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DWMTM

Incorporating
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DOOR & WINDOW MARKET MAGAZINE

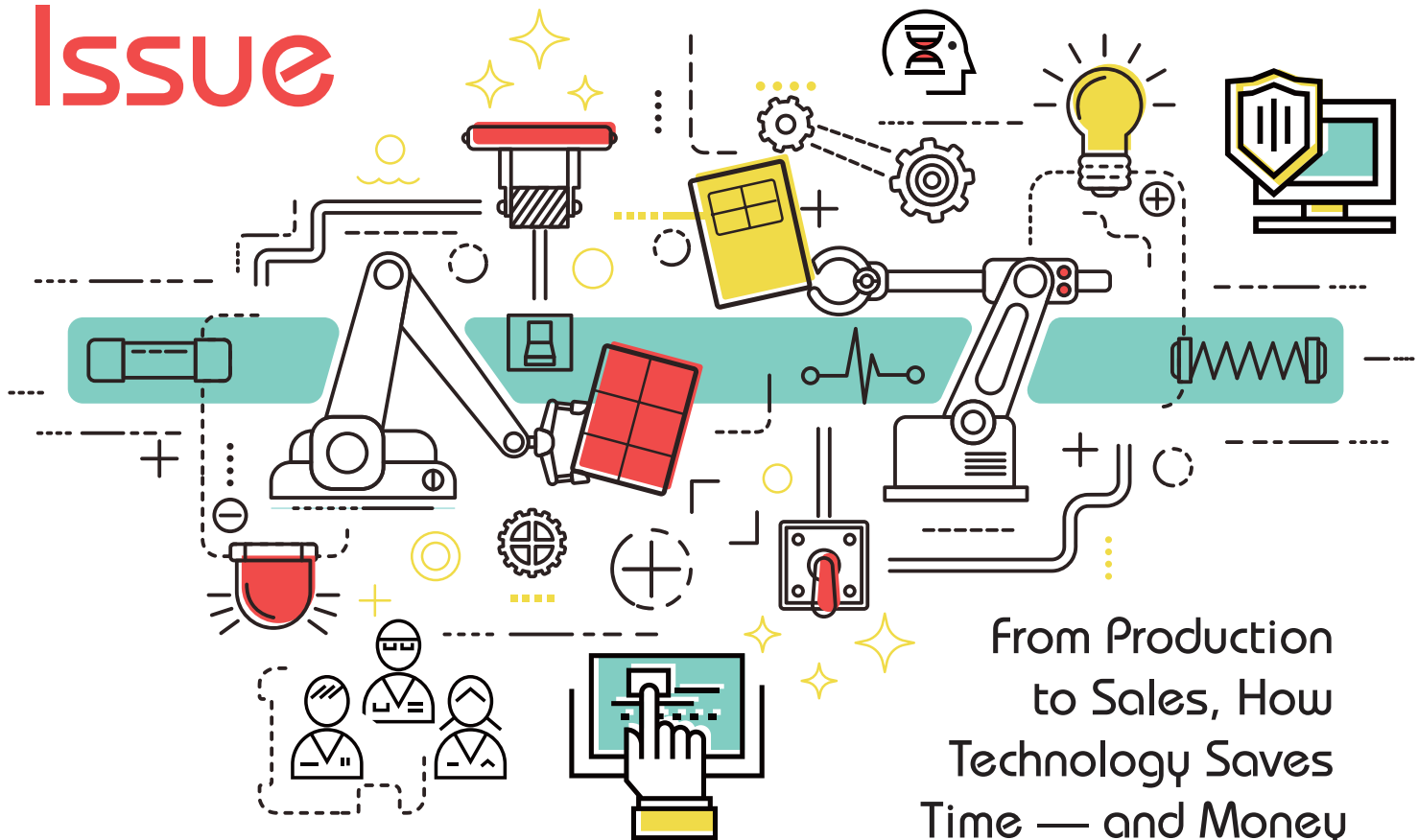
SOFTWARE CONNECTS
THE DOTS

MACHINERY GOES
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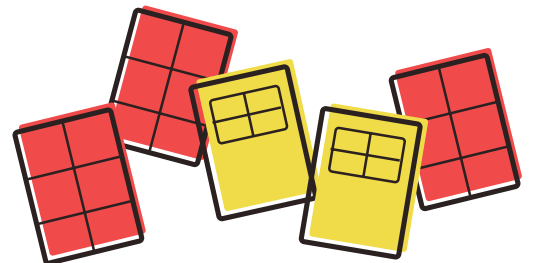
IBS ORLANDO REVIEW

