

# SMART SOLUTIONS

WINTER 2023

Helping contractors save money and enhance productivity

## Maxair Mechanical and Victaulic Streamline Complex Med School Project From Design to Startup

For a new, state-of-the-art medical school campus, **Maxair Mechanical** saved valuable time by installing “miles of piping” using **Victaulic** products rather than welding and relying on Victaulic’s 3D models of the mechanical space to anticipate potential pitfalls and avoid costly delays. Streamlining processes at every opportunity, Maxair completed the project on time, despite labor and supply chain challenges. Victaulic is a major sponsor of MCAA23.

The new Mercer University School of Medicine in Columbus, GA, boasts 77,000 square feet of classrooms, research facilities, and office space. To support it, Mercer University needed a sophisticated, reliable mechanical system that would keep students and faculty comfortable and safe while also providing temperature control to critical areas, such as a gross anatomy laboratory and vivarium.



Using Victaulic solutions enabled Maxair Mechanical to save time by avoiding welding at Mercer University’s new medical school campus in Columbus, GA.

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## JPG Increases Efficiency, Builds Business With Zurn SmartPro Monitoring

**JPG Plumbing & Mechanical Services’** adoption of new oil and grease interceptor monitoring technology from Zurn has significantly reduced pumping overspend and minimized the risk of backups for JPG’s customers. The increased monitoring is translating into more tank repair and replacement work as customers gain better visibility into their systems. **Zurn Elkay Water Solutions** is a benefactor of MCAA23.



It takes JPG about 45 to 60 minutes to install the Zurn SmartPro, and the increased monitoring has translated into more tank repair and replacement work for JPB as customers gain better visibility into their systems.

JPG has deployed more than 70 Zurn Water Solutions SmartPro connected grease, oil, and sediment monitoring units on interceptor tanks at convenience stores, restaurants, big-box businesses, and dairy processing plants. The wireless monitoring lets JPG set alerts for grease, oil, and sludge levels and know what is happening inside the tank without being onsite.

### Value Proposition

“The technology has allowed us to offer our customers just-in-time pumping, which reduces their costs and creates peace of mind,” said John Geiling, president and chief visionary at JPG. One convenience store client “discovered that they were getting pumped way too much,” said Geiling. “They should have been pumped every four months, but the authority having jurisdiction, not knowing how much grease was being used,

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## SMART SOLUTIONS

Helping contractors save money  
and enhance productivity

*Smart Solutions* showcases new technologies and promotes cost-saving and productivity-enhancing applications available from members of MCAA's Manufacturer/Supplier Council. *Smart Solutions* is published biannually for contractor members of MCAA and its subsidiaries.

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## Staying Ahead of the Game

Whether it's labor shortages, supply chain challenges, tight deadlines, or other hurdles, MCAA members and manufacturer/supplier partners are finding smart solutions to stay ahead of the game. Harder Mechanical Contractors minimized their need for highly skilled welders and increased productivity with Novarc's Spool Welding Robot. A&R Mechanical overcame COVID-19 and supply chain challenges by using NIBCO's domestically manufactured products. Maxair Mechanical relied

on Victaulic's 3D models to anticipate potential pitfalls and avoid costly delays for a new medical school campus.

Some MCAA members are providing exceptional value to their clients with creative approaches. Bluegrass Hydronics and Pump helped a rural school district qualify for a federal grant to install two new antimicrobial Delta cooling towers at no cost to the school district. JPG Plumbing & Mechanical Services is using Zurn's new oil and grease interceptor monitoring technology to minimize costs, risk, and burden for their customers, building business along the way.

The right products can be crucial to increasing efficiency and improving productivity. F+F Mechanical Company invested in a Watts-Mueller pipe cutter that dramatically improved speed and quality while decreasing labor costs. Egan Company found that Josam's trench drain system saved time and streamlined installation. Danforth turned to Mueller Industries for products that met a new hospital's narrow specifications. Thanks to SPX Cooling Technologies, Graco Mechanical replaced an aging cooling tower in a tight space with an even tighter timeline. A.O. Smith was the ideal choice to provide a dependable water heating solution for a new four-story hotel outside Nashville, TN.

As digital technology advances, more and more MCAA members are reaping the benefits of software solutions. Silicon Valley Mechanical saw rapid productivity and efficiency improvements on the shop floor with PipeServer software. Postler & Jaeckle has seen a continuous return on investment with STRATUS from GTP Services, most recently by using labels to increase efficiency with hangers. To improve communication, collaboration, and customer service, McKinstry is using MSUITE, Therma has adopted Procore, and B&W Mechanical works with ServiceTrade.

This issue is loaded with advice from industry experts. Tyfoom and Raken have valuable tips on workforce learning and communication, while Ridge Tool Company describes what to look for in ergonomic tools. Also look for insights from CNA, FARO, IMI Hydronic Engineering, Miller Electric, the Pipe Fabrication Institute, Reliance Worldwide Corporation, and SLOAN. For even more inside knowledge, visit our manufacturer/supplier partners in person at MCAA23.

Christopher Catania  
Chair, MCAA Manufacturer/Supplier Council Executive Committee

### Join me in welcoming our newest supplier partners:

- ClickSafety
- Liberty Pumps
- OpenSpace
- Novarc Technologies Inc.
- ServiceTitan

# A&R Mechanical Overcomes Supply Chain Challenges Building Illinois Softball Center Thanks to NIBCO

Breaking ground on the Rex and Alice A. Martin Softball Training Center at the University of Illinois in April 2021, A&R Mechanical Contractors, Inc., faced the unique challenges of building during the COVID-19 pandemic and the subsequent supply chain issues. They successfully completed the project on schedule thanks to NIBCO, which manufactures more than 90 percent of its products in the United States. “I would have to say NIBCO was very instrumental in helping A&R Mechanical get this project finished in a timely fashion,” said Chris Asklund, A&R Mechanical project manager. NIBCO is a major sponsor of MCAA23.



Despite the COVID-19 pandemic and the subsequent supply chain issues, A&R Mechanical completed the new Rex and Alice A. Martin Softball Training Center at the University of Illinois on schedule by partnering with NIBCO.

## State-of-the-Art Softball Center

The University of Illinois Division of Intercollegiate Athletics opened the new, state-of-the-art indoor practice facility for the Fighting Illini softball program in time for the start of the fall 2022 school year. The project was funded by a \$3 million, lead-naming gift from Rex Martin and his daughters, Ashley Martin and Alexis Martin-Klose, in honor of their late wife and mother, Alice Martin, who received her master's degree from the University of Illinois, one of the top schools in architectural engineering, mechanical engineering, and electrical engineering.

The \$6-million training center provides a premier indoor performance and development facility for Fighting Illini softball student-athletes. The structure, measuring approximately 13,000 square feet, was constructed as an addition to the existing softball clubhouse and includes a full, collegiate-size infield as well as hitting and pitching cages with retractable netting. The center's ability to host full infield practice is rare among comparable softball training facilities. Other features include a new recruiting lobby and hall of fame,

an expanded player lounge, restrooms, increased storage, and improved parking.

