operational and experiential data—and the insights that data yields—flow wherever they are needed throughout the business. Also, to the point where all manufacturing functions are integrated and where the entire supply chain is connected. To get there, manufacturers planned to invest upwards of \$167 billion on smart manufacturing in 2019, according to the latest update to the International Data Corporation Worldwide Semiannual Digital Transformation Spending Guide, making this a top digital transformation spending priority for the future.

What does the endgame look like for companies in the door, window and building product manufacturing business? Drawing from my company's work guiding manufacturers in those lines of business through the digital transformation process, there are five outcomes that true digital intelligence can deliver to differentiate a brand and an enterprise.

### **1 Demonstrating customer centricity.**

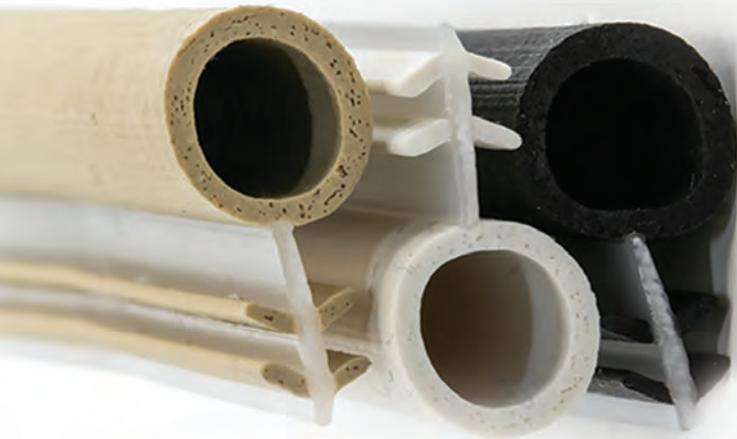
Growing quickly via acquisition left Idaho-based Woodgrain Millwork with legacy systems on which it was “spending a lot of money just to maintain the status quo,” explains Connie Moylan, the company's chief information officer. Realizing that was hardly an optimal IT framework to serve its customers, the company moved to simplify its logistics within a single digital freight management solution that “has definitely given us abilities we didn't have before,” she says, including the ability to field customer orders as late as 3 p.m. and fill them the next morning for delivery.

This level of customer responsiveness comes when a manufacturer and its customers can effortlessly exchange information and communicate in real time, not only about product orders but about the customer's experience with the company and its products.

Manufacturers that have the digital capabilities to gather experiential data from customers—via a short customer survey linked to a product QR code, for example—gain insight from that data

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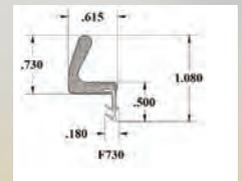
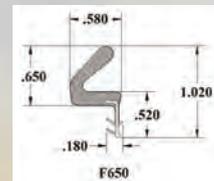
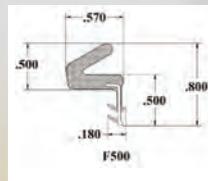
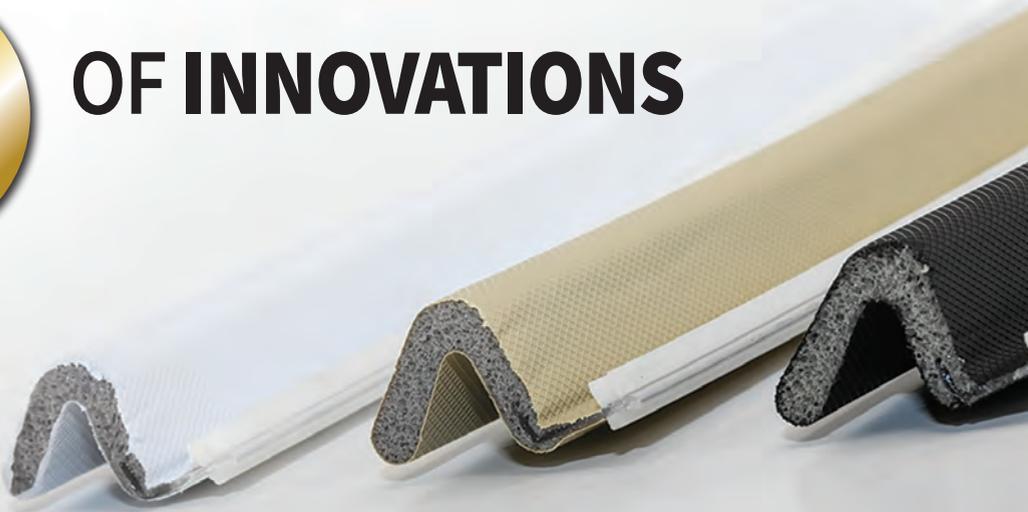


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in tandem with their own operational data. This can strengthen their value proposition and gain a powerful way to exceed customer expectations.

## **2 Offering small lot sizes and product individualization as viable options for customers.**

For window coverings manufacturer Hunter Douglas, doing business via 132 companies in 100 countries around the world is complicated enough. Relying on disparate, disconnected legacy systems to operate a business in which the vast majority of products are customized—much like fenestration manufacturing—compounded the challenge.

By moving to a centralized digital system that provides a transparent cross-brand view into product specs, ordering and production operations, that challenge quickly morphed into a point of differentiation.

Its customers now get a comprehensive view of all configuration and pricing options across Hunter Douglas's multiple brands. The manufacturer can give customers accurate pricing and order fulfillment information in real time, right at the order entry point. With this new level of digital intelligence, mass customization becomes a profitable, customer-focused proposition rather than a burden.

At the factory level, producing small lots and customized products becomes simpler and more cost-effective for a manufacturer whose facilities and production equipment are tied into a digital platform. The system is smart enough to quickly process and analyze vast amounts of operational data to give manufacturers insight into how to most efficiently build customized products. It can also predict the cost and quality of those products and adjust automated manufacturing equipment in the plant accordingly to build them.

## **3 Developing value-added services and new business models.**

Switzerland's dormakaba Group has creatively leveraged its digital intelligence to innovate with a new cloud-based service that bundles the company's building-access products with software-as-a-service that enables building owners to manage building access and security directly from a mobile device, in real time.

Internet of things sensors built into the entry system hardware connect to dormakaba's own cloud-based digital systems to provide access control and time tracking. Companies, for example, can hire a new employee and through the cloud, that employee would immediately and automatically gain access to the appropriate buildings or areas within a company facility. This turnkey service differentiates dormakaba in the marketplace and complements its physical products.

## **4 Running smart factories and digital networks.**

Manufacturers that grew 10 percent or more per year are more adept than their peers at integrating analytics, business intelligence, real-time monitoring and quality management, according to a survey of North American manufacturers conducted by manufacturing software company IQMS.

That edge comes in large part from equipping factories with IoT-connected sensors and linking those sensors to powerful machine learning- and artificial intelligence-driven monitoring and analytics tools. It also comes by opening digital channels that enable manufacturers to link their own operations with those of their suppliers and customers.

With smart factories and digital networks, the possibilities are seemingly boundless. A manufacturer can respond in the moment to changes in customer demand by adjusting production accordingly. Machine learning

tools give manufacturers predictive quality insights on products. These tools also provide the ability to pinpoint the root cause of quality issues and to identify potential equipment failures in the factory before they occur.

What's more, when the supply chain is digitally connected, manufacturers gain the ability to co-innovate products with customers through the exchange of ideas and data. They also can adjust supply sourcing, production, etc., on the fly in response to supply disruptions, new tariff policies and other developments.

## **5 Doing business for a purpose.**

Issues related to sustainability, the environment and corporate stewardship factor more and more into the manufacturing business. A manufacturer that has enterprise-wide visibility and insight into energy and materials consumption can use predictive tools to identify ways to more efficiently use materials and resources.

Those same tools can show them ways to build products that are easier to repair or more recyclable, creating exciting new opportunities in the emerging "Circular Economy," where materials are continuously looped back into the value chain for recycling and re-use.

The technological tools to uncover and explore such opportunities for both the building products and building materials industries are not only available, they are already proving their worth to dormakaba, Hunter Douglas, Woodgrain Millwork and many other companies.