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The Automation Issue



From Production
to Sales, How
Technology Saves
Time — and Money

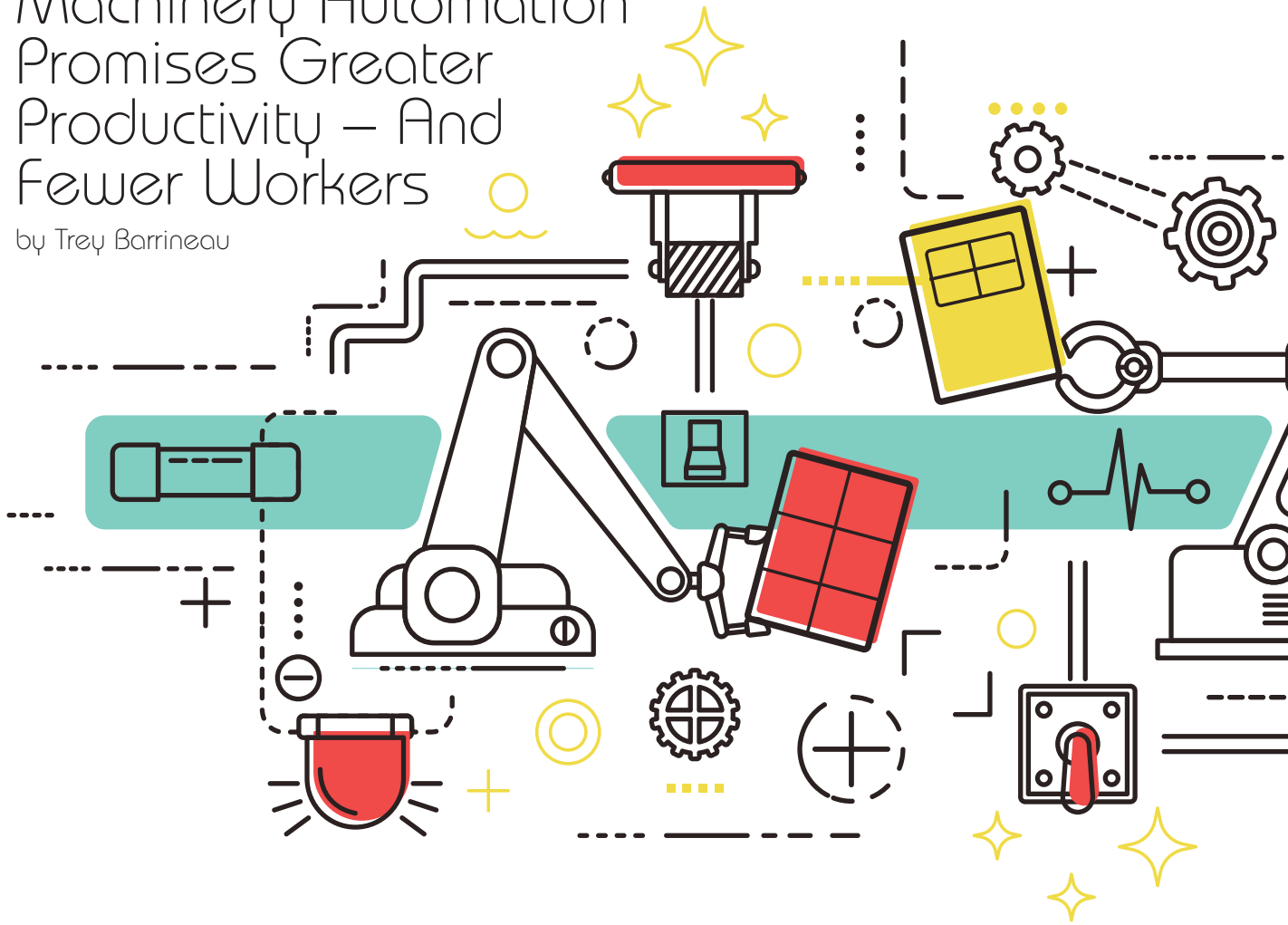


COMPREHENSIVE COVERAGE, AUDITED CIRCULATION

A Hands-free Future

Machinery Automation Promises Greater Productivity – And Fewer Workers

by Trey Barrineau



A recent report from the McKinsey Global Institute estimates that automation could boost global business productivity by 0.8 percent to 1.4 percent per year. Additionally, the report says about half of all workforce activities worldwide could be automated using current technology, saving companies about \$15 trillion in wages.

Many industry leaders might drool over such dramatic cuts in labor costs, but the report also points out that automation works best in highly structured industries such as manufacturing.

In recent years, door and window makers have embraced automation in a huge way. In fact, companies that sell machinery say requests for automation are the biggest ones they hear.

But it's not because they're looking

to slash payroll. It's because there are fewer people to put on the payroll in the first place.

Where are the Workers?

In the U.S., a skilled-labor shortage is big problem across many industries. Deloitte and The Manufacturing Institute conducted a study in 2015 that predicted a massive gap between available manufacturing jobs and the workforce needed to fill them in the years ahead.

"The research shows that 84 percent of manufacturing executives agree there is a talent shortage in U.S. manufacturing, and this gap will be exacerbated by more than 2.7 million professionals exiting the manufacturing workforce through retirement over the next ten years," said Craig Giffi,

vice chairman of Deloitte LLP. "Our research estimates that the cumulative skills gap—or the positions that likely won't be filled due to a lack of skilled workers—will grow to 2 million between 2015 and 2025."

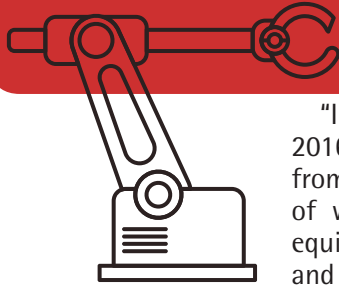
The labor issue was by far the biggest reason cited for the growing drive toward automated production processes by those who make and sell machinery for the door and window industry.

"One theme that seems to cross all of the segments is the fact that customers are desperate to reduce labor while improving quality and increasing flexibility," said Todd Tolson, director of sales for Pro-Line Automation Systems.

Sarah Colberg, the vice president

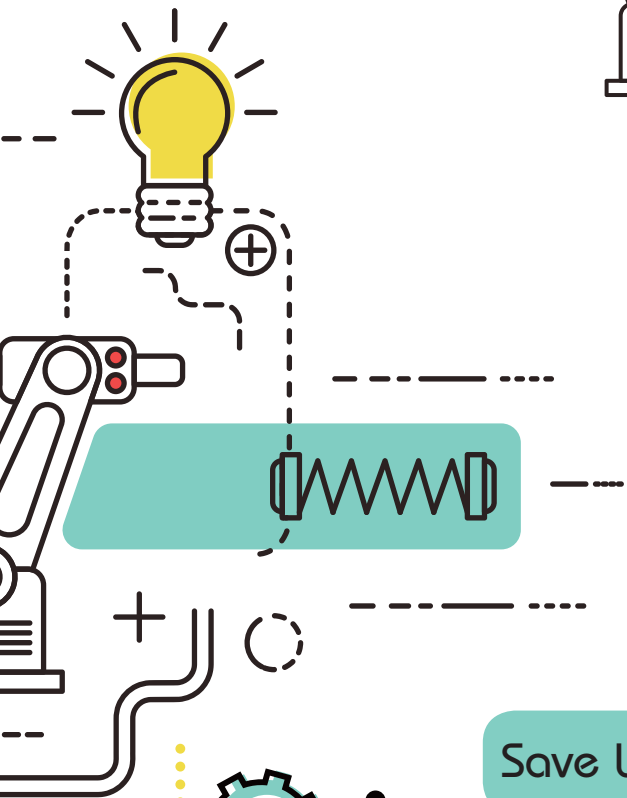
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Rise of the Robots



"In just the first nine months of 2016, 23,985 robots were ordered from North American companies, all of which require machine guarding equipment to maximize productivity and safety."