## Overcoming Supply Challenges

A&R Mechanical, a fourth generation, family-owned company that started in 1925 in a small garage in Urbana, IL, took on the project in the midst of exceptionally uncertain times. Asklund, who has been in the pipefitting trades since 2001, said, “The global material shortages that we witnessed as a result of the pandemic definitely had an effect on the project schedule, but fortunately it was minimal, thanks in part to NIBCO that always had the valves we needed available.”

The University of Illinois project was the first large-scale project that A&R Mechanical had collaborated with NIBCO on. “We used a lot of NIBCO products on this project and the inventory was strong—we really depended on NIBCO during COVID when the world was experiencing uncertain supply chains,” Asklund added.

A variety of NIBCO valves were specified for the project—from butterfly valves and iron check valves to ball valves and bronze check valves, ranging in sizes from 1/2” through 4”. Sold through distributor Ferguson-Lafayette for the project, the valves (mainly soldered and threaded) were used for the installation of the new hydronic system, including new boilers, air curtains, pumps, fan coil units, and heat exchangers.



A&R Mechanical partnered with NIBCO on the new indoor softball training center because of NIBCO's easy-to-install and reliable products and NIBCO's reputation for high-quality, domestic-made valves and fittings at a competitive price.

## Partnering for Success

“We were familiar with NIBCO valves and had found them to be easy to install and reliable on past projects,” said Asklund. “We were looking for a true partner for this project and we chose NIBCO because of its reputation for high-quality, domestic-made valves and fittings at a competitive price. We also appreciated that during times when material pricing escalation was happening at a rapid pace, NIBCO was very fair and consistent with their pricing.”



In recent years, A&R Mechanical has expanded its capabilities into virtual design and fabrication. During the pandemic, this proved to be very beneficial.

“We were able to design at the A&R Mechanical facility onsite with VDC (virtual design and construction),” explained Asklund. “Ninety percent of the project was prefabricated offsite at our shop, in a controlled environment.”

A&R Mechanical’s VDC department laid out the mechanical room and the perimeter piping. The prefabricated portions were built in the prefab shop and were delivered in pieces to the project site and then constructed onsite. A&R Mechanical was able to keep its workforce down in the facility and keep everybody together in one spot, which helped during COVID-19 and aided with keeping the project on schedule.



Taking advantage of VDC and prefabrication, A&R Mechanical was able to minimize its workforce needs in the facility and keep workers together in one spot, which helped during COVID-19 and aided with keeping the project on schedule.

At the fabrication shop, NIBCO arranged “lunch-and-learns” for the A&R Mechanical team to share best practices and training for valve, solder, and press installation. “It was great to be part of this project and partner with NIBCO. Not only did they provide a reliable product that met the specs, but they were great to work with, and the on-time deliveries were invaluable,” said Asklund. “This project definitely had some unique challenges, but with the collaboration of all the partners involved, the job got done.”

The project achieved LEED silver certification and stands as a testament to the resolve, ingenuity, and hard work of all involved. A true collaboration between all the stakeholders—the Martin family, the University of Illinois Engineering and Capital Projects teams, NIBCO, A&R Mechanical, IMEG Engineering, Ferguson Enterprises, and Williams Brothers Construction—who came together to deliver a premier indoor training and performance facility that honors the memory of Alice A. Martin and will benefit Fighting Illini softball student-athletes for generations to come.

*For more information, visit [www.nibco.com](http://www.nibco.com). MCAA thanks NIBCO for being a major sponsor of MCAA23.*

## Stand Out by Incorporating Inclusive Restroom Design: Tips From Sloan

Barrier-free, accessible, and inclusive design is an important trend in building. Planning for a commercial restroom with all users in mind, regardless of ability, gender, or age, makes for a safer and more comfortable restroom that is easy for anyone to use. Contractors who embrace the concepts of inclusive design can stand out as partners who put users’ needs first, and Sloan, a benefactor of MCAA23, has innovative products to help. Inclusive design is pivotal for supporting people with disabilities and complying with Americans with Disabilities Act (ADA) guidelines. It is also important as society’s awareness of gender identity grows.

The ADA has been evolving ever since it was passed into law in 1990. The U.S. Department of Justice, which enforces the ADA, provides guidance and resources to help people better understand and implement ADA requirements.

Mechanical contractors should become familiar with the elements of inclusive design, as they are likely to encounter more of this advanced design approach in commercial restrooms of all types.

### Proximity and Privacy

Proximity, privacy, and cleanliness are three key concerns when designing restrooms for inclusivity. Universally, people want to feel safe and comfortable in the restroom. Single-occupancy toilet rooms or restrooms are ideal, as they maximize privacy and flexibility.

However, when single-occupancy restrooms are not feasible, designers can incorporate privacy measures in multiuser restrooms via ambient noise and floor-to-ceiling stall doors. Be aware that each compartment or stall will need separate ventilation, floor drains, lighting, and fire suppression for safety. Additionally, all signage should read “all inclusive.” For added security, each stall should have a visual lock that shows when the stall is occupied.

### The ADA Impact

The ADA has many implications for designing and specifying commercial restroom products. For example, grab bar heights are measured to the top of the gripping surface. When ranges in heights are provided, pay attention to the optimal product for compliance. Plumbing product manufacturers almost always recommend choosing the maximum height limit for placement of a grab bar, which is 36”. This placement makes meeting proximity requirements for other fixtures and accessories easier.

To resolve conflicts between the rear grab bar and the required

location of exposed flushometers, the grab bar must be split or shifted to the open side. This configuration is permitted only where applicable codes mandate flush controls in such a location. Offset adapters are an effective alternative that do not require the split grab bar. This unassuming adapter creates enough space for an ADA-compliant grab bar by lowering the total height of the flushometer by 1.5" without having to relocate the water supply inlet pipe. It is a simple update that saves facilities from the costs and complexities of opening walls or using workarounds like split grab bars.

When it comes to lavatories and sinks, floor space directly in front of the fixture must be at least 30" wide and 48" long to accommodate wheelchairs. The clear floor space needed by the sink can go all the way to the wall as long as there is no obstruction. Clear floor space underneath the lavatory must be a minimum of 17" and a maximum of 25". At least one handwashing station must be placed with 30" of clear space from left to right, although many plumbing codes require 30" between every sink station. Check your local codes to confirm you are within code.

Height and reach are also very important. Manual faucets, soap dispensers, and hand dryers must be activated with a maximum of five pounds of pressure or less, allowing the user to activate them without tight grasping, pinching, or twisting the wrist.

Additionally, the operating components of manual fixtures cannot be higher than 48" from the floor. Sensor-activated fixtures help improve user accessibility and comply with ADA requirements, making them ideal for ADA compliance.

Many sink types are suitable for accessible design, but open-front basin and multilevel sinks stand out as ideal options for accommodating wheelchairs and users of varying heights.



Inclusive design takes into account ADA requirements and local codes—such as wheelchair clearance around sinks—to create restrooms accessible for all. Mechanical contractors are likely to encounter more of this advanced design approach in commercial restrooms of all types.



Sloan's offset adapters allow enough space for an ADA-compliant grab bar without having to relocate the water supply inlet pipe. This simple update avoids the costs and complexities of opening walls or the need for workarounds like split grab bars.