*Editor's Note: A white paper about how technology can help create superior customer experiences through tailor-made solutions for the living space is available at [sap.com](http://sap.com). ■*

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Ursula Grün is global lead for the building products industry at SAP, [sap.com](http://sap.com). She is based in Germany.





## Legislative Outlook

*2020 legislative landscape for manufacturing remains complex*



By  
**Norah Dick**  
Associate Editor,  
*Window + Door*

Window and door manufacturers will be dealing with a complex legislative landscape in 2020, according to legislative experts at the Window & Door Manufacturers Association. Beginning the year with partial resolutions for some of the ongoing trade and tariff tensions, WDMA officials offered insight regarding upcoming legislation relevant to the industry in a recent episode of its podcast, *Open & Close*.

### Trade and tariffs

2020 got off to a promising start with the ratification of the United States-Mexico-Canada Agreement, a new agreement that will replace the North American Free Trade Agreement. “WDMA is pleased to see Congress approve the USMCA, which is a significant win for American manufacturing,” says Michael O’Brien, WDMA president and CEO. “The North American market is a critical sector for the window, door and skylight industry,

and we commend Congress for taking action on a new agreement that is critical to both the manufacturing and construction industries.”

Trade tariffs remain a complex situation for manufacturers. In mid-December 2019, the Trump Administration announced Phase One of a trade agreement with Chinese officials; the U.S. lifted some of the tariffs imposed on Chinese goods and cancelled the 15 percent tariffs scheduled to go into effect on Dec. 15, 2019. “WDMA is encouraged by news of a deal with China and are hopeful that this will bring some needed stability to U.S.-China relations,” says O’Brien.

The current deal, however, does not include relief on all fronts, says O’Brien. Section 301 tariffs, imposed on Chinese goods, are separated into four lists of goods that are, or could be, subject to a 25 percent tariff. Phase One of this new trade deal does not lift tariffs on Lists 1-3, says O’Brien, which contain several products used by window,

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## Overtime Pay

The Department of Labor recently made some changes to Overtime Pay regulations and Kevin McKenney, director of government affairs at WDMA, states that employers in the industry should be aware of the following updates:

- **Overtime pay threshold.** The threshold for mandatory overtime pay was raised from \$455 to \$684 per week, as of Jan. 1. If an employee is paid less than \$35,568 per year as a full-time worker, they must be paid overtime.
- **Defining “highly-compensated employees.”** The total annual compensation requirement for these employees was raised from \$100,000, to \$107,432.
- **Standard salary level.** Employers can now use nondiscretionary bonuses and incentive payments, including commissions, paid at least annually, to satisfy up to 10 percent of the standard salary level for employees.
- **Automatic salary increases.** A Department of Labor rule proposed earlier in 2019, which would have dictated automatic salary increases every three years for some full-time salaried employees, did not go into effect as scheduled on Jan. 1, 2020.

door and skylight manufacturers. WDMA emphasized its success in advocating for tariff relief for several products important to the industry and says it will continue to be the voice of the industry as the Administration continues to explore tariff policy with China.

WDMA also criticized the Administration’s decision in early December 2019 to reinstate Section 232 tariffs on steel and aluminum imports from Argentina and Brazil. “This sudden action could result in price increases for window, door and skylight manufacturers and create further uncertainty in the residential and commercial construction markets,” says O’Brien. According to Kevin McKenney, director of government affairs at WDMA, the U.S.’s imposition of tariffs on the European Union, and potentially other countries, will be important to monitor in the coming year.

### Tax legislation

McKenney says that industry companies should be aware of the tax extenders legislation that was passed at the end of last year (H.R. 1865). Tax extenders refer to a group of tax provisions or credits that are expired, or about to expire, he says; the bill includes three provisions of interest to window and door manufacturers:

- 25C. Credit for energy-efficient windows and doors. McKenney noted that, despite rumors that the levels would be lifted, they remained

the same as in previous years. (The credit offers \$500 for consumers to install qualified energy-efficient entry doors which meet ENERGY STAR requirements. The lifetime cap on these improvements is \$500. ENERGY STAR windows are eligible for a tax credit up to \$200 with a lifetime cap of \$200.)

- 45L. Credit for builders of energy-efficient homes.
- 179D. Ability for commercial property owners to deduct the cost of energy-efficient renovations.

### Energy legislation

McKenney highlights a few important pieces of energy legislation, including the H.R. 3586 - Energy Savings and Building Efficiency Act of 2019, introduced by Rep. Kurt Schrader (D-Ore.), which is designed to more clearly define the Department of Energy’s (DOE) role in the building code development process and reinforce their participation as a nonpartisan technical advisor. WDMA is working to create support for a companion bill in the Senate, he says.

McKenney also highlighted the bipartisan Energy Savings and Industrial Competitiveness Act, sponsored by Senators Rob Portman (R-Ohio) and Jeanne Shaheen (D-N.H.). McKenney says WDMA would like to see the code language in this bill replaced with the Schrader bill mentioned above. “We’re working on trying to educate Senator Portman’s office on the merits of our legislation,” he says.

With regards to movement on either bill, McKenney says that it will depend on whether there’s bipartisan interest in moving a bill forward. “The Senate Energy and Natural Resources Committee already passed this out of their committee, so the Senate could decide to consider this at any time. Right now, the House of Representatives is working on a few different bills and we will be watching the Energy and Commerce Committee for activity in the coming months,” he says.

WDMA hosts its Spring Meeting & Legislative Conference March 23-25, at the Westin City Center Hotel in Washington, D.C. WDMA’s Legislative Conference is the signature policy-making event, comprising advocacy and education, including a day to conduct in-person meetings with your representatives for members to make their voice heard during pre-organized Hill visits. Window + Door will report on any updates from the conference. ■

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## Five Typical Field Testing Problems

# Field Testing

*Common mistakes and how to avoid them*



By **Jason Seals**

While laboratory testing per the North American Fenestration Standard establishes the Performance Grade of a fenestration product, leaks originating from surrounding wall or roof conditions or substandard installation practices can render even this rigorous testing incapable of accurately predicting actual jobsite performance. Field testing during or immediately after construction, but prior to the installation of interior finishes, should be specified.

The FGIA provides pre-occupancy field testing methods in the form of three AAMA specifications:

**AAMA 502-12** is the appropriate field test method for verifying water and air leakage resistance of newly installed operable windows and doors. Using ASTM E783 and ASTM E1105, AAMA 502 requires the application of a uniform pressure across the installed products through the temporary application of a sealed test chamber to simulate the effects of wind-driven rain. The entire installed fenestration product is tested, including the adjacent wall interface. Note that AAMA 502 expressly excludes commercial curtain wall, sloped glazing and storefront systems, which are addressed by **AAMA 503**.

**AAMA 501.2-15** is a simple quality assurance water spray test using a specific water nozzle and pressure for finding leaks in fully installed, permanently closed (non-operable) glazing. It is not appropriate for testing operable windows and doors and does not simulate the effects of wind-driven rain. However, when access issues prevent checking water leakage performance with portable test chambers (as per AAMA 502 and 503), or when a simple quality check of the glazing system is needed, the fallback option is the 501.2 method.

There are several commonly encountered mistakes in field testing that defeat its purpose, however, outlined on the following page.

### Accredited investigators

To avoid the common problems listed in the sidebar on the following page, field testing methods all require implementation by an AAMA-accredited Field Testing Agency (FTA) to ensure the use of well-maintained and calibrated equipment by qualified and trained personnel, using established procedures under a documented quality management system.

The AAMA FTA Accreditation Program, an FGIA program, validates that FTAs are capable of testing fenestration products per the referenced field-test methods. Validation of the FTA's ability to properly administer AAMA 502 is the minimum requirement, although an agency can also be optionally accredited to perform AAMA 501.2 and/or 503. Requirements of the program are detailed in the Procedural Guide, AAMA LAP-3.

Given the possible liability consequences of water leaks, ranging from poor performance to physical damage to mold infestation, providers are counselled to verify the actual installed performance of fenestration products using an accredited field testing agency.

*Editor's note: The author provided a list of references in order of appearance in this article, which is available online at [windowanddoor.com](http://windowanddoor.com) and by email request: [contact ethompson@glass.org](mailto:ethompson@glass.org).*

Jason Seals is the Certification Services Manager, Fenestration for FGIA. He oversees all aspects of all AAMA Certification programs. Reach him at [jseals@fgiaonline.org](mailto:jseals@fgiaonline.org).