– Joe Nitiss, Rockford Systems



Big Money

By 2023, the global industrial robotics market is expected to reach \$70.26 billion.

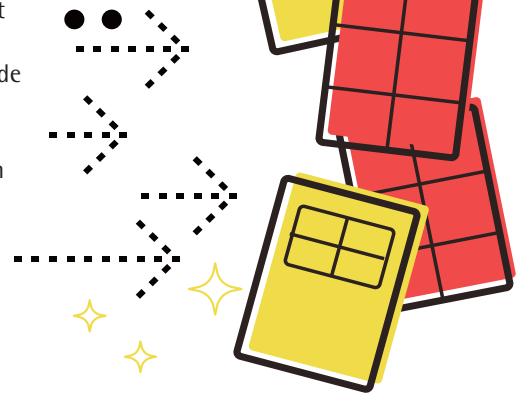
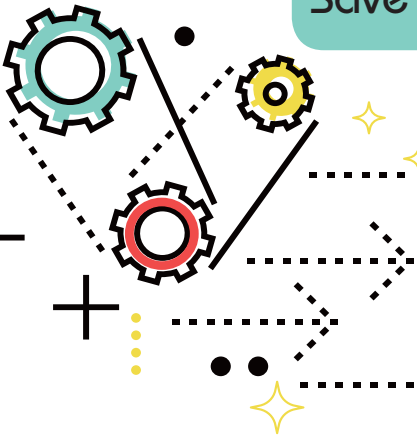
Source: Forrester Research



Save Wages, Boost Productivity

Automation could boost global business productivity by 0.8 percent to 1.4 percent per year. About half of all workforce activities worldwide could be automated using current technology, saving companies about \$15 trillion in wages.

Source: McKinsey Global Institute



Bodies Needed

By 2025, about 2 million jobs in manufacturing will sit idle because of a lack of skilled workers.

Source: Deloitte LLP





of sales for Lothar's Industrial Sales/Witte North America, believes the skilled-labor crisis will speed up the adoption of robotics, revolutionizing workplaces around the country.

"I believe the next big thing in machinery will be robotic equipment for cutting, welding and corner cleaning, as manufacturers are having a difficult time finding skilled workers," she says.

One manufacturer is already using robots for corner cleaning to great fanfare.

GED Integrated Solutions Inc. recently won ABB Robotics' "Most Innovative Solution" Award for its Roboclean (RC-2000) robotic twin-head vinyl corner cleaning system.

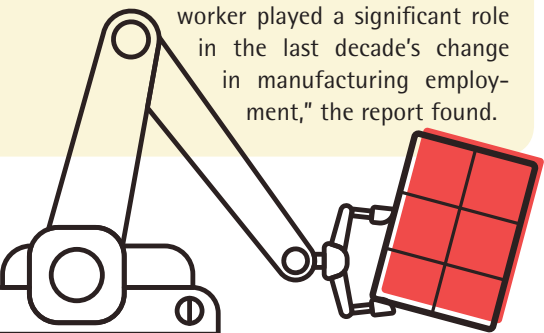
Domo Arigato, Mr. Roboto ...

It's easy—and politically popular—to blame China or Mexico for the loss of American manufacturing jobs, but a recent report from Ball State University points the finger at robots, which are driving massive gains in productivity even as they put people out of work.

From 2000–2010, the U.S. saw the largest decline in manufacturing employment in history, the report finds, with about 88 percent of the jobs lost to robots and other factors such as automation. (Trade accounted for about 13 percent of job losses.)

But from 2006 to 2013, manufacturing output grew by 17.6 percent, according to the report. The reason? Again, robots.

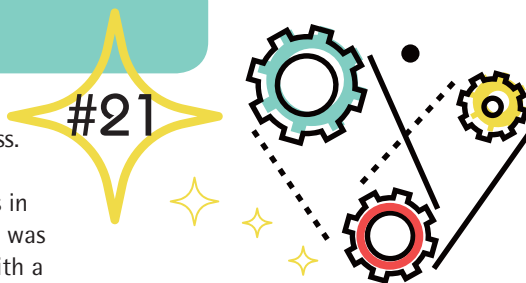
"The growth in production per worker played a significant role in the last decade's change in manufacturing employment," the report found.



Deadliest Jobs

#21

In 2015, Bloomberg ranked 51 jobs according to their deadliness. The rankings were based on fatalities per 100,000 employees in that field. The 21st deadliest job was industrial machinery workers, with a fatality rate of 11.81 per 100,000.



"With the introduction of the RC-2000, GED became the first company to use robots for cleaning as a part of the window manufacturing process," said Gustavo Sepulveda, the robotics general manager at ABB–United States. "They have been able to apply some innovative approaches to automate a process that had previously been considered unsuitable for automation."

And while GED is seeing success with its robotic corner cleaner, customers are demanding more. Much more.

"They're always asking 'what other machines or processes can utilize a robot, or robotic technology to automate?'" says Joe Shaheen, director of sales and marketing at GED Integrated Solutions. "They'll ask 'what's next? What else can be automated? How can we get more throughput with less labor?'"

As more robotic and automated systems become available, the ability to integrate with software in the plant only grows in importance.