When it comes to what is under the sink, the ADA requires exposed water supply and drain pipes under lavatories and sinks to be insulated or otherwise configured to protect against contact. In addition, there should be no sharp or abrasive surfaces under lavatories or sinks. If the retrofitted sink does not have a cover over the plumbing, wrapping the plumbing is a simple step to protect users from potential scalding or other injuries caused by contacting the P-trap under the sink. Incorporating an enclosure or shroud is an alternative to wrapping exposed piping and ensures that pipes are hidden from the user.

### *Sensor-Operated Accessibility*

Sensor-operated innovation is another emerging trend and can enhance hand hygiene. It also supports ADA goals and promotes inclusivity.

Sensor ranges can now be adjusted to multiple distances, which is important for those in wheelchairs. Sensor range is measured in units from one to five, with one being closest to the faucet and five being farthest. The factory default sensor range is three but should be easy to change following the manufacturer's instructions.

Automatic entryways and stall doors are at the forefront of smart, accessible design. Automatic stall doors save space, are accessible, and increase privacy because there is no gap between stall partitions. Designers no longer have to provide the space for doors to swing open, creating more usable room for occupants and easier accessibility for wheelchair users. The added space is also beneficial for contractors working in the restroom.

When retrofitting existing restrooms for ADA compliance and inclusive design, simple fixes can make a huge difference in a barrier-free commercial restroom's safety and overall compliance.

*For more information, visit [www.sloan.com](http://www.sloan.com). MCAA thanks Sloan for being a benefactor of MCAA23.*

## Danforth Turns to Mueller Industries' Streamline Press Fittings to Meet Hospital Project Demands

A new, state-of-the-art hospital in New York required that **John W. Danforth Company** use solder connections for mechanical piping and press fittings for the plumbing, so they looked to a trusted and reliable partner, Mueller Streamline Co., a primary subsidiary of **Mueller Industries**, that could provide both. That decision has paid off with a smooth construction process to date, supported by building information modeling (BIM) technology that ensured accuracy for prefabrication. Mueller Industries, Inc. is a major sponsor of MCAA23.

The Wynn Hospital—owned by Mohawk Valley Health System—in Utica, NY, is one of Danforth's most significant projects yet in New York. It is a 680,000-square-foot, 10-story facility that combines several different hospitals under one roof.

"It's a full-service, state-of-the-art hospital that combines just about any service that you would need, healthcare-wise, in one building," said Richard DeLotto, vice president of operations at Danforth. The Wynn Hospital includes an emergency department, imaging services, behavioral health, and 22 procedural and operating rooms. "It's a very big project within this area, and we knew it would be a challenge organizing the amount of manpower we needed onsite and getting all the materials we needed in a timely manner," said DeLotto.

Focusing on big-picture planning and attention to small details is critical for a project of this magnitude, especially amid the COVID-19 pandemic. Though the project faced many obstacles, such as supply shortages and the increased cost of materials, DeLotto's planning skills ensured his team succeeded on every job.

Danforth has purchased and installed plenty of Mueller materials in the past, but this was the first time it decided to use the company's Streamline® Press Fittings. "We know Mueller and their leadership position in the industry," said DeLotto, "and

we wanted to standardize things and use a partner that could serve us on both systems, before and after, from both a quality and quantity standpoint."

Brian Caufield, vice president of Mueller Streamline Company, said, "We value our relationship with Danforth at the highest levels within our company, so when we discussed this project with them, we knew that we needed to perform with a quality product—copper tube, copper solder fittings, and copper press fittings, accessible BIM information, engineering submittals, and timely service. I believe Mueller Streamline's unique ability to provide a copper piping system—copper tube with various types of copper fitting connections—allowed us to deliver on the metrics required by Danforth for a successful installation on this project."

A significant key to the project's success was the continued access to high-quality goods in a tough market, a point that DeLotto stressed. "We've had some quality issues with other products in the past for one reason or another," he explained. "Quality here has been consistent and excellent, and as far as availability goes, it's been very good in a tough market where it's difficult to get certain elements of installation materials. Mueller Streamline Co. and its support team worked with our staff and our preferred wholesale distributor to make things as seamless as possible."

As a company driven by virtual design and construction, Danforth relies on manufacturer information when designing project plans. With full access to Mueller's CAD library, Danforth uploaded all of the necessary Streamline fittings information into their building database. When it came to drawing the job, all the right fittings and dimensions were already in place, making the transition from virtual design to procurement much more straightforward.

"Working with Mueller made creating bills of materials for procurement very accurate," said DeLotto. "Once we created those bills, it wasn't generic. We had all our specific part numbers. We know we're buying an ID, buying a T, buying the right female adapter."

As a prefabricator, Danforth depends on accurate dimensions. Sometimes, a team can build a catalog of generic fittings that are close to what is needed in the field. Danforth did not have that option. Having the exact specifications and information directly from the manufacturer reduces the time and labor required to build such a catalog and lessens the risk of parts not lining up correctly.



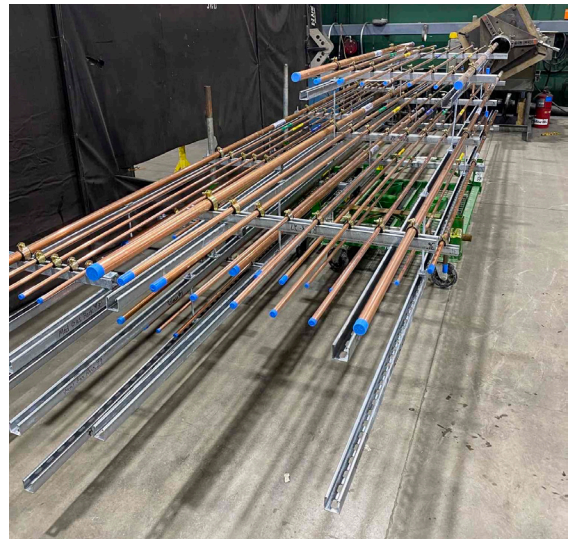
Danforth used Mueller Streamline's copper piping and fittings to meet the exacting demands of a new hospital facility.



“We get to draw with precision accuracy, which gives us the confidence to precut all of the pipes and get into a dimensional tolerance that is going to end up being pretty much perfect in the field. And going with Mueller gave us complete consistency on how we drew the job. We count on that as a prefabricator and someone that puts in everything based on the model,” said DeLotto.

The Wynn Hospital is projected to open to the public in mid-2023. Throughout the project, DeLotto has praised the quality, service, and savings that the relationship with Mueller brought. “You get wins on all counts, and we certainly like having an upstream relationship with a manufacturer,” he said. “There’s easy access because our distributors carry Mueller’s Streamline products, and you get the wins on cost, quality, and viability. After how well this has gone, I think there’s a lot of opportunities for us to work together in the future.”

*For more information, visit [www.muellerindustries.com](http://www.muellerindustries.com). MCAA thanks Mueller Industries, Inc. for being a major sponsor of MCAA23.*



With full access to Mueller’s CAD library, Danforth uploaded all of the necessary Streamline fittings information into their building database, allowing them to draw with precision accuracy and to precut all of the pipes and within a dimensional tolerance that was nearly perfect in the field.

## VICTAULIC

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Mercer University tasked NBP Engineers Inc. and Maxair Mechanical with installing four mechanical spaces at the new site, which included three boilers, chilled and heating water piping and pumps, a condenser system, and five dedicated air handling units for the laboratories.