### 1 Using an ad hoc test method.

There are many anecdotal stories of invalid testing, such as using a pressure washer to test for water leakage. Obviously, this leads to wildly erroneous conclusions.

### 2 Using the wrong test method.

Because the equipment required to run the test is relatively accessible, AAMA 501.2 is too often improperly substituted as a quick and cheap replacement for AAMA 502. It is often used on operable fenestration, which virtually guarantees “leaks.”

### 3 The test area is not fully or properly prepared.

The test may not be employed at the proper time during construction, such as before perimeter sealant is applied. Also, interior finishes should be left off until testing is complete.

### 4 The test method is not properly applied.

For example, it is often difficult to bring water of sufficient pressure to the site. Yet, sufficient water pressure is needed to make up for head losses due to hose length and elevated test locations. AAMA 501.2 requires between 30 and 35 psi at the nozzle to properly run the test. A supply measuring 50 psi at the source is recommended.

Another common incorrect application of AAMA 502 or 503 involves performing water testing at a uniform pressure higher than the fenestration product was designed to experience during wind-driven rain events. These high pressures may actually create leaks that would not be experienced during the normal service life of the product. Conversely, testing at excessive pressures may conceal defects that would have produced leakage at lower pressures.

“

**FIELD TESTING SHOULD ALWAYS BE PERFORMED ON AN AREA REPRESENTATIVE OF THE ENTIRE INSTALLATION.**

”

### 5 The area tested is not representative of the building envelope.

The test areas should be selected based on the complexity and commonality throughout the project of any given detail or condition. Field testing should always be performed on an area representative of the entire installation and include the interface between the window and the adjacent wall assembly. ■

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# Anticipating Challenges

*How to plan for a challenge to a product warranty*



By  
**Paul R. Gary**

“  
UNDENIABLY,  
THE LONGER  
CLAIMS THAT  
SEEK DAMAGE  
BEYOND THE  
WARRANTY  
REMAIN  
ASSERTED  
AGAINST A  
COMPANY, THE  
BIGGER LIFE  
THEY ACQUIRE.  
”

From the standpoint of manufacturers of windows and doors, few documents receive the level of analysis and critical input as a product warranty. The warranty is a deliberate statement of a commitment to evaluate an unwanted condition that manifests in-service and that may be from a problem with material or workmanship.

Even with all this intelligent attention, the more difficult work is to develop and operate a program that effectively implements the warranty as intended. That is, to provide service as promised but decline repeated demands to give more than promised, without extraordinary circumstances.

Often, warranty limitations appear to be disregarded in claims asserted within a construction defect lawsuit. In our view, a manufacturer’s inclusion in a lawsuit over alleged construction defects should not routinely be treated as an “extraordinary circumstance.” Doing so would abandon the fair limitations stated in the relevant product warranty. Rather, it is important to identify a strategy that will best present an argument for enforcement of those limitations, when needed most.

Undoubtedly, such lawsuits will assert claims and seek damages that are beyond the commitment within the product warranty. The strategy for enforcing the warranty limitations in litigation must be established under the applicable facts and law.

It seems the volume of parties—each with multiple claims and cross claims among them—tends to obscure the immediate need to understand the extent to which a warranty may serve as a shield and a sword. Unless a manufacturer pushes, it may not happen.

Manufacturers especially need to know early if and how their warranty can be used to dismiss the common claims seeking compensation for direct or indirect consequential damages. Although definitions relating to “consequential damages” can vary by jurisdiction, in general, they are losses that, by their nature, go beyond remediation or repair of the window or door itself.

These can range from resurfacing finishes due

to water penetration at a window or door opening to re-allocation costs incurred because of alleged “uninhabitability of living space” as a result of perceived damage or its repair.

Where does it stop? It is disconcerting (scary) to be at the whim of a claimant prone to push for dollar compensation for every theoretical inconvenience that could occur. These risks are real and represent the reason that the product warranty includes limitations on the manufacturer’s liability.

## Available tools

It is important to use the tools that we have. The law in the U.S. allows for a manufacturer to disclaim liability for most consequential damages, particularly when that manufacturer is transparent regarding the warranty and makes a good effort to communicate it downstream with the product. This limitation can also affect claims that are not warranty-based—a warranty is a creature of contract that, under the right circumstances, will override the common “tort-based” claims, classically based upon the tort of negligence.

Undeniably, the longer claims that seek damage beyond the warranty remain asserted against a company, the bigger “life” they acquire. At the inevitable mediation(s), the parties and mediator wrangle over allocation of claimed dollars and rarely over legal “potential” defenses. Still, those that take action to enforce the warranty terms can inject uncertainty into their opponent(s) where none existed before.

Simple message: stick with the plan and don’t give up on the terms of the product warranty because litigation has been filed. Rather, require an evaluation of the case that includes a plan of action regarding affirmative use of the warranty. ■

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

## Sun Windows' Quality Commitment Drives Success at Hume-Fogg Magnet High School



*A full retrofit project at a historic high school in downtown Nashville required attention to every detail and a total commitment to quality—helped in part by Duralite® warm-edge spacer from Quanex Building Products.*

Hume-Fogg Magnet High School was the first operating public school in Nashville and has lived a rich history since it was originally constructed in 1855. Featuring striking Gothic Revival architecture, the school frequently ranks as one of the top high schools in Tennessee and the United States and strives to create an inspiring and welcoming learning environment for its students.

In pursuit of that mission, the school undertook a major window retrofit for the entire structure in late 2018, using fully custom casement windows from Sun Windows & Doors, a Kentucky-based company in Owensboro. A third-generation family-owned business, Sun specializes in built-to-order windows and doors that meet the exact needs and requirements of builders, designers, and architects across the United States.

For Hume-Fogg Magnet High School and the architects of the project, one of those requirements was outstanding thermal performance to help boost operational efficiency and enhance occupancy comfort for students. Sun delivered on those demands with low-E

coated insulating glass packages made with Duralite® warm-edge spacers from Quanex Building Products.

“Our customers are always asking us about improved thermal performance, and Hume-Fogg was no different,” said Frank Anderson, president, Sun Windows & Doors. “The Duralite spacer from Quanex helps us answer those questions—it enables our windows to achieve outstanding thermal performance and gives us a unique edge over some of our competition.”

### A heritage of high performance

Sun Windows & Doors was originally founded in 1930 by Victor E. Anderson, who marketed a successful self-storing wood storm window. The company was transitioned to Victor's son Robert in 1979, who bolstered Sun's product design and materials selection to deliver unmatched performance throughout the early 1980s. It was around this time that a long-lasting partnership was formed.

“This company has always been flexible in adopting new technology,” Frank Anderson said. “There was a heightened focus on energy efficiency during the energy crisis in the early 1980s, and we were on the forefront of that design movement. We were the first American window company that began manufacturing with Duralite, which brought great efficiency and performance to our units, and we've continued to have great success with the product ever since.”

Anderson cites Quanex's expertise and service as key reasons for Sun's continuous use of Duralite in all its windows. “Quanex has always offered their expertise in the development of our products and helped us ensure proper utilization of Duralite,” he said. “They also assisted the setup of our first fully robotic insulating glass line, and they perform quarterly audits to help us ensure we're making the highest-quality IG unit we possibly can. Having that extra set of eyes to make sure our people and processes are fully compliant is very valuable for us.”

### New pursuits and architectural success

Frank Anderson took over leadership of Sun Windows & Doors from Robert, his father, in the mid-00s. Under Frank's leadership, Sun has become a true boutique custom window manufacturer and has steadily gained increased business in the commercial space. Historical projects like Hume-Fogg, where architectural integrity and design are critical, have become a specialty.

“We went back to the structure's initial blueprints to establish the original style of windows used in the building. Maintaining the historical accuracy was important, and that guided the window solutions we recommended to meet all the project's requirements,” said Mike Davis, commercial sales manager, Sun Windows & Doors. “We delivered a mix of custom fixed and operable casement windows, with glass that offered lots of visible light transmission and minimized reflection. Quanex's Duralite enabled the fixed units to achieve a U factor of .30, and the operable units to hit .34.”