"One new feature we are starting to offer is remote monitoring of overall equipment efficiency, or OEE," says Morgan Donohue, vice president at Erdman Automation. "We can gather data and inform customers of things such as units produced, machine downtime, etc. Another highly sought-after feature is VPN remote access for programming changes offsite."

Manufacturing worldwide is being disrupted by cloud-based computing, the "Internet of Things" and the growing use of data analytics—and it's poised to become a huge business. "The convergence of information technology and operations technology will drive collaborations between robot manufacturers and commu-

nication and software providers," says Sharmila Annaswamy, industrial automation and process control research analyst at Forrester. "By 2023, the global industrial robotics market is expected to reach \$70.26 billion."

It's Time to Spend

Most machinery makers who spoke to DWM said the housing rebound is leading to increased demand for their products.

"Our American customers seem to be purchasing more fabrication equipment and tooling as they look forward with an optimistic outlook on the future market," says Colberg, whose company is based in Canada.

Because of the housing surge, residential door and window demand in the U.S. is projected to rise 6 percent per year through 2020 to \$25.6 billion, according to research from the Freedomia Group, a Cleveland-based industry research firm.

"Yes, since 2014 we have seen higher demand," says Donohue.

Michael Biffi, national sales manager for Sturtz, says he's seeing a lot of requests for replacement machinery.

"A combination of the market growth and the amount of old equipment in the market is leading to high demand for new equipment in the PVC fenestration industry," he says. "Most manufacturers are seeing significant increases in their sales, which by itself is creating demand. On top of that, many companies are using equipment that is 10-15 years old and they want to upgrade to newer, more efficient technology."

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“Our team relies on FeneVision to help Lindsay Windows grow.”

Geoff Roise, Lindsay Window & Door

Read the full Lindsay Windows story at fenetech.com

Visit fenetech.com/testimonials for the Lindsay Window & Door and more user success stories. To discover how FeneVision ERP software can create huge benefits for your business, contact Matt Batcha at 330.954.7505 or matt.batcha@fenetech.com.



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When Should You Automate?

If you're a small- to medium-sized window fabricator that hasn't automated some of your production processes yet, you might be itching to pull the trigger. However, it's a decision you shouldn't rush into, according to a recent e-book published by machinery maker TigerStop.

The company lays out a four-step evaluation process for determining if you're ready to automate:



1. Look

The best processes to automate are those that are repetitive, simple, time-consuming and prone to errors. (Think measuring and cutting.)



2. Time

Use a stopwatch to measure how long a task takes. Note how many times a day that task is performed.



3. Do the Math

A couple of simple formulas for determining time wasted and cost can help with your decision:

$$\text{Time wasted} = \text{time doing task} \times \text{times performed}$$

$$\text{Cost} = \text{time wasted} \times \text{employee's hourly wage rate}$$

4. Decide

Should you automate the process? Consider it if an automated solution:

- Saves money
- Saves labor costs
- Saves time
- Reduces scrap
- Increases yield



Not everyone directly links the increase in business to the rebound in housing, however. It might also be driven by capital that's sat on the sidelines as the economy recovers, says Pro-Line's Tolson.

"We've seen a steady increase in our business for the last two and half to three years, so I'd be hard-pressed to tie it directly to the modest improvement in new housing starts," he says. "I believe the bulk of the increase is coming from pent-up demand combined with some cautious optimism in the overall economy."

While rising demand is good for business, it also means some window makers might be cutting corners by using cheaper materials. That presents challenges to machinery manufacturers, says Colberg.

"Over the last several years we have seen profile walls become thinner and thinner to the point that it has become challenging to try and adapt our fabrication equipment to accommodate these thin-walled profiles properly," she says. "The amount of time and energy wasted on poor quality output has been exponential, across the board. I'm not sure how many manufacturers are taking this into account when assessing the negative impact that these thin-walled profiles are having on the bottom line financially, not to mention the landfills."

Safety First

Another major plus for automation is increased safety. The more a machine does, the safer the process. That's important, because operating machinery remains one of the more dangerous jobs in America.

"About 40 percent of fatal industries in the workplace are transportation-related, but 11 percent are equipment- or manufacturing-related," said Mike Burk of GED, who has been heading up the Insulating Glass Manufacturers Alliance (IGMA) Glass Safety Awareness Council since 2011.

Process automation can drasti-

cally reduce injuries associated with machinery, but robotics presents new and unique safety challenges for welding, assembly, CNC and metal cutting equipment. That's why Rockford Systems, a provider of machine safeguarding products and services, recently became a supplier member of the Robotic Industries Association (RIA).

"Robotics is a growing multi-billion-dollar market," said Joe Nitiss, CEO of Rockford Systems. "In just the first nine months of 2016, 23,985 robots were ordered from North American companies, all of which require machine guarding equipment to maximize productivity and safety."

Injuries associated with robotic automation typically occur during non-routine operating conditions when an employee is within the robot's working area performing programming, maintenance, testing, set-up or adjustment. Rockford Systems manufactures components that protect workers during both routine and non-routine robotic operations.

What's Next?

Looking ahead, the future of automation for the door and window machinery will see greater integration with all of a company's software, from customer relationship management (CRM) to enterprise resource planning (ERP) to optimization, which refers to using raw materials more efficiently.

Automation can also play a huge role in the lean manufacturing process, which focuses on maximizing flow while minimizing investments, scrap, travel within the plant and other wasteful movements and practices.

As part of that, it could also mean a smaller footprint for production facilities, says Erdman's Donohue.

"When looking at the next innovation for any industry, rather than asking ourselves what does the customers want, a simple question to ask is how can we make it for less money, using fewer people, in a smaller space," he says. **I**

Bending the Possibilities at T-Mobile Arena

An enormous, curved glass façade greets entrants of the gleaming new T-Mobile Arena in Las Vegas. A striking sight to behold, more than 30,000 square feet of cold-bent insulating glass units (IGUs) is a marvel of modern architecture and the first known project of such scale to be completed in the United States. Not just glass, the façade incorporates a state-of-the-art LED overlay, enabling the structure to not just make for a glamorous addition to the city, but to complement its striking mountain backdrop.