Working under a tight completion deadline, Doug Polley, Maxair’s senior project manager, knew they needed to incorporate strategic solutions to compress their schedule and mitigate risk. Victaulic was the ideal partner for the job.

### Setting Up for Success

The mechanical rooms required precise layouts to fit the necessary equipment and piping. Optimizing the spatial design was also a priority, as it would simplify the initial installation



Thanks to Victaulic’s VDC team, Maxair was able to optimize the mechanical room layout for the School of Medicine, so each component is easy to access and can be disassembled without welding or flanging, simplifying maintenance and service.

and facilitate future maintenance and servicing for Mercer University. The Victaulic Virtual Design and Construction (VDC) team was fundamental to meeting the project’s demands.

“Victaulic used their expertise to create 3D models of the mechanical spaces, which proved hugely advantageous in the BIM [building information modeling] process,” Polley said. “The 3D modeling enabled us to optimize the room layout, identify potential issues ahead of time that might have wrecked the schedule, and put solutions in place during the design phase that avoided costly rework.”

Dale Heiring, principal at NBP Engineers, Inc., added, “We were pleased with the consistent support Victaulic provided. The team reviewed all our specs—which are extremely thorough—and they made sure every detail was accounted for.”

### Navigating Challenges

When Maxair Mechanical first bid on the project in the fall of 2020, they were prepared to work through a certain degree of uncertainty. Globally, the COVID-19 pandemic affected the available skilled labor pool and caused supply chain disruptions that directly affected construction schedules.

“It was constantly a race to keep up on the project. It was quite challenging. There were moments that seemed impossible,” Polley said.

Challenges ranged from finding sufficient staff to substitute workers when outbreaks spiked to delayed material arrivals because delivery drivers struggled to locate people at drop-off locations on the large campus. But Maxair was determined to complete the work on schedule—and they did.

The thoughtful and clear design and layout of the mechanical space, combined with the efficiency of Maxair's new fabrication shop, enabled workers to keep pace despite delivery delays. Onsite, pipefitters worked off of a detailed spool map, developed by the Victaulic VDC team, that streamlined installation, while the grooved couplings, fittings, valves, and equipment modules proved easy and fast to install.

"If we had welded everything, it would have been very challenging to maintain the schedule," Polley said. "We had miles of piping to install throughout a large, two-story medical building, and we were working with many complex systems."

"Once the materials and units arrived, it didn't take long to install the Victaulic product, the mechanical rooms were laid out well, and the designs were easy to follow," said Guy Cozzolino, Maxair's pipefitting coordinator.



Maxair Mechanical used Victaulic grooved couplings, fittings, and valves to tie in two boilers inside the first-level mechanical room at Mercer University's School of Medicine, saving time compared with welded solutions.

### *A Productive Partnership*

Despite unfavorable supply chain conditions that complicated this highly sophisticated mechanical installation, Maxair Mechanical and NBP Engineers, Inc. delivered the full scope on schedule. By partnering with Victaulic and engaging its VDC services, the engineers and mechanical contractors streamlined the entire process before materials were even purchased.

Mercer University School of Medicine at Columbus welcomed its inaugural class of medical students to the new campus in December of 2021. "It's a win for Mercer that their students got this state-of-the-art facility that is well thought-out from the design phase to the final product," Polley said.

*For more information, visit [www.victaulic.com](http://www.victaulic.com). MCAA thanks Victaulic for being a major sponsor of MCAA23.*

## **ZURN ELKAY**

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says, 'Oh no, you have to pump them every month.' It's about \$450 or \$500 every time."

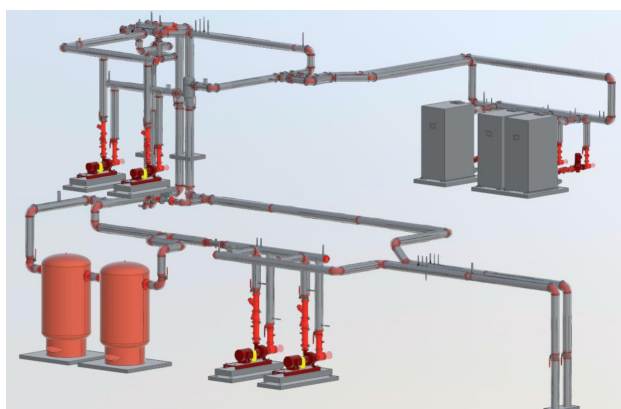
At \$450 per pump and 200 stores, JPG can help that customer save as much as \$720,000 per year. Geiling stated, "With wireless monitoring, we're helping our customers better understand their business needs, and we're providing greater value to them."

### *Inner Tank Insights*

It takes JPG about 45 to 60 minutes to install the Zurn SmartPro, including the sensor probe, which can be mounted on the inlet or outlet side of an interceptor tank. SmartPro measures the thickness of the top grease layer, bottom sludge layer, change in liquid level, and wastewater temperature inside the tank. SmartPro is the only grease interceptor monitoring tool that uses ultrasonic monitoring rather than direct contact alarms that are prone to clogging. The ultrasonic feature also provides real-time data and alerts instead of the on-off only alarms available with contact sensor products.

Even more important to businesses is staying compliant with local authorities. Geiling shared how one of JPG's major customers was having quality control issues. "One location found out through this monitoring system that people were illegally dumping into their grease traps. People were pulling the manhole lid and dumping their grease into the manhole. Another location caught the pumping company not actually doing the work they were billing for."

JPG uses the Zurn SmartPro G3 and G5 models. The G5 transmits real-time data to an internet gateway and dashboard that can be viewed remotely on a mobile app. Users can set up a range of alerts and receive them via text message or email. Alerts include high liquid level, high total top solids, high total bottom solids, high percentage of total solids,



Victaulic's VDC team worked to optimize the layout and design of the entire mechanical system at Mercer University which, combined with the efficiency of Maxair's new fabrication shop, enabled workers to keep pace despite delivery delays.



and clogs or blockages. With remote interceptor monitoring, JPG can help their customers avoid costly backups and protect local wastewater systems. Customers can also avoid large fines resulting from environmentally hazardous spills.

“If there’s an emergency, such as a backed-up line or a backed-up sewer main or something downstream from the grease trap, the SmartPro will alert to high water levels to respond quicker,” said Geiling. “You can deploy a snaking or jetting contractor sooner to take care of the problem.”

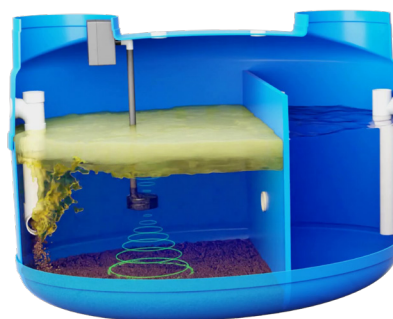
The SmartPro also helps customers be good stewards by protecting wastewater systems and minimizing resources needed to keep a clean system by eliminating unnecessary pumps.

The Zurn SmartPro’s universal design works for retrofits as well as new builds. The battery-powered, wireless models eliminate the need for external power or a phone line. Battery life is about five years. With the reduction in pumping costs, the payback period for the SmartPro is typically one to two years.