The project also required efficient completion, due to Hume-Fogg's high-traffic location and so as not to disrupt education during the school year. In the end, with the addition of paint and asbestos abatement work, the project took 90 business days from start to finish. It was a true team effort between Sun, architect Kline Swinney Associates, builder Messer Construction, and window dealer Dale Incorporated, working together toward a shared goal.

Today, Hume-Fogg Magnet High School enjoys state-of-the-art windows delivering outstanding energy efficiency. It was made possible through Sun Windows & Doors' unwavering commitment to providing quality, custom solutions, and Duralite warm-edge spacer technology from Quanex Building Products.

For more information, visit [www.sunwindows.com](http://www.sunwindows.com).

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## A Spotlight on Service

Quanex's North American Fenestration group brings together the trusted Mikron®, Homeshield® and IG Systems brands to deliver all of your fenestration needs. Whether it's warm-edge excellence, superior-profile performance or screens and components outsourcing solutions—we've got you covered.

Best of all, Quanex solutions are backed by our comprehensive commitment to service. We leverage all our areas of expertise—including Technical Services, sales, customer service, marketing, quality, R&D and manufacturing—to deliver on your every need. In this edition of *Fenestration Focus*, we highlight three Quanex team members who make it happen every day:

### Brandie Stiltner, Western Territory Sales Manager



Brandie is focused on helping Quanex Screens customers take full advantage of its strategic outsourcing solutions. In her role, she serves as a conduit between customer operations and their local Quanex Screens manufacturing facility. She works to understand specific needs and processes, tailoring what Quanex can offer to best suit their business.

"Quanex Screens solutions are more than just a product offering," Stiltner said. "My role is to get an in-depth understanding of the customer—the

flow on their production floor, what information is important to their operation, their packaging requirements and more."

For Brandie, there's something new to learn every day, and she enjoys building long-lasting relationships with satisfied customers. "We believe in enabling our customers to focus on their core product—the window or door—because that's where the value is," she said. "I really enjoy diving in deep and understanding the customer, their needs, and determining how we can help them be successful. It's all about creating a seamless partnership."

### Brian Ludwig, Northeast Territory Sales Manager



Brian is a fenestration industry veteran who, prior to joining Quanex two years ago, spent the majority of his career working closely with homeowners on the retail side of the market. But his role at Quanex isn't all that much different.

"No matter what, it's all about helping people and finding solutions to meet their needs," Brian said. "For our manufacturer customers, that means finding ways to help them grow and operate more efficiently."

Brian enjoys helping customers find the right Quanex solution to meet their business needs. "We have such a wide breadth of products, which enables us to provide real solutions to customer

challenges," he said. "But—most importantly, we have the people to back up those products. I have never worked at a company with so much support and so many resources to help our customers."

### Ron Pich, Director of Engineering, Homeshield®



Homeshield®'s Ron Pich is the embodiment of service—both inside and outside of his role at Quanex.

"I work for our local fire department," Ron said.

"The training I have received there dealing with a lot of different circumstances helps me in my everyday life. It's good to be of service."

Pich is responsible for engineering and manufacturing processes at Quanex's nationwide screens manufacturing facilities. He's been at the company for 16 years and enjoys working on different engineering challenges to better service Quanex customers every day.

"I like that my job is different day to day, and I get to work with an incredible team," Pich said.

"We all try to do better every day and have an opportunity to truly make an impact on our business and our customers' businesses. We also get to work with a lot of cool equipment."

For more information on how Quanex's North American Fenestration group can help, visit [www.quanex.com](http://www.quanex.com).

## Super Spacer® Featured in World's Largest Wooden Tower

The HoHo Wien is considered the highest wooden building in the world, towering to 275 feet and 24 stories. Located in Vienna, Austria, the main tower and two adjoining towers were designed using sustainable materials and feature housing, a hotel, restaurants, offices and a fitness area.

Thermal insulation, resource conservation, efficiency and sound insulation were main priorities in the construction, which has now earned LEED® Gold status by the Austrian Sustainable Building Council. Quanex's Super Spacer® was among the materials chosen to achieve the building's sustainability goals.

"The HoHo Wien is blazing a trail for energy efficiency and the optimization of resources. We are proud to have been able to make a contribution toward this with our Edgetech Super Spacer," said Joachim Stoss, managing director of Edgetech Europa GmbH and vice president of International Sales at Quanex

### About the glass

To complement its sustainable wood structure, HoHo Wien was designed with nearly 65,000 square feet of triple-pane insulating glass. The challenge for window manufacturer Katzbeck, in collaboration with Holzforschung Austria (Austrian Wood Research Institute), was to design a glass system that would stand up to driving rain, temperature changes and wind loads, while providing optimal security, fire protection, energy performance and sound attenuation.

The answer was to create floor-to-ceiling, two-leaf spruce wood/aluminum windows with mullions, a fall protection device, divided lower sash lights and an outer pane with laminated safety glass on the inner and outer panes. The more than 1,100 IG units also include UNIGLAS® TOP Pure FLS and were supplied by Petschenig® glastec GmbH and Super Spacer® T-Spacer™ Premium Plus, Quanex's commercial system for automated production processes. *(continued on next page)*



## Super Spacer® Featured in World's Largest Wooden Tower (continued)

Preliminary testing for fire protection, sound-proofing and wind suction loads was extremely promising and could prove useful for future projects as well. According to Holzforschung Austria, the window construction and the wall element withstand wind forces of 4,425 Pa without any difficulty and achieve a Ug value of 0.5 W/m<sup>2</sup>K. The glass edge compound also scored highly with a Psi value of 0.033 W/mK. The Uw value for the entire window is 0.78 W/m<sup>2</sup>K, the total solar energy transmittance level is 49%.



### The final product

HoHo Wien, designed by the Rüdiger Lainer+Partner architect's office, is becoming the landmark of one of the largest urban development projects in Europe. The towers achieve a proportion of timber of almost 74 % from the ground floor upward. According to Caroline Palfy, project developer and managing director of cetus Baudevelopment GmbH, it saves 2,800 tons of CO<sub>2</sub>, compared to a conventionally constructed building of the same type and size.

Not only was the design cutting-edge, but the construction process took advantage of prefabrication modular systems. The structural

engineers at RWT Plus, under the leadership of Richard Woschitz, developed a system node specifically for the HoHo Wien, which formed the prefabricated elements of the wood-concrete composite ceiling, wooden column, beam and wall element -- with virtually no metal connections due to the fact welding work is almost out of the question in a wooden building.

The end result is a highly sustainable, efficient structure featuring wall and ceiling elements made of spruce for visually appealing character inside and out.

For more information, visit [www.quanex.com](http://www.quanex.com).

"Of course, the question of whether one should install a thermally separated window edge seal does not arise in a sustainability project such as HoHo Wien. The low heat transfer values as seen in HoHo Wien cannot be attained in any other way," explains Hanspeter Petschenig, managing director of Petschenig glastec GmbH."

The flexible warm-edge spacers also provided an advantage when it comes to production efficiencies. Produced on automated lines, Super Spacer T-Spacer was precisely applied down to the last millimeter. "Our automated insulating glass line guarantees that we can produce on schedule and economically," said Hanspeter Petschenig.