The design was brought to life by the New Jersey-based architectural glass fabricator J.E. Berkowitz, now a part of the Consolidated Glass Holdings (CGH) group, together with Crown Corr and glass supplier Guardian, among other partners. To help increase efficiency on this major, high-profile job, Crown Corr used an on-site, IG cold-bending technique while installing the glass.

It took planning, expertise and confidence to execute this large-scale project using this unique method, and it was accomplished, in part, with the inherent flexibility and performance provided by the Super Spacer® TriSeal™ warm-edge spacer technology from Quanex Building Products, implemented in J.E. Berkowitz's JEB 3Seal™ spacer system.

A Plan in Place

Traditionally, float glass is heated and formed into a curved mold to create most of the curved glass you see in buildings today. But with a history of innovation stretching back to 1920, J.E. Berkowitz worked with Crown Corr to implement the on-site cold-bending technique to realize the complex, unique design for a number of reasons.

"Our customers come to us looking for high-quality fabricated products that not only look great, but meet evolving energy codes and quality standards," said Gary McQueen, architectural design manager, J.E. Berkowitz. "We have state-of-the-art machinery and technology to meet the tight tolerances demanded today, and we work with the right industry partners to make that happen."

Wanting to bring the right approach to the T-Mobile Arena job, J.E. Berkowitz knew that the traditional heated bending

method would drive up the total cost of the project considerably, so they moved forward confidently with Crown Corr's cold-bending approach. The firm knew that a robust plan would be necessary to accomplish the job correctly.

For the entirety of the façade, Crown Corr worked with J.E. Berkowitz Winduo™ IGUs that arrived at the

job site in flat, trapezoidal shapes. To work with the building and its designs, each piece needed to be cold bent individually, by hand. Every single IGU used was unique, which took careful planning at every stage of the project.

That planning included an examination of the long-term impact of cold bending on each IGU, and J.E. Berkowitz relied on Quanex to make sure every piece would stand up to the necessary performance standards. Having worked with Quanex for more than eight years, J.E. Berkowitz knew it had a helpful and reliable supplier by its side.

J.E. Berkowitz has utilized Quanex's warm-edge spacer technology for many of its high-performance products, including Super Spacer TriSeal/JEB 3Seal, as part of its newest

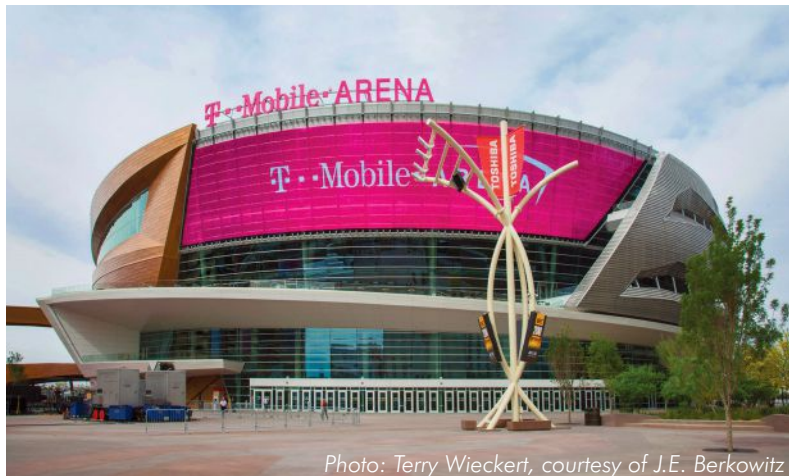


Photo: Terry Wieckert, courtesy of J.E. Berkowitz

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Bending the Possibilities at T-Mobile Arena continued from page 1



and largest IG line installed over two years ago. The firm knew that quality was a top priority for the T-Mobile project, and that TriSeal would help achieve that mission. McQueen added that the 3Seal spacer system was a key contributor to the overall wall performance and aesthetics, offering sharp sightlines for each IGU, all while increasing thermal performance.

A Team Effort

Overall, the completion of the T-Mobile façade was a true team effort, with J.E. Berkowitz relying upon its strong relationships within the architectural community, its customers and its suppliers. Quanex offered a significant contribution through superior technology and product support—and now, the city of Las Vegas adds another must-see structure to an already long list.

“Working closely with Quanex is one of the ways we stay committed to bringing quality to our customers over everything else,” McQueen said. “Using Super Spacer TriSeal on projects such as the T-Mobile Arena helps us improve our quality while optimizing the fabrication efficiency of each IG unit, and the support we receive from Quanex is exceptional. Any question we have, any challenge we must overcome, Quanex is there to offer their help and much more.”

For more information on Super Spacer TriSeal/JEB 3Seal and the T-Mobile Arena project, visit www.Quanex.com and www.JEBerkowitz.com.

How Close Is the Fully-Automated Home?

There's optimism in the air in the building and construction industry. At January's International Builders' Show (IBS) in Orlando, that feeling held true. An estimated crowd of 80,000 showed up to check out the latest innovations—up approximately 20,000 attendees from last year's show.

And just a week prior, the Consumer Electronics Show (CES) descended upon Las Vegas, where hundreds of thousands of attendees annually gather to see the latest new product technologies. What does it have to do with building and construction? Many of the most talked about technologies showcased at CES revolved around one thing: the increasingly connected home, a trend also heavily represented at IBS.

And it means all residential building and construction professionals should be paying attention to how increasing connectivity could be impacting their business.

Connected Everything

The “Internet of Things” has been a buzzword for a few years now, and it's not going away. New technologies showcased at CES ranged from a “smart” refrigerator that will text you when you are running low on yogurt to a “smart” trashcan.