“What we’ve discovered using this technology is that we can improve the quality of every pump because we know actual levels in the tank,” said Geiling. “We’re helping customers stay in compliance and keeping haulers accountable. Often, they’ll pump a tank and then dump what they say is water back into the tank. But sometimes the grease goes back in. Whoever is monitoring the data gets a good look at the tank in terms of quality assurance.”

### *More Efficiency, More Opportunities*

Geiling’s efforts to keep JPG technology-forward is a transformative business strategy. With the switch to the

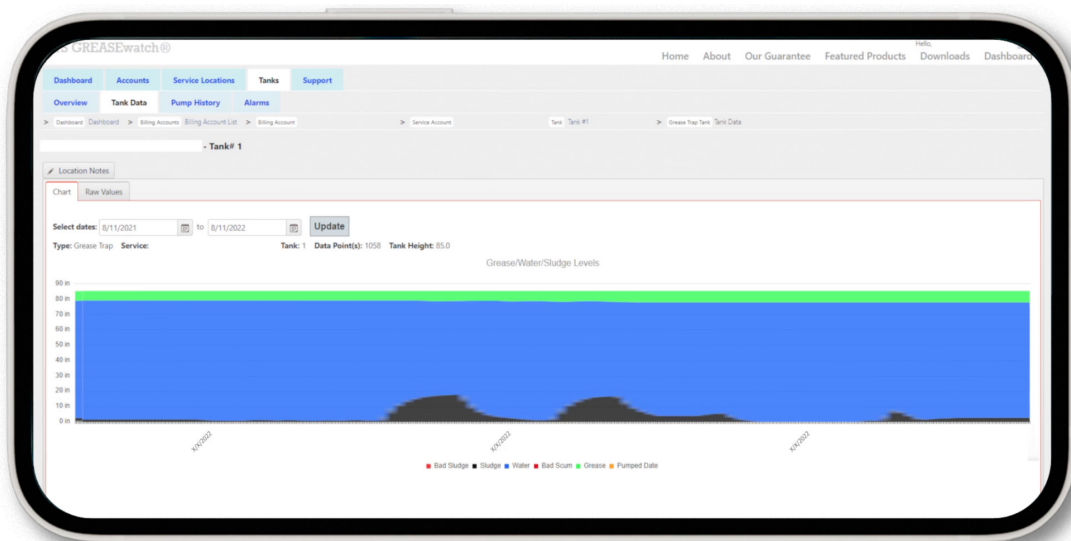


With Zurn SmartPro monitors, JPG can receive automatic text message or email alerts about high levels of liquids or solids, clogs, or blockages.

just-in-time model with SmartPro versus time interval-based route work, JPG is pumping customers’ tanks with less frequency and more efficiency, which saves on cost. Geiling believes, “There are limited resources out there to do anything these days, especially labor. We’re able to take on more customers and do a really good job at it.” Geiling also noted that creating a great interceptor experience means “we have more opportunity to market to these customers to do other plumbing and VAC [industrial vacuuming] services.”

Geiling continued, “When these grease traps go bad, it’s a really big problem for these businesses. They’re changing managers and personnel all the time, and there’s always a problem when somebody’s not keeping an eye on it. Our value proposition is that they don’t have to worry about it, because we’re taking care of it. We’ll help them avoid costly backups, protect their wastewater systems, and stay compliant with local regulations.”

*For more information, visit [www.zurn.com](http://www.zurn.com). MCAA thanks Zurn Elkay Water Solutions for being a benefactor of MCAA23.*



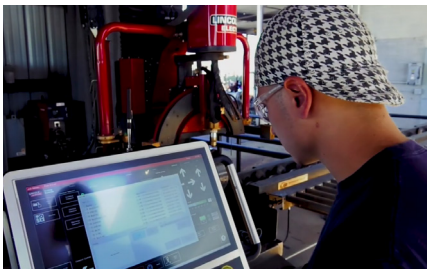
JPG uses Zurn’s SmartPro monitoring system to measure the thickness of the top grease layer, bottom sludge layer, change in liquid level, and wastewater temperature inside the tank—all in real-time and accessible via a mobile app.

# Silicon Valley Mechanical Improves Productivity, Efficiency With PypeServer Enterprise Software

Silicon Valley Mechanical, a full-service mechanical contractor in San Jose, CA, rapidly improved productivity and increased efficiency by putting PypeServer software into place. Here, Jamie Garza, detail manager, and Dean Garza, piping shop general foreman at Silicon Valley Mechanical, describe how they achieved those gains.

## *What led to your decision to try PypeServer's workflow software?*

We've been running PypeServer's Enterprise software for our Vernon pipe profiler since early 2021 and have been happy with it. Between its O-let handling features, part nesting, and labeling, Enterprise is giving us two to four times the productivity and higher cut quality from our Vernon. At the same time, we'd tried several different workflow software packages from other vendors to get data from our VDC [virtual design and construction] group to the shop, but nothing really worked to our satisfaction. We recently had a connectivity issue between another piece of software and the Vernon—it would just stall out for days with no help from the vendor. That's what led us to try PypeServer's Connect and Cloud workflow software, which is included for free with our Enterprise subscription for the Vernon.



A machine operator uses PypeServer software on the shop floor. Silicon Valley Mechanical found that using PypeServer software dramatically increased the productivity and cut quality of their Vernon machine.

## *What does your typical workflow look like now, from design through production?*

The Detailing team works with engineered drawings in AutoCAD Fabrication CADmep to set them up for prefabrication. Once a model is signed off and ready for build, we spool in Fabrication, select the parts we want to cut using the PypeServer Connect plug-in for AutoCAD, and send the cut lists to the Vernon using the PypeServer Cloud service to transmit the data and monitor progress.

## *You're one of the first users of PypeServer's full suite of workflow products, including the Connect add-ons for Revit and AutoCAD, the Cloud service, and PypeServer Enterprise for your Vernon MPM pipe profiler. Can you describe the implementation process?*

Getting everything set up and working was much easier and faster than we expected. We worked with the PypeServer Support team to understand how information gets pushed through the system and how to configure PypeServer Connect and Cloud to send data to our Vernon. Installing the Connect add-on for AutoCAD is a breeze, and it's simple to add users to our Cloud account. It literally takes only minutes to train someone new on the PypeServer workflow, and they're pushing data to the shop in under an hour. PypeServer's support team also helped us set things up on the shop side with Enterprise for the Vernon. The software lets us automatically customize O-let hole sizes, insert root gaps, and make other fabrication-specific design tweaks, as well as printing labels.

Having the PypeServer team available for support has been huge. When we're up and rolling, we don't have days to stop if something goes wrong. We need to be back up and running within hours, and PypeServer has delivered.

## *How has your workflow changed with PypeServer, and what savings in time, labor, and materials have you seen?*

Our VDC group used to spend a lot of time converting feet and inches to decimals on spool sheets for the shop. When you look at the number of spools we build, the time spent on that adds up fast. Now the Vernon pipe profiler gets the information it needs directly from the Connect AutoCAD plug-in, so the process has been streamlined from a page-by-page spool sheet review that could take hours to a quick five minutes to send the data to the cloud, bring it into Enterprise, and double check that everything that needs to be fabricated was sent down to the shop from VDC.

The nesting feature of Enterprise is also a huge time and material saver. Now we can send all the parts to the machine at the same time, and it will cut them in one operation with minimal waste. This allows the operator to accomplish other tasks, like prepping the ends of the pipe for the welder, organizing the pieces coming off the Vernon, and then loading new material to be cut.