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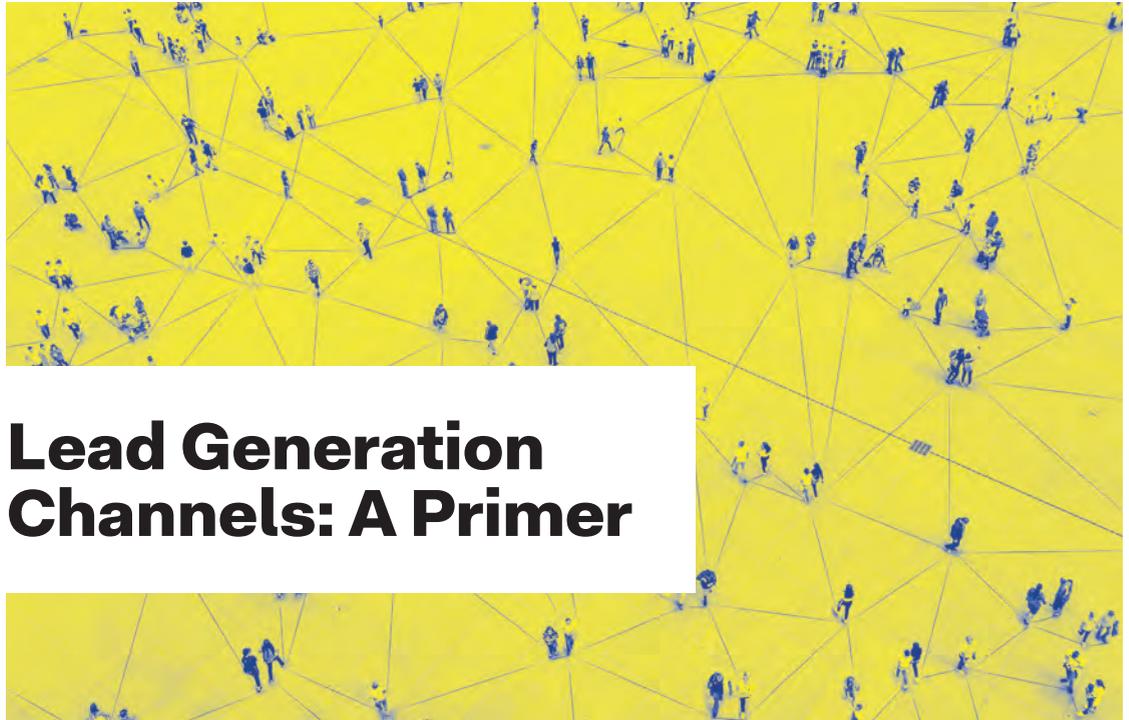
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# Lead Generation Channels: A Primer



By **Jason Polka**

Successful window and door contractors need a thoughtful approach for allocating investments across different lead-generation channels. There are wide variations in costs, as well as the volume and quality of leads those channels deliver.

Whether a small business or a large chain, companies of all sizes can take a portfolio approach, blending the benefits and advantages of a combination of sources for new business leads. Following are three approaches; visit [windowanddoor.com](http://windowanddoor.com) for a bonus look at five additional lead-generation channels.

## 1 Organic digital leads

Organic digital leads are prospects who find a company's website by either clicking on a non-paid search result or directly typing a company's web address in the browser. Today, most window and door customers do their own research before initiating a project. Modernize interviews thousands of homeowners considering home improvement projects each quarter, and 54 percent of them plan to solicit three bids or more. Those people are online researching and contacting contractors.

How do contractors make sure those leads go to them? That's search engine optimization (SEO). There can be a huge difference between the traffic generated via a website that shows up on the second page of search results versus the coveted first.

To show up on that first page requires a combination of factors. The information on a website needs to be properly structured and labeled using meta tags, page labels and title tags. Search-optimized websites also include well-written content, including articles, blog posts, Q&As, resources and other topics (visit [windowanddoor.com](http://windowanddoor.com) for information about how to create said content). The third element of SEO success is the degree to which others have created links to your website. This is called link building.

Once prospective customers have visited a company's website, the next step is converting them. That means having a site that convinces them that you are a skilled, reliable contractor, then having them call or fill out a lead form. That part of the process relies on having effective copy, visuals and proper positioning of content.

Organic digital leads are extremely cost-effective, as there is no incremental cost when they do come in. These leads tend to be well-qualified, since visitors have actively sought out your business. The downside is that the ability to grow is highly dependent on SEO mastery and investment.

## 2 Paid search

Paid search ads can put a business on the first page of search results; the company essentially buys traffic to its website. The most common way to do this is through text ads,



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[WindowandDoor.com](http://WindowandDoor.com) for insights about five other lead-generation channels that window and door contractors can add to their portfolio.

purchased on a pay-per-click basis. The price of this type of campaign depends on the particular market a business is in and the degree of competition within it, but many companies can get clicks to their website for \$3 to \$5 per click.

Pay-per-click can be attractive because the traffic from homeowners is those who are specifically searching for the window and door services you offer. And there is a scalability benefit where companies can purchase more clicks if the budget allows. Tip: be sure to rule out “negative keywords.” Companies don’t want to be paying \$4 every time someone searches for terms such as “Microsoft Windows Installation,” “Jim Morrison of the Doors,” or “window cleaning.”

The more important catch is that search traffic, once it hits a landing page or website, must effectively convert to leads. Many contractors fail because their landing pages are not optimized for mobile devices, which

now account for approximately half of web traffic worldwide, according to a Statista report released in early 2020.

Otherwise, the challenges are the same as for organic web traffic: the difficulty of communicating and persuading through your site to engage, qualify and convert.

### 3 Social media

Facebook, Instagram, YouTube and other social channels have been media powerhouses for over a decade. But do they serve as an effective channel for new business leads? Not for small to midsize contractors.

A company’s Facebook page can round out a contractor’s brand image and provide a place to connect to existing customers and show off recently completed jobs. In terms of organic lead generation, though, it doesn’t often work.

Paid ads are a possibility, due to the cost-competitiveness of the ads and

the social media companies’ ability to micro-target audiences. However, the success of social ads is highly dependent on strong creative execution, preferably via video, which most contractors don’t have the time or expertise to develop.

The main takeaway: no single marketing channel is likely to provide all of the lead volume a business needs to meet growth goals, but that doesn’t mean that a company should invest in all channels equally. Focus an analysis on each channel’s potential return on ad spend, ability to scale, and the cost and time to scale it efficiently. Choose the combination that provides the best overall ROI on your business’s resources. ■

Jason Polka is the CEO of Modernize, modernize.com, a company that uses business intelligence software to connect homeowners with contractors. He has led numerous initiatives to identify and execute new service and differentiated product opportunities within the contractor referral market.



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TRENDSHUNTER

Multi-panel Doors





## Bold, High Performance

*Today's multi-panel doors are designed with bigger glass expanses and narrower sightlines as bringing the outdoors in is at top of mind*

**BY LAURIE COWIN,  
MANAGING EDITOR**

**Left:** Weather Shield Windows & Doors' Contemporary Collection Next Gen Sliding Patio Door utilizes a hardware system that shifts the active door panel inward, perpendicular to the wall. This shift releases the perimeter sealing gaskets for ease of operation. When the door is locked, the panel is drawn in to create a tight seal with multiple locks on both stiles. It also has a wept 1 ¼-inch seal.

**BIGGER OPENINGS**, more glass, larger panels and narrower frames dominate the multi-panel door market today. All of these attributes fulfill what customers seem to want most: a connection with the outdoors and prolific natural light.

"The industry is talking about bringing the outdoors in, big glass and narrow frames, which has certainly shaped the category," says Brenda Brunk, senior product manager at Marvin. "The trend we're tracking is about connection to air and views, new ways for homeowners to live happier, healthier lives. To us, it's not a fad, but an ongoing need we're fulfilling."

### **Development**

These doors just keep getting bigger and bigger, says Jeff Kibler, architectural and commercial manager with Weather Shield Windows & Doors. "We get asked to do things that are well beyond what we've certified and tested so we're continuously having to re-certify products with larger panels and look at other alternatives to be able to get to the level they're looking for," he says.

Specifically, customers ask for high-performing doors, which Weather Shield tests in its in-house lab for air, water and structural considerations.



**1.** Western Window Systems' series 7950 bifold door is designed to provide slightly better air and acoustic performance and allow for single-track operation. **2.** Marvin's Ultimate Lift and Slide Doors are designed to be easy to move as the panels lift up, slide over, then drop down and are held in place. The doors are built on a track system and available in pocket and stacked configurations. Panels slide into a wall opening in the pocket configuration, whereas door panels stack together to create the illusion of only one panel in the stacked configuration (pictured). Performance sill options and a recessed track are available. **3.** Andersen's Architectural Collection Contemporary Folding Outswing Door now has a contemporary panel option that has 3 1/8-inch tiles and rails, a maximum panel width of 48 inches and concealed shoot bolt hardware. The product meets performance-grade certification of PG40 up to 8 feet and PG30 up to 10 feet. The folding door is part of Andersen's Big Door product line of moving glass wall systems, which also includes liftslide, MultiGlide and pivot doors.