Connectivity was a running theme at IBS, too. Attendees witnessed remotely locking doors and windows; custom, variable tinted windows that change depending on the day's weather; windows with internal, automatic blinds; and software that integrates throughout an entire home.

These technologies aren't brand new in themselves—commercial building operators have taken advantage of Building Automation Systems for more than a few years. But now, we're seeing automation and connectivity begin to proliferate in everyday living spaces. Consumers are demanding total connectivity for a variety of reasons: increased control over energy use and cost, better convenience among busy schedules, and more.

Adaptability in a Changing World

Of course, it could be a while before many of the technologies highlighted at IBS and CES become commonplace. But for building and construction professionals wishing to stay on the leading edge of their industries, it's worth thinking about now.

Within fenestration, we've seen how high-speed automation has enabled us to increase production and boost quality. Many in our industry continue to hone operations for maximized efficiency, quality and labor usage with new automated lines. And when we think about the window manufacturing plant of the future, we must also consider homeowner desires of the future.

It might be some time before everyone has fully connected, responsive, automatically adjusting windows and doors. But it might also be sooner than we think, and it's those manufacturers who have stayed up on trends, technologies and changing consumer preferences who will reap the benefits.

Keep up on the latest at www.Quanex.com/InFocus.

Technologies Converge for Innovative 7 St. Thomas

Standard Bent Glass' unique technological qualifications helped bring to life a complex curved glass façade, merging old with new at a well-traversed intersection in Toronto.

Not long ago, it would have been near impossible to complete a job like the one recently completed at the intersection of St. Thomas and Sultan Streets in the heart of Toronto's leading commercial district. The luxury office and condominium space is a marvel, with a nine-story fritted glass curtainwall stretching above a row of restored, original 19th century townhomes, creating a striking contrast between old-world architecture and the new possibilities of glass-bending technology.

But you wouldn't know the project's complexity to simply look at it. Standard Bent Glass, the curved insulating glass (IG) supplier for the job, was uniquely positioned to bring the designs to life thanks to a convergence of several in-house manufacturing advantages—and a flexible spacer solution in Super Spacer® TriSeal™ Flex from Quanex Building Products.

"The requirements for this project—incorporating high-performance coatings and ceramic frit patterns to curved IG surfaces in both convex and concave elevations, all within the limitations of bending and tempering glass—posed a real challenge, and we were able to tackle it because we have all the necessary resources under one roof," said Jeff Nichols, vice president of sales and marketing, Standard Bent Glass. "It also required a flexible silicone spacer, and TriSeal Flex offers an ideal solution for curved glass."

Bending the Limitations

The undulating glass structure, designed by Hariri Pontarini Architects, required close collaboration and problem-solving from all involved, including Standard Bent Glass, Quanex and BV Glazing Systems.

The nature of the building's curvature posed a significant challenge, as the

necessary high-performance coatings could only be fabricated on the concave surface of the glass. Likewise, the decorative white ceramic frit patterns were only able to be coated on the concave surface.

But both concave and convex surfaces are prominently featured, requiring Standard Bent Glass to think outside the box.

"Figuring out how to satisfy the desired aesthetic with the structural necessities required brainstorming from all involved," said Nichols. "Developing our strategy and how to best put the glass together to satisfy the design criteria wasn't simple."

The best way to feature the decorative frit was to incorporate the frit on the exterior surface of the glass coating—a high-performance Low-E coating applied to a low-iron glass substrate to eliminate the tint in clear glass from compromising the color of the white gradient frit lines. As a fabricator to work with the Low-E coating, Standard Bent Glass worked confidently, giving the project remarkable visual consistency across the curtainwall's concave and convex surfaces.

A Flexible Spacer Solution

To meet the demands of the curved units, each of which are in excess of 50 square feet, Standard Bent Glass worked with Quanex and its TriSeal Flex spacer system, a warm-edge flexible silicone spacer. The TriSeal systems were hand-applied to the curved glass units, along with a secondary silicone for additional structural strength. The final units were filled with argon for increased thermal performance.



"TriSeal was an essential part of the success of the final project," Nichols said. "When we decided to work with the product, Quanex offered our teams multiple-day training, providing all the necessary technical information we needed to successfully incorporate TriSeal into the job. We went right from those days of training to high-volume production of IG units with TriSeal, and the transition was seamless."

As technologies like TriSeal and bendable high-performance coatings continue to gain traction in the marketplace, curved IG is poised for continued growth. Architects can continue to push the boundaries with their designs, confident that available glass technologies can meet the necessary performance demands. The 7 St. Thomas building is proof.

"Our company has succeeded in meeting some unique demands with our highly custom glass products," said Nichols. "Curved IG is a growth market, as it can now deliver the same performance as flat IG—and Quanex flexible spacer systems are a critical part of that equation."

To learn more about Standard Bent Glass and its custom insulating glass solutions, visit standardbent.com.

Mikron AW-rated Windows and Doors: A Prime Opportunity

The Colorado-based Prime Window Systems, LLC, is growing its business with larger, high-rise builders as the market continues to seek energy-efficient, high-performance alternatives to aluminum windows for commercial applications.

Optimism for a healthy 2017 in the housing market continues, and that means builders are seeking new, energy-efficient building materials as they take on new projects—and Colorado-based Prime Window Systems is seizing the opportunity to deliver on that need.



"We've built our business around light-commercial and multifamily projects," said Prime COO Bill Rice. "And as that's happened, we've built some critical relationships with larger builders, and now we're growing our business to deliver the necessary, high-performance solutions they need."

Why alternatives to aluminum? Rice notes the desire of many architects and builders to enhance thermal performance by moving away from mechanically assembled aluminum window systems, where heat can more easily escape, as well as a greater desire for versatility in the residential and commercial high-rise market.