Our workflow is now migrating toward pushing everything to PypeServer Cloud. We used to rely a lot on cut files that we'd put in specific folders on our computer network. Sometimes files would get put in the wrong place and it was possible to accidentally cut things twice. With the Cloud, there are no lost files and the system keeps track of what's been cut.

PypeServer Enterprise for the Vernon easily paid for itself before we started using Connect and Cloud, but now the efficiencies are extending up to our VDC group, and we don't have to pay anything extra for those workflow tools.



With PypeServer Enterprise and Connect software, Silicon Valley Mechanical links the detailer to the Vernon machine on the shop floor, which results in predictable, weld-ready cuts that speed up the fabrication process.

### *Do you have any further improvements planned for your fabrication process?*

We really like how PypeServer Enterprise has increased the value of our Vernon pipe profiler, and we're looking at using PypeServer Lyte with our TigerSaw. Many of our projects include fabricating specialty racking systems out of copper. We cut all this on our TigerSaw, and a lot of the pieces can be prefabricated. We've already been testing the new workflow, pulling cut lists from AutoCAD and sending them to the TigerStop using Connect and Cloud in exactly the same way we do for the Vernon.

### *Are there any other benefits that you didn't expect from the PypeServer software?*

We really like how PypeServer Enterprise gives us deep control over how the Vernon works. For example, the Vernon has a big rotating head that gives it a lot of beveling flexibility, but for small holes, it can slow things down and cause overburn. Enterprise lets us turn off head rotation for small holes, which really speeds it up and improves cut quality dramatically. We're now able to cut holes as small as 3/16". With the regular Vernon software, we couldn't do that.

### *Do you have any advice for other organizations looking to improve their fab shop productivity?*

Be patient and have a clear road map for where you want to go. We recommend tackling one piece of equipment at a time and making sure you have a dedicated test team who can stay on top of the process to refine the workflow. Ask your peers what they are doing, where they are finding opportunities for success, and also where they've come up short.

In the end, we really like the way PypeServer has removed the middleman between VDC and the shop. We get great visibility on cut lists as they move from the design software to the pipe profiler—giving us more control and better efficiency.

*For more information, visit [pypeserver.com](http://pypeserver.com).*

## IMI TA's Support Center Cuts Energy Costs at Oklahoma Public Safety Facility

In recent years, the power needed to heat or cool buildings has fallen dramatically with the focus on reducing energy consumption and minimizing the environmental impact of HVAC installations. The flow rates in our installations are much lower now than in the past, especially if we use modulating controls on the terminal units.

Installations must be designed to guarantee a minimum flow rate for boilers and chillers so that their power output can be controlled and they keep running reliably. The same applies to variable-speed pumps requiring a minimum flow rate. Here, IMI Hydronic Engineering explains the issues around low flow rates in boilers, cooling units, and pumps; solutions to guarantee the minimum flow rate; and effective ways to control low flow rates.

Alongside control precision and stability, the system designer should consider the overall output of the installation depending on the control type recommended for the terminal units. The flow rates in an installation are directly linked to the necessary power and the temperature difference. In general for 85 percent of the heating period and 73 percent of the cooling period, the installation operates below 50-percent load. For 50 percent of power, a flow rate on the order of 20 percent is sufficient.

### *Issues With Low Flow Rates*

Care must be taken to guarantee the minimum flow rate required for boilers, chillers, and heat pumps. Variable speed pumps also require a minimum flow rate.

In terms of distribution, low flow rates will affect circulation speeds, which can result in problems with sediment and air pockets. Low flow rates result in a greater temperature drop from the source unit (boiler, chiller, or heat pump) to the terminal unit. Finally, control valve characteristics must be considered for controlling lower flow rates.





### *How to Guarantee the Minimum Flow Rate*

One simple and popular way of ensuring a minimum flow rate is to use a "static" bypass for a constant flow rate through boilers or chillers. This bypass is sized to create a slight pressure drop that will create hydraulic decoupling between the source unit and the terminal units. Variable flow on the distribution units will not affect the flow rate in the chillers.

Operating chillers and boilers with variable flow improves production efficiency. To achieve this, a "dynamic" bypass is used that stays closed until the primary flow rate approaches the minimum flow rate required by the production equipment.



The table summarizes ways to guarantee the minimum flow rate. Each approach has benefits (plus signs) and drawbacks (minus signs).

<b>(A) Fixed Bypass With Balancing Valve</b> <ul style="list-style-type: none"> <li>+ Lower cost</li> <li>+ Easy to control</li> <li>+ Modification possible</li> <li>- Excess flow</li> <li>- Unwanted change in return temperature</li> </ul> 	<b>(B) Fixed Bypass With Bypass Valve</b> <ul style="list-style-type: none"> <li>+ Lower cost</li> <li>+ Modification possible</li> <li>+ Precise flow control</li> <li>- More complex to control than a single valve</li> </ul> 
<b>(C) Three-Way Diverting Valve</b> <ul style="list-style-type: none"> <li>+ Easy to control</li> <li>+ Modification possible</li> <li>- Excess flow</li> <li>- Unwanted change in return temperature</li> <li>- Moderate cost</li> </ul> 	<b>(D) Bypass With Motorized Valve</b> <ul style="list-style-type: none"> <li>+ Easy to control</li> <li>+ Precise flow and temperature control</li> <li>- Moderate cost</li> </ul> 

The minimum flow bypass with a balancing valve (A) should be adjusted below two thirds of the minimum flow rate to account for overflow when other control valves close.

As seen in (B), a bypass can be designed with a bypass valve that opens when the differential pressure passes the setpoint. These are diaphragm-spring technologies that are most effective with a proportional range on the order of 20 percent. This approach limits pumping costs and unwanted changes in the return temperature.

Three-way diverting valves (C) on the last terminal units are also used for maintaining minimum flow. This solution is easy to install but creates unwanted changes in the return temperature.

The best bypass design is with a motorized valve (D). The valve is opened according to the primary flow rate measured by a flow meter. As the flow rate approaches the acceptable limit, the valve gradually opens. The valve should not open or close too suddenly, causing surges.

### Effective Control of Low Flow Rates

We need to accurately control the power output at low flow rates. For this, system designers must pay attention to the characteristics of two-way control valves. The two main criteria are the valve characteristic and the turndown.

The equal percentage (EQ%) flow characteristic is a way of compensating for the non-linearity of the exchangers. To control a flow rate between zero and 20 percent, an EQ% valve would operate between zero and 50-percent opening,

which is 2.5 times more than a linear valve that is suitable for on-off application.

The other important criterion is the turndown. A turndown of 25 means that the minimum controllable flow rate is 4 percent of the nominal flow rate.

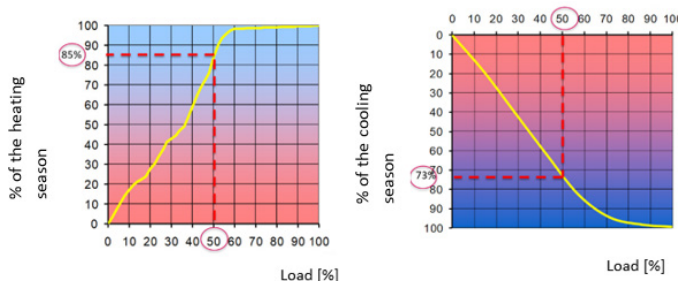
Controllable power is a function of the authority and the turndown of the control valve. The authority depends on the valve size and the available differential pressure. Authorities between 0.5 and 0.8 offer excellent control and can be achieved with differential pressure controllers or pressure-independent control valves.