Aesthetic considerations and innovation also top the customer request list. One of Weather Shield's new door systems, the Next Gen Door, for example, has a hardware/sliding door system that enables much larger panels than what the company has offered before with low operational force. To achieve this, Weather Shield partnered with a German hardware manufacturer to develop a system and platform around specific hardware that the company tweaked for its purposes and the U.S. market.

Meanwhile, Solar Innovations President Greg Header says providing solutions to customer challenges yields the

greatest product development—"more than any think tank or round table we could develop," he says. Performance requirements are prioritized in each R&D discussion and Header says its most recent product development is rooted in meeting air, water, impact and thermal performance while attempting to reduce operational force.

#### Materials

Materials heavily influence the aesthetics and performance considerations of multi-panel doors, as well as impacting ease of functionality. Brunk says the Marvin Modern product line, for example, uses a high-density fiberglass

exterior and aluminum interior. This combination is designed to make the products durable and energy efficient. "The frame is formed from a solid piece of high-density fiberglass and requires no additional material to aid in its thermal performance," she explains.

Another of the company's collections—the Signature Ultimate



Collection—uses a wood interior and extruded aluminum cladding exterior. The wood interior, explains Brunk, maintains its properties throughout temperature changes, provides insulation and can be customized. The extruded aluminum cladding, meanwhile, is designed to be low-maintenance and weather resistant.

## In the Dealer's Corner Multi-panel Configurations: Helping Customers Choose the Right System

Overall project considerations, functionality, performance, aesthetics, available wall space, desired purpose and interaction, and budget all determine which type of multi-panel door is appropriate for a given project, including multi-slide, bifold and lift-and-slide configurations.

Multi-slide and lift-and-slide doors have similar configurations, but quite different operating experiences, Brenda Brunk, senior product manager at Marvin, says. The systems also employ different sills, with the lift-and-slide using a recessed track while the multi-slide sill is fully exposed on the top surface, though she points out both have performance sill options. Bifold options, she says, have flexible configurations and the accordion opening/closing allows for use where wall space is limited.

“Bifold doors tend to have higher performance levels because each panel does not have to be utilized for each use,” says Greg Header, Solar Innovations president. “Bifold doors can incorporate a swing door into the unit for ease of access, but the stacking of the remaining panels can reduce the overall size of the opening.” Multi-slides, on the other hand, can pocket into a wall to give a completely open space. Those doors, however, generally necessitate a wider jamb and higher sill compared to bifolds.

Although homeowner preference is a huge factor, where the door is placed also influences the choice. Bifold panels generally project, so proper clearance around the system is necessary, Jeff Kibler, architectural and commercial manager with Weather Shield Windows & Doors, says.

Most are also top-hung so structural headers must be able to support the roof loads and the door load hanging from it. Bifold doors also are difficult mechanisms to try to automate; Kibler says he hasn't seen any automated bifold systems yet.

Multi-slides have variations, including those that let the panels pocket completely into the wall cavity. With that, however, comes the need for a wider jamb depth to accommodate stacking panels and an extra-wide wall if several panels are involved. “Water performance can be somewhat limiting on those door systems, as well,” Kibler says. “They always recommend having large overhangs to protect them from driving elements.”

“If [a homeowner] is looking for energy efficiency or higher water performance, bifolds are the best choice,” says Header. “If they are in search of motorization or larger width panels, multi-slide doors are preferred.”

Solar Innovations focuses on aluminum, vinyl and wood, but each has pros and cons. “Vinyl is the most energy efficient, but requires the use of smaller panels than their aluminum counterparts, defeating the purpose of a large glass opening,” says Header. Conversely, aluminum has lower performance values but can accommodate larger panels with narrower sightlines. Wood, meanwhile, has similar performance and efficiency characteristics as vinyl, but is heavier and requires thicker and wider frames, according to Header.

Kibler speaks to fiberglass’s rising popularity. Strength, larger sizes and thermal performance are among its advantages, he says, but cautions against drawbacks such as consistent finishing of the parts, limited interior options and fabrication issues.

### Performance

More and more, customers demand better-performing products in air, water, thermal and impact ratings while also maintaining energy efficiency and easy operation, according to Header.

Folding doors are typically more efficient than multi-panel sliding doors, says Header, because “the multiplane alignment breaches thermal breaks and limits air performance.” High-performance sills and frames in a multi-panel sliding door, however, can still offer high performance levels. Lift-and-slide doors improve air performance but still breach thermal breaks, he says.

But technological innovations in manufacturing, such as gaskets and glass, provide engineering teams with what Header calls “a clear pathway to higher performance without sacrificing

appearance or function.” Kibler describes selecting the proper glass as a “critical” performance consideration pursuant to the climate and solar heat gain goals.

Water performance is also a challenge, especially as customers want low- and zero-threshold products. “People are looking for water performance, but also want a low threshold, which, in a lot of cases, work against each other,” says Kibler. Weather Shield is exploring different sill designs that are minimal but still perform well thanks to some internal draining systems.

Brunk says Marvin uses low E2 and argon gas in some of its products to help achieve high energy efficiency levels. Its Modern Multi-Slide Door, for example, can achieve a U-factor down to 0.28. ■

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Doorglass applied with divided light can complement modern and historic architectural styles.

# DIVIDED LIGHT FOR ENTRY DOORS

*How simulated divided light and grilles between glass can complement architectural home styles*



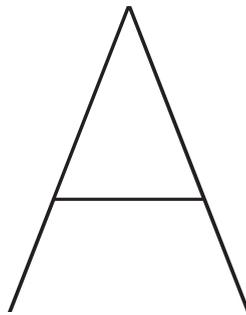
**BY AMY POST**

All images courtesy of ODL Inc., [odl.com](http://odl.com).





Although divided light still generates curb appeal, modern requirements and expectations have made TDL cost-prohibitive or otherwise impractical for many homeowners. As an alternative approach to providing divided light, manufacturers developed simulated divided light and grilles between glass.



Architectural styles—even the most contemporary expressions of an architect’s creativity—are drawn from the pre-existing, visual language of architecture inherited from earlier styles. These styles can remain with us in legacy buildings, modern revivals and elements repurposed and reinterpreted for newer styles, even long after the original cultural context and technical limitations that produced a style cease to be.

Consider the evolution of windows in architectural styles. Prior to the Industrial Revolution, there were limitations on the size of manufactured glass panes. This led to techniques such as coming for joining multiple panes together when larger, glass-covered windows were desired. These techniques gave rise to true divided light (TDL) and are reflected in architectural styles. For one example, we see this in the Tudor style, which often features transom windows and small panes separated by rectangular and diamond-shaped grilles.



Go to the all-new [WindowandDoor.com](http://WindowandDoor.com) for a closer look at architectural styles.

## SDL & GBG: A Breakdown of Doorglass Options

With **simulated divided light** options, grilles are applied to the outdoor-facing and/or interior-facing sides of a doorglass. SDL replicates the look of true divided light at a lower cost with panes of glass and spacers that add dimension. SDL are available with injection-molded frames produced by a process where the SDL bar and frame are created together instead of having the bar applied to the glass and frame separately. This simplifies installation and reduces the chances of warping or separation from the frame.

Available at a lower cost than SDL, **grilles between glass** options feature grilles applied between two panes. The approach of housing the grilles within the glass simplifies maintenance for homeowners who can easily clean the outdoor-facing pane and the interior-facing pane without the additional depth of the grilles causing obstructions.



Architects continue to incorporate divided light into designs even though manufacturing large glass panes for use in windows and doors of any size has been possible for many decades. Divided light has transcended its origins and appears in a variety of architectural styles because it still has emotional resonance among homeowners.

Divided light as an architectural element, though, is not limited to windows. Architects and homeowners recognize how doorglass applied with divided light can complement modern and historic architectural styles by drawing upon the same visual language.

### TDL alternatives

Although divided light still generates curb appeal, modern requirements and expectations have made TDL cost-prohibitive or otherwise impractical for many homeowners. As an alternative approach to providing

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Although divided light still generates curb appeal, modern requirements and expectations have made TDL cost-prohibitive or otherwise impractical for many homeowners.

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divided light, manufacturers developed simulated divided light (SDL) and grilles between glass (GBG). (See the above sidebar for distinction between the two.)