Prime is seizing that opportunity with the Mikron AW-Rated System C3-11300™ from Quanex Building Products, the only operable PVC non-metallic window system on the market today that satisfies the Architectural performance class (AW) in the North American Fenestration Standard. With its thermal performance, design versatility and structural strength, Prime is positioned to better help meet the increasing stringency of the commercial market in a variety of applications—bolstering its core business while breaking into new markets.

Versatility in Action

Rice notes versatility is in demand among builders, and working with the Mikron AW-Rated system will better enable his team to help meet those demands.

"We've had customers who have run into sizing issues, for example, where the architects' objectives couldn't have been accomplished with a traditional light commercial rated vinyl product," Rice said. "We're hearing significant interest in using this system as an alternative. Being able to offer those customers a cost-effective PVC solution that readily meets all of the necessary design and performance requirements is something we're very excited to be able to bring to our customers."

Prime has also built part of its competitive advantage upon its ability to deliver acoustically rated windows for environments where noise pollution can be troublesome. In urban high-rise residences, for instance, the Mikron AW-Rated system provides Prime a supplemental advantage, helping keep the sound of busy city streets out along with the company's sound-deadening glass components.

The Mikron SuperCapSR™ exterior color technology is another area where the AW-Rated system helps Prime offer new flexibility to its customers. Where painted PVC solutions can fail to withstand the rigors of manufacturing, installation and solar elements, SuperCapSR offers durable, extended color selection through its molecularly fused, co-extruded technology equaling the industry's current high-performance aluminum-coated products.

"There tends to be a bit of skepticism around painted vinyl," said Rice. "SuperCapSR answers all these issues, and once we demonstrate the difference between painted vinyl and SuperCapSR technology, our customers are excited to use it."

New Frontiers with Higher Performance

In addition to bolstering competitiveness in markets where the company has built its name, Prime Architect Representative Chris Solari notes that working with the Mikron system has the potential to open new avenues for additional business.

"I think we've only scratched the surface in terms of how we can extend our capabilities working with the Mikron AW-Rated System," Solari said. "There's a lot of new opportunity here—the efforts we've made and the conversations we've had so far indicate a lot of interest from the architectural community, and we're hoping to maintain that momentum as we begin production later this year with the Mikron system."

"We know the benefits of the Mikron system, but Quanex has done a great job of helping our team develop a deeper understanding of the product, its features and benefits, and the markets where it's best suited for success," Rice said. "So far the relationship has been beneficial, and we're excited to see where we can go with this product."

For more information on Prime Window Systems solutions for light-commercial and multifamily high-rise applications, check out primewindowsys.com or Prime's architectural website at silent-guard.com.

To receive Fenestration Focus electronically, please visit www.Quanex.com/register.

Connecting the Dots

How Integrated Software Enhances Businesses

BY KATHERINE COIG AND TREY BARRINEAU

As companies in the door and window industry grapple with a lack of skilled labor, many are finding a solution in automation. Integrating software throughout a company is a major part of that process. Software and automation often go hand-in-hand; the synergy of the technologies makes for a successful and efficient operation compared to just an automated machine. It's also invaluable for sales.

Simply put, integrated software can make production and operations far less expensive.

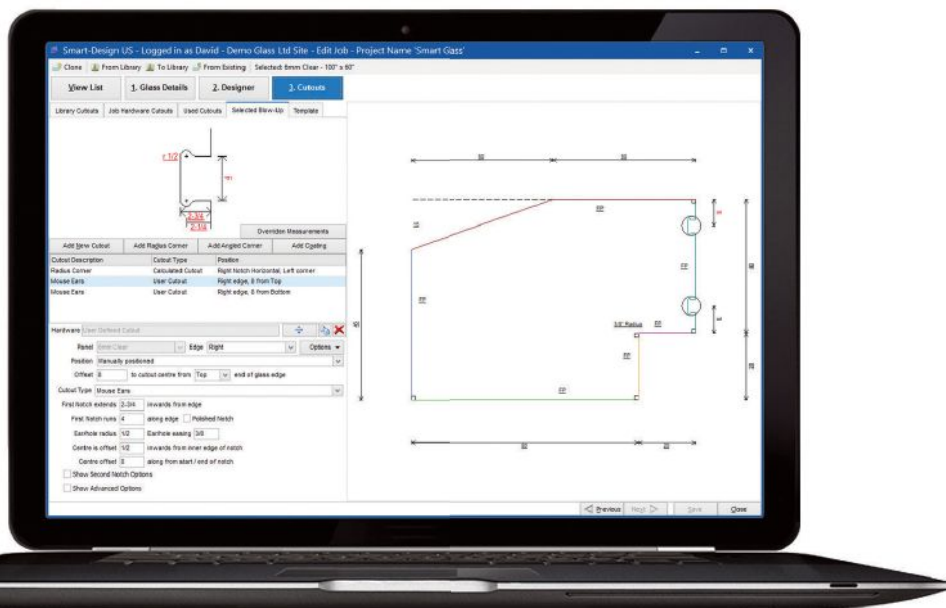
"The benefit to our user is you're cutting down on the amount of time and you're cutting way down on mistakes, which is key, because those can be very costly," says Nick Carter, president of WoodWare Systems, which provides software for the millwork distribution industry. "Any system can automate a task, but what we've got to do is take it beyond that so that we're bringing productivity to bear."

Warehouse management has certainly helped, but just the visibility of orders for both employees and customers has been a huge change, says Dan Schaefer of WoodWare.

"We can have the order invoice, shipping ticket and receiving ticket all in one document, and they're linked all together," he says. "That helps."

Jonathan Bayer of Bayer Built Woodworks, a maker of doors and other millwork products, says technological advances have helped his customers in many ways.

"The electronic catalog makes the



customer more self-sufficient," he said. "We used to get a lot of faxes, but that's shifting. We still have customers that want to talk on the phone, but the generation coming up is changing that. Point and click is one of the best ways to go."

Forward Thinking

With automation providing many benefits, most door and window manufacturers appear to be opting for more manual-free production. According to David Brennan, managing director of the software company Smart-Builder, many of these are large-scale operations that need to make a lot of products quickly.