For example, with an authority of 0.6 and a turndown of 25, the minimum controllable power is 20 percent, which corresponds to about 30 percent of the operating time. In other words, if no solutions are used to stabilize the available differential pressure in a circuit, the authority of a standard modulating control valve can go below 0.25, which could cause the control valves to operate in on-off mode with very low controllability for 30 percent of the operating time.

### Compare Costs and Benefits

Our installations require us to manage lower and lower flow rates correctly or risk decreasing the life cycle of the equipment (pumps, boilers, and chillers). Compared with the cost of energy or premature wear, the investment needed to correctly control minimum flow rates is relatively modest. To maintain a minimum flow rate and controllability in a hydronic system, IMI Hydronic Engineering recommends that system designers take into account minimum flow bypass using solutions like fixed bypass with bypass valves or bypass with motorized valves to get more precise flow and temperature control throughout the system. Particular attention should be paid to the characteristics of the control valves. High turndown, the EQ% flow characteristic, and high control valve authority are the criteria that will ensure effective control of exchanger power for most of the operating time of HVAC installations.

For more information, visit [www.imi-hydronic.com](http://www.imi-hydronic.com).



Percentage of the heating/cooling season as a function of the required power.

## Josam Company's Lightweight Drain System Makes Installation a Snap for Egan Company

Egan Company selected Josam Company's drain system to ensure that LeafLine Labs, the premium medical cannabis cultivator in Minnesota, had the right drainage systems to meet their unique needs. Josam Company's PRO-PLUS® Trench Drain System was a welcome change from other labor-intensive drain systems that Egan Company had used, saving time and streamlining installation.

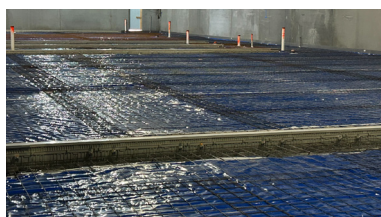
LeafLine Industries opened its headquarters and an indoor cultivation facility in Cottage Grove, MN, in 2014. It tripled the size of that facility in 2020 with the addition of a 134,000-square-foot greenhouse and continued to expand with the construction of a 77,000-square-foot addition in 2022.

Cannabis medical facilities produce a lot of plant wastewater, so it is essential to have drainage that can handle large amounts of liquid and effectively remove wastewater from the facility. Drainage systems work hard in these facilities; without the proper drainage system as part of the design, the water runoff from the irrigation system would have nowhere to go, which could then cause diseases to the plants.

Josam Company and Bennerotte Marketing Agency, Josam's manufacturing representative in Minnesota, worked with Egan Company from the start of the LeafLine Labs construction project during the submittal phase. Egan Company's senior project manager, Todd Achterkirch, met with the design team to determine the best drainage solutions and assisted through the design phase to get the drainage products selected, approved, coordinated, and procured in time for installation.

To satisfy the project requirements, Josam provided 772' of PRO-PLUS 100 Series channels with ductile iron grates to meet the drainage demands. The PRO-PLUS channels provided were 4" nominal width and the grates were Class-C PRO-SNAP®, Josam's innovative grate securing system without bolts. Josam supplied the required drainage products on time to meet the project's schedule. Prior to the material arriving at the project destination, Egan Company pre-assembled the drain in the shop to streamline the field installation.

Egan Company was delighted to use the PRO-PLUS trench



Egan Company simplified drain system installation for LeafLine Labs by using Josam's PRO-SNAP grates, which can be secured and removed quickly and easily with a single hand movement, eliminating the need for bolts or special tools and preventing loose or rattling grates.

drain system for this project. "The PRO-PLUS system was much easier to handle and install because of its lightweight material," said Achterkirch. The system "assembled nicely, the parts were all labeled well, and the pre-installed set screws saved time and worked perfectly with the all-thread rod," he added.



Egan Company found Josam's PRO-PLUS Trench Drain System easier to handle and install than other systems because of its lightweight composite material, which is stronger and more temperature-resistant than other trench drain products.

The Josam Company's trench drain is manufactured using glass-fiber reinforced polyester (GRP) pressed from sheet molding compound (SMC), which is a composite of polyester resin, mineral fillers, and glass-fiber mats. It is lighter in weight, stronger, and expands and contracts in extreme temperature ranges less than other trench drain materials such as polymer concrete, polypropylene, and high-density polyethylene. The combination of SMC and GRP makes this channel 1.5 times stronger and 70 percent lighter than polymer concrete trench drains.

"To make it even easier during the installation process, Josam provided an installation technical layout design which tells you exactly where each channel goes in the run at no additional cost," Achterkirch added.

The project also used the innovative PRO-SNAP grate securing system. PRO-SNAP grates can be secured and removed quickly and easily with a single hand movement, eliminating the need for bolts or special tools and preventing loose or rattling grates. "The PRO-SNAP design gave us an attractive drainage solution while offering a simpler grate installation by pushing down on them with your hand and locking them into place," said Achterkirch. "We saved even more time by not having to spend extra time typically needed with the traditional locking bar grate system."

Achterkirch continued, "Projects that involve installing the PRO-PLUS trench drains are simple and less stressful. It's not only a quality product but one that offers a variety of labor-saving features that allow us contractors to remain profitable."

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

# Simplifying the Way We Capture and Transfer Knowledge

By Frantz Belot, Ph.D., *President and Co-Founder, Tyfoom*

With more than 70 million baby boomers set to retire by 2030—more than 10,000 each day—organizations need to rethink the way they capture and transfer knowledge before it is lost forever.

In fact, 42 percent of company skills are only known by one person<sup>1</sup>. Much of this information is mission-critical, proprietary, experiential, and unique. It is based on how employees apply what they have learned throughout their careers—and in the case of baby boomers, what has led them to be the most efficient and productive generation of workers the earth has seen.

Yet today's training is getting lost on the next generation. Eighty-seven percent of millennials say that their corporate learning experience is boring and not relevant<sup>2</sup>. And, it's not just millennials: one third of all employees say the training their organization provides is out of date<sup>3</sup>.

If learners don't see training as relevant to what they do, they will become frustrated and it is more difficult to retain them. They will also forget what was taught, which is frightening considering that employees forget 70 percent of information after one day<sup>4</sup>.

## **Video-Based Microlearning**

Video-based microlearning delivers highly engaging content in a way that ensures knowledge transfer. It differentiates itself from other forms of microlearning in a few significant ways. First, it simplifies rather than overcomplicates communication and training. Second, it uses the concepts of spaced learning and video content to provide a daily cadence and repetition of topics to improve retention—and confidence—in learners.

Video-based microlearning also allows organizations to have user-generated, manager-approved content, which can greatly enhance top-down communication and training. It will often be made available in the flow of work so employees can remember in the moment they need, but also in an on-demand library for when they forget.