Rather than separating multiple individual panes with muntins, SDL and GBG provide the appearance of divided light by applying superficial muntins or grilles to larger panes in doorglass and windows. SDL and GBG are less expensive than TDL, which requires the engineering and installation of more components including multiple panes, the wooden muntin framework and concealed pieces meant to limit the leakage of air and heat through the gaps between the panes. Using a glass “sandwich” also helps eliminate air and water leakage.

Alternatives to TDL also provide the benefits of simplified maintenance for homeowners. In most cases, TDL is created using wood grilles that, over time, require maintenance and upkeep

and may deteriorate. Some SDL options incorporate grilles made with innovative materials that require little maintenance once they have been painted or stained. GBG options also require less maintenance than TDL. GBG grilles are encapsulated within two panes of glass and therefore don't require individualized cleaning for each pane.

### Options from manufacturers

The comeback of divided light as a sought-after architectural element has been noticed by doorglass and window manufacturers nationwide. Manufacturers are producing divided light glass in more sizes, textures and configurations than ever before. There are options to match any homeowner design preference and entryway dimensions.

New textures in divided light glass add a level of privacy that clear TDL glass never could. Incorporating soothing patterns in contrast to the hard lines of the grilles adds dimension and playfulness to a home's façade. In addition to offering new textures and levels of privacy, divided light glass is available in low-emissivity options, which can contribute to a home's energy efficiency.

Manufacturers are also incorporating more color into grilles, including two-tone grille options, giving customers more options to match surrounding architecture both inside the home and out.

The divided light look has roots in America's earliest home styles, but it remains with us, having grown to include both doorglass and windows. The resurgence of divided light as a design element, and the growing popularity of SDL and GBG options in contemporary home styles, indicate that divided light is here to stay. ■

Amy Post is the National Marketing Manager at ODL, [odl.com](http://odl.com), where the corporate mission is Building Value into Building Products. Post is currently working to enhance all areas of the digital experience for ODL and its family of brands.

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# A F T E R T H E

**NATURAL DISASTERS** often spur conversations around resiliency in building, but the term can be vague and broadly defined. The National Academy of Sciences defines resilience as “the ability to prepare and plan for, absorb, recover from and more successfully adapt to adverse events.”

Ryan Colker, vice president, innovation and executive director for the Alliance for National and Community Resilience, an International Code Council initiative, explains there are two categories to consider in resilient design. The first is shocks, such as hurricanes, earthquakes, flooding and other natural events; the other is stresses, such as affordability, aging population and population growth. Fenestration and other building professionals primarily concern themselves with building resiliency as it relates to shocks.

Although shocks occur at a defined point in time, the exact time is variable and rarely has significant lead time. Therefore, preparations must be proactive. “We have to prepare when it makes sense to do so,” says Colker. “Certainly, we can design new buildings to address those particular shocks.”

When it comes to wind-related events such as hurricanes and tornadoes, Colker says the weakest parts of a building include the roof, doors and windows. “In wind events, it’s all about pressure, where that pressure is applied and how it can build up and get into a building,” he explains. Strategies to protect windows against flying debris, says Colker, can include the structure of the window itself or ancillary products like shutters.

“We’re also seeing potential opportunity around energy efficiency and the intersection with resilience,” says Colker. Some energy-efficient offerings, he says, also can have enhanced integrity depending on what films are used or if the window comprises multiple panes. Enhanced insulation values also could help keep families in their homes longer in extreme hot or cold events instead of forcing them to evacuate to shelters.

## IMPACT PRODUCTS

As awareness increases around resilient design, impact-resistant windows are evolving accordingly. Dean Ruark, vice president of product management and engineering for PGT Innovations, recalls when PGT launched a Miami-Dade

County approved glass window impact-resistant product in 1994, it was a “specialized, niche” product.

That specialty niche product served a big market need, though, and, as such, spurred better engineering and technology. Materials also reached a more economical price point compared to early versions. In fact, says Ruark, there isn’t a huge price difference between an impact-resistant window and a non-impact window when homeowners have to add all of the storm shutters and hardware required to transform it into an impact-resistant product when necessary.

In addition, aesthetics have had “meaningful change,” with narrow sightlines and maximizing the glass while maintaining strength. “We’ve seen this transition from a tank of a product to something that really beautifies the architectural elements of a home with big openings and lots of glass,” Ruark says. “It lets the outdoors in, but when it’s time for the storm, protects you from those same elements.”

Regardless of geography, all buildings are designed to withstand some level of

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# S T O R M

WINDOWS AND DOORS PLAY AN IMPORTANT ROLE IN THE GROWING STUDY OF RESILIENCE FOR BUILDINGS

BY LAURIE COWIN

wind speed, which is one component of calculating design pressure, along with the shape of a building and surrounding terrain. The American Society of Civil Engineers conducts modeling based on probabilities of wind affecting a given area over a period of time, and high wind speed probabilities correlate to higher design pressures, Ruark explains.

Impact-resistant products come into play in wind-borne debris regions, defined as wind speeds exceeding 130 mph within 1 mile of coastal mean high tide, or wind speeds exceeding 140 mph regardless of distance from coastal mean high tide.

Ruark also says that the design pressure of a window correlates to the water infiltration performance. “Water is tested to 15 percent of the positive design pressure, so if you have a requirement for 50 DP, that will be rated for 7 ½ PSF of water,” Ruark explains. “But if you increase the DP requirement to 80 or 100, you get a much higher water performance in accordance with that.”

## CODE DEVELOPMENT

Ruark is part of a team of experts, including engineers, universities, FEMA

and the National Science Foundation, that evaluates hurricane damage in the storm’s immediate aftermath. The teams see multiple areas and, within a defined grid, conduct random inspections and forensic assessments on structures. They detail each building, construction type, roof shape, year built, general details and document elevations and note a level of damage to a building.

“Through that effort,” Ruark explains, “we end up with a tremendous amount of data points on different buildings post-storm and how they performed. We try to glean common elements in the buildings that failed and common elements that performed. All of that rolls up toward different recommendations into how we make buildings more resilient in the future.”

Historically, building codes have been developed with immediate life safety in mind, says Colker. But, he points out, the events of today are not the events of tomorrow. “We’ve seen an increase in the number of severe events and the severity of those events,” he says. In fact, the frequency of the most damaging hurricanes has increased 330 percent century-over-century, according to a

report published last year from the National Academy of Sciences of the United States of America.

“We need to think about how to address changing risks in a way that we may not necessarily know how they’re going to change,” Colker says. Climate models can provide some insight as to where to build in adaptability and where to make strategic investments that make building-enhanced resilience cost-effective. “It’s something the broader industry has recognized as something that needs to be addressed,” he says.

Although stronger buildings can be pricier, evidence suggests it is well worth the investment. The National Institute of Building Sciences Natural Hazard Mitigation Saves: 2018 Interim Report studied baseline building codes and found a benefit of \$10 in mitigation benefits against hurricane winds for every \$1 spent in adopting the 2018 International Building Code and International Residential Code. Above-code programs discovered a 4:1 dollar benefit. “There’s certainly a recognition that initial investment provides a significant level of benefit down the road,” Colker says. ■



# Products



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01



03



02

## 01 / Kolbe Windows & Doors

Kolbe introduces its VistaLuxe Collection AL Line, which includes a full selection of thermally broken all-aluminum windows and doors, including tilt-turns and hoppers, casements and awnings, direct sets, swinging doors, pivot doors, folding doors, multi-slide doors, lift-and-slide doors and Hi-Finity multi-slide doors. Several colors with powder-coated or anodized finishes are available.

715/842-5666 | [KOLBEWINDOWS.COM](http://KOLBEWINDOWS.COM)

## 02 / Hope's Windows Inc.

The One55 Series fixed, solid hot-rolled thermal steel windows feature Thermal Evolution technology. The windows are custom-designed to a maximum size of 16 by 8 ½ feet and accommodate up to 1 ¾-inch-thick glass units. Windows can be interior or exterior glazed and simulated or true divided lite profiles are available. Other features include fusion-welded frame and muntin construction and Hope's Power of 5 Finishing System.

716/665-5124 | [HOPESWINDOWS.COM](http://HOPESWINDOWS.COM)

## 03 / Eze-Breeze

The vinyl-glazed porch panel system is designed to provide up to 75 percent ventilation and eliminate 99 percent of UV rays. Made with an aluminum-extruded main frame, its panels are designed to be easy to raise and lower. Two-, three- and four-vent options are available; vents are removable. The system is customizable for any opening and has a spreader bar.