Rod Hurley, strategic accounts manager for Soft Tech Group in New Zealand, echoes that sentiment.

"Typically, it's the larger businesses that work in a centralized manufac-

turing environment. They have the capital and resources to invest in this technology and also the most to gain through volume processing," he says. "However, many smaller businesses are now realizing the benefits of automation. CNC milling centers and saws are becoming more commonplace in many workshops."

Integrating software streamlines automation processes. This eliminates the need for workers in the production process. Ron Crowl, president and CEO of FeneTech, explains that finding skilled employees is a challenge for the fenestration industry, but integrated software automation is a promising solution.

"Any progressive company is looking at automation," says Crowl. "In today's age, it's hard to find employees

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Connecting the Dots

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who will work when you need them to work. Young people just don't enjoy these manufacturing jobs."

Door and window companies are waking up to the possibilities of software.

"Our industry has been one of the slowest to embrace technology," says Carter. "Part of it is there is a manual side of our business we can't get away from. But I don't think we've even scratched the surface in terms of what we can do to streamline the way that information is utilized."

Filling in the Gaps

Software is the bridge between manual and automated processes, according to Hurley. So, what processes are moving toward full automation?

"By far, the most common processes in the industry [are the ones] sending manufacturing data directly to machinery," he says. "Cutting profiles and milling operations performed on those cut pieces are commonly sent directly from estimating software to CNC saws and milling centers at the click of a button."

Without integrated software, employees manually enter data, which can result in costly errors.

"Software provides accuracy," says Brennan. "We're people—we get distracted; data often has to be re-entered, which holds up lead times, and there's a cost there."

Software greatly reduces these risks.

"If you automate a work cell, it operates more efficiently, and the integrated software provides visibility of the production floor in real time," says Crowl.

It's also a huge help on the sales side.

"We've had people tell us that some of the things they're doing with appointment confirmation will save them an entire full-time employee," says Justin Showers, chief marketing officer at improveit! 360, a business-management platform for the home repair industry. "Often the savings is on the office side, but the big gain in efficiency is on the sales side."

WoodWare's Carter says software



Integrated software streamlines automated production processes.

boosts transparency, from the executive suite to the shop floor to customers on the other side of the country.

"It's being able to have that information at their fingertips, not after the fact, but as it's happening," he says. "Another really vital tool is to be able to push as much work as possible outside the walls, such as letting the customers look up information. Every minute that you have a customer do that is another minute that you've added to your productivity."

The Upside

One important benefit that software provides automation is production consistency. Companies want to keep their customers happy, and the best way to do that is by timely and efficient operation.

"Software is so important because it gets those machines to talk to each other," says Sam Frankland, sales manager at Smart-Builder. "Without it, there is no automation. It's critical in avoiding repeat data entry. Humans are error-prone, but software allows companies to cut down those manual steps."

Aside from consistency, integrated software also reduces the need for manual labor, the epicenter of work-related injuries and mistakes.

"Automation means less human error, which ultimately reduces waste and increases consistency and quality," explains Hurley. "It's pivotal in

reducing the risk of injury to workers and increasing workplace safety."

If companies replace employees with software integrated automation, what does that mean for the fenestration industry's existing workforce? Some say they'll be out of jobs, but software companies might disagree.

While Hurley recognizes that the need to automate and stay competitive will reduce the demand for lower-skilled jobs, there will be more workers who can transition to positions that formerly required special training.

"Production line workers see automation as a threat to their livelihood. Companies need to provide support and further education to their workforce," he says. "This will create opportunity for workers to move into other roles where possible. And, companies will require more IT skilled resources with the addition of new software and machinery."

Building Transparency

One of the biggest advantages of software is that it provides company-wide visibility which, in turn, boosts efficiency in the processes.

"If you think about what computers have done in the past, it's automate the clerical side much more than the manufacturing side," says Carter. "That's changed. Now we need to be helping the C-level folks in the executive suite with a wider array of mean-

ingful, immediate information.”

“That trend we’ve seen for window and door companies is they continue to want to have as much of their business in one place as possible,” Showers says. “They’re looking for convenience and efficiency.”

Showers adds that they’re also recognizing it’s now a necessity.

“The percentage of door and window companies that are using software has increased dramatically over the past five years,” he says. “I think a lot of light bulbs went off during the recession when they needed to find more ways to be efficient and be adaptable.”

Setbacks?

Just as there are benefits, there are also challenges that prevent door and window companies from using integrated software. Showers suggests that the industry needs more time to adapt to new technologies.

“It will always be a challenge imple-

menting a system like this,” he says. “It’s going to take at least a couple of months if your entire operation is going to be using a platform like this.”

In the end, it’s about how much the staff is willing to adapt to change.

“It’s really about your people,” he says. “It’s about whether or not you have buy-in from your people.”

Others suggest it’s a monetary issue. “It’s the cost of implementation. Machinery and software can be expensive,” says Hurley.

Whatever the reason, Crowl offers advice to companies looking to fully integrate.

“I think it’s very important to select a software solution that can adapt to your business needs and not vice versa,” he says. “The right software will allow you the flexibility to grow and change as needed with little or no downtime and deliver consistent results.”

As more business owners retire from the industry, they’re passing

companies on to their children. That should speed up adaptation.

“It’s a different generation coming in to the market as leaders, and they understand this right away,” Showers says. “A lot of other industries are well beyond ours in terms of the uptake in technology. I don’t think the younger generation can imagine running a business without some sort of operations platform.”

Still, the rate of change can surprise even a software veteran.

“If you had told me 10-11 years ago that most of our customers would not be stocking windows and that everything is going to be special orders, and they’re going to turn them around in a week or less, I’d have said you’re crazy,” says Carter. “And look at where we’ve come to today.”

Trey Barrineau is the editor of DWM magazine. Katherine Coig is a contributing editor to DWM magazine.

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