941/480-1600 | [EZEBREEZEHOME.COM](http://EZEBREEZEHOME.COM)

# Product/Solution



## Patio Door Hardware Solution // RotoFasco Secura 9600 Sliding Patio Door Handle

### Challenge

Cost-conscious patio door fabricators are looking for a sliding patio door handle that is easy to install, provides a contemporary aesthetic and matches exterior design.

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### Solution

Roto North America's RotoFasco Secura 9600 handle offers fabricators an "entry-level" handle that complements the company's 9900 contemporary handle, providing a better/best family of aesthetic looks. In addition to traditional use, some customers are actually installing the handle on furniture cabinets, which highlights the contemporary styling of this new handle.

The one-piece design of the handle allows for an ease of installation and is offered with a matching exterior design, with or without a keyed option.

The RotoFasco Secura 9600 handle is compatible with all of Roto's current mortise, keeper and accessory options and features built-in screw bosses which eliminate the need to install bushing spacers.

Produced in Roto's manufacturing plant in Ontario, Canada, the new RotoFasco Secura 9600 sliding patio door handle is a one-piece product that is available in a plethora of powdercoat colors.

For more information, contact Roto North America at (860) 526-4996 or visit [rotonorthamerica.com](http://rotonorthamerica.com).



01



03

**01 / KOVA**

The Privacy Pocket Door Lock, which debuted at IBS, has a handle with concealed screws and minimal seams. The large handle and edge pull are designed to be easy to grip. The lock also features a linear-actuated latch that can be installed over a traditional pocket door handle cutout. Three finishes are available: matte black, polished chrome and satin nickel.

206/739-0944 | [KOVAPRODUCTS.COM](http://KOVAPRODUCTS.COM)

**02 / Velux**

Velux Active with Netatmo is a smartphone-controlled skylight automation assistant where homeowners can automate when skylights open and close and when skylight blinds extend. The system connects to an online weather station that monitors outside conditions and uses indoor sensors to monitor temperature, humidity and carbon dioxide levels inside. The technology also enables voice-activated operation and the ability to set an open and close schedule. Velux Active is compatible with Apple HomeKit and Google Assistant.

800/888-3589 | [VELUXUSA.COM](http://VELUXUSA.COM)

**03 / Andersen Windows and Doors**

Andersen extended its line of MultiGlide doors to include heights down to 48 inches and widths to fit openings up to 50 feet. The doors feature contemporary and traditional frames, are customizable with exterior and interior designs, have built-in jamb jacks, and offer continuously adjustable synthetic rollers and configurable installation guides.

800/426-4261 | [ANDERSENWINDOWS.COM](http://ANDERSENWINDOWS.COM)



04



05



06

#### 04 / Marvin

Marvin Skycove is a fully constructed, pre-engineered glass pop-out structure designed to expand interior space. Sightlines are under 3 inches, including vertical posts. The integrated bench offers 16 to 20 square feet of usable space and the frame includes a built-in recess for shade solutions. Other features include standard low-E3 glass, dual or optional triple-pane glass, bottom insulation, high-density fiberglass exterior and a four-degree sloped, flush-glazed roof with waterproofing flange.

888/537-7828 | [MARVIN.COM](http://MARVIN.COM)

#### 05 / Vi-Lux Building Products Inc.

Vi-Lux introduces a new 6 3/16-inch reinforced aluminum or LSL mull post to complement its existing 4 3/16-inch LSL mull post. The new mull post is 2 1/2 inches by 6 3/16 inches and is available in smooth white, stainable mahogany woodgrain or stainable oak woodgrain. Vi-Lux offers full CNC machine prepping of the mull post including hinge pre, latch prep, multi-point lock pre, haunch prep and cut to length.

613/354-4830 | [VI-LUX.COM](http://VI-LUX.COM)

#### 06 / INOX

LaserArt x CeraMax launched at IBS. The hardware first is treated with CeraMax ceramic coating and one of 12 color options is selected before the hardware bakes in a finishing chamber. The company then uses its vanadote diode laser to create a custom design.

916/388-1888 | [INOXPRODUCTS.COM](http://INOXPRODUCTS.COM)

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### Help Wanted

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GlassBuild America	29	866/342-5642 ext. 142	glassbuild.com
Lawrence Industries	21		lawrenceindustriesinc.com
Quanex Building Products	25-28		quanex.com
Roto North America	3	800/243-0893	rotonorthamerica.com
Solar Innovations	2	800/618-0669	solarinnovations.com
StarmarkWindows	11	215/788-7000	starmarkwindows.com
Stürtz Machinery Inc.	51	330/405-0444	Email: info@sturtz.com
Taylor Entrance Systems	52		taylordoor.com
Ultrafab	15	800/535-1050	ultrafab.com
Urban Machinery	7	519/624-0080	urban-machinery.com
Vision Hardware	9	800/220-4756	visionhardware.com
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# Market Data



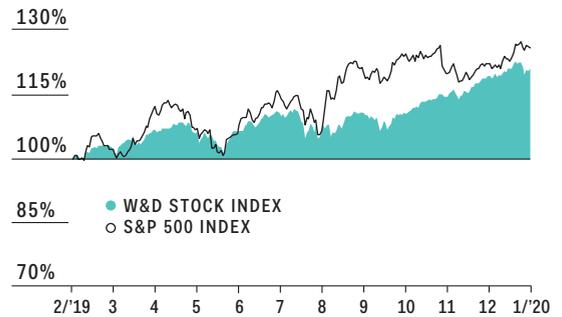
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## ➔ Windows on Wall Street—

### W&D Stock Index Increased in January

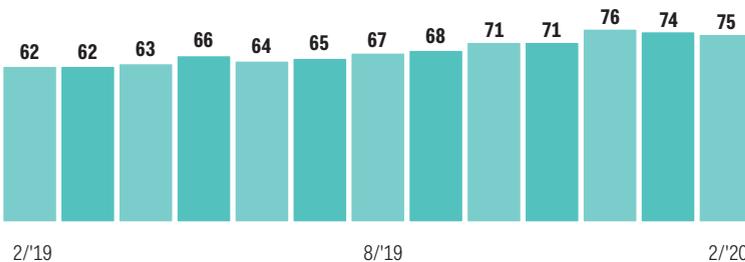
Stock prices of publicly traded window and door companies outpaced the broader market in January, as the W&D Stock Index increased 1.3 percent compared to a 0.2 percent decline for the S&P 500. These gains boosted the 12-month return on the W&D Index to 23.4 percent compared to a 19.2 percent increase for the S&P 500.

Building products stocks have outperformed the market as mortgage rates continued to be low and construction data has been positive. The Bureau of the Census reported that housing starts reached a 13-year high as a result of a 16.9 percent increase in December compared to the November report. This pushed the last 12-month growth in overall housing starts to 40.8 percent or 1.608 million units. Importantly, the growth in starts and permits have been driven by a significant rebound in single-family construction activity across the country and has shown positive trends for the past 6 months. Overall, growth in the construction market has resumed, which will support valuation and M&A opportunities in building products in the months to come.



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## National Housing Market Index (HMI)



“The housing recovery continues, as single-family housing starts have surpassed one million for the second consecutive month and multifamily production has been running above 500,000 for the same period,” said NAHB Chairman Dean Mon, a home builder and developer from Shrewsbury, N.J. “Meanwhile, builder confidence remains solid as demand continues to pick up.”

Overall permits, which are a harbinger of future housing production, increased 9.2 percent to a 1.55-million-unit annualized rate in January. This is the highest level since March 2007. Single-family permits increased 6.4 percent to a 987,000 rate while multifamily permits increased 14.6 percent to a 564,000 pace.

## ➔ Market Snapshot—

### Single-family Housing Starts Surpass One Million

Total housing starts decreased 3.6 percent in January from an upwardly revised December reading to a seasonally adjusted annual rate of 1.57 million units, according to a report from the U.S. Housing and Urban Development and Commerce Department. Meanwhile, overall permits surged to a 13-year high. Within this overall number, single-family starts decreased 5.9 percent to a 1.01 million seasonally adjusted annual rate.

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