Most platforms that provide video-based microlearning were developed on iOS or Android mobile devices—not a desktop computer—and as a result are designed to be mobile-first. This means they leverage the functionalities and behaviors that are inherent to smartphones. It also means that video-based microlearning is short—often under two minutes.

Video-based microlearning training modules don't need to take 7–10 hours to create. Rather, they can be created in minutes

following a simple step-by-step methodology that we created based on years of scientific research.

## **Using a Proven Methodology**

By following the methodology below, organizations can quickly create and distribute video-based microlearning training for their organizations.

### **Step 1: Determine the Topic**

First, identify the topic that requires training. You may want to understand what employees already know on the topic, where they can improve, what new skills need to be taught, or which old skills need review. Training topics are strategic, broad ideas that are important to your organization.

Some organizations will regularly survey their employees and managers to determine what skill sets are needed by managers and desired by employees.

### **Step 2: Isolate Best Practices**

Next, break that topic down into several skills or best practices that can be taught. Don't include anything that is unnecessary. Typically, asking top performers at your organization about the skills and best practices that make them top performers will help you identify and isolate these skills.

Each skill taught should have three or four main points that can be taught. If there are more, break them down into multiple lessons—unless they are processes, such as the steps of how to change a tire or importing information into a database, where a short list of steps is still brief.

### **Step 3: Outline in Small Chunks**

The average attention span in humans is approximately 8.25 seconds<sup>5</sup>. Research shows that effective training takes about two minutes to ensure knowledge transfer. As a result, training should be short.

This is a good thing—and what employees want—in that it allows organizations to provide short bursts of useful information that is relevant and to the point.

To keep your training short, create a brief outline of the training that includes a brief one-sentence introduction that stresses the importance of the topic. Then, include three main “takeaways” that you want learners to remember. Then, close with a call to action asking them to implement what was taught.





Video-based microlearning delivers highly engaging content in a way that ensures knowledge transfer. Organizations can quickly create and distribute their own video-based microlearning training by following Tyfoom's proven methodology.

A formal script is not needed, which saves time and builds credibility.

#### ***Step 4: Record the Video***

Because your training video is less than two minutes, communicate only the information that is needed and in a way that is clear and easy to understand. Shoot the video in less than three takes, as the delivery of information will likely degrade and length increase.

For quick training and communications, you can use your mobile phone, which is more than adequate for most training modules. You can also record video on a computer desktop with screen capture software and a microphone.

#### ***Step 5: Edit the Video***

To edit, use software that is available in your app store or bundled with your device. Get right into instruction as you start the video. Don't employ an opening title sequence, rather include a branded bumper at the end to reduce distraction. Where possible, add text on the screen to reinforce key concepts.

#### ***Distribute, Test, and Report Daily***

Distributing training on a daily basis is critical. It is equally important to test daily to ensure knowledge transfer and provide accountability.

A simple quiz format that covers each of the main points of the outline is ideal. Not only does it reinforce and test retention, but it has the added benefit of helping understand if learners are engaging with the content they create.

As a result, make sure that your training platform allows you to automate the quick uploading, distribution, and testing that

is required. In addition, it should allow for the creation of an on-demand library so employees can quickly access crucial information in the flow of work.

This new training methodology is designed to help contractors reduce the time required to create video-based microlearning. Whether the outcome is safety, culture, reducing rework, or standardizing best practices, it can help you create the most effective training modules that are easily remembered and put into practice by your workforce.

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

<sup>1</sup> Davis, J. (2018, July 18). Knowledge loss: turnover means losing more than employees. HR Daily Advisor. <https://hrdailyadvisor.blr.com/2018/07/18/knowledge-loss-turnover-means-losing-employees/>

<sup>2</sup> Adkins, A., & Rigoni, B. (2016, June 30). Millennials want jobs to be development opportunities. Gallup. <https://www.gallup.com/workplace/236438/millennials-jobs-development-opportunities.aspx>

<sup>3</sup> Lorman Education Services. (2021, September 1). 39 statistics that prove the value of employee training. <https://www.lorman.com/blog/post/39-statistics-that-prove-the-value-of-employee-training>

<sup>4</sup> LoCicero, C. (n.d.). 10 facts & stats about learning retention you'll want to remember. Bridge. <https://www.getbridge.com/blog/10-stats-about-learning-retention>

<sup>5</sup> Zauderer, S. (2022, December 26). Average human attention span by age (infographic). Cross River Therapy. <https://www.crossrivertherapy.com/average-human-attention-span>

# Bluegrass Hydronics and Pump Turns Emergency Replacement Into No-Cost Upgrade With Delta Cooling Towers

By installing antimicrobial cooling towers from Delta Cooling, Bluegrass Hydronics and Pump helped a rural Kentucky school district qualify for a federal grant to replace a failed tower and another nearing the end of its life. The units solved the two biggest issues the school district was facing: budget constraints and the need for durable solutions.

It all started when a cooling tower used in conjunction with the school's HVAC system failed. The old, metal-clad cooling tower at the area middle school required significant maintenance over the years. However, the district was hoping to delay the expense of replacing it along with another aging metal tower used by the high school.

"They needed a new tower, fast. Theirs was in real bad shape from years of rust buildup and they were experiencing all kinds of leaks—panel leaks, gasket leaks, everything," explained Zach McKinney, sales engineer at Bluegrass Hydronics and Pump, which helped the school district with the cooling tower replacement.

Often in an emergency situation, researching for optimal replacement options gets tossed aside for what can be done quickly and easily. Fortunately, for the school district, the team at Bluegrass had experience with advanced engineered-plastic cooling towers.

## Going for the Grant

To cut costs, McKinney had a plan. He knew that some engineered-plastic cooling towers are now manufactured with antimicrobial properties. He believed this feature would qualify the towers for government funding under the Elementary and Secondary School Emergency Relief (ESSER) program.

Created by the Coronavirus Aid, Relief, and Economic Security (CARES) Act, ESSER funds are awarded to schools that need to repair or improve their facilities. To qualify, the improvements must reduce exposure to environmental health hazards. Originally intended for COVID-19 relief, the program was expanded in 2021 to include other environmental health and safety projects not directly related to coronavirus.

Antimicrobial engineered-plastic cooling towers were first designed to help prevent outbreaks of the potentially fatal Legionnaires' disease. Unlike metal towers, engineered plastic can be molded with special wide-spectrum antimicrobial additives throughout the plastic. These additives operate on a cellular level to continuously disrupt and prevent uncontrolled growth of microorganisms and biofilm within the cooling tower.



The durable, HDPE cooling towers from Delta Cooling that Bluegrass Hydronics and Pump installed in two Kentucky schools not only prevent the spread of waterborne disease but also use updated fan and motor systems that save the schools money on maintenance and electricity costs.

"It worked! The school district was awarded the grant and was able to acquire both towers at no out-of-pocket expense," said McKinney.

## A Textbook Case

The adoption of antimicrobial cooling towers has become increasingly important because of the growing number of outbreaks of Legionnaires' disease at numerous locations throughout North America. The Centers for Disease Control and Prevention (CDC) estimates that as many as 18,000 people are infected with the *Legionella* bacteria in the United States alone every year. Found naturally in freshwater environments, *Legionella* becomes a health hazard when it grows unabated in water that is not properly treated. A significant number of outbreaks have originated in cooling towers.

"A cooling tower is the perfect breeding ground for *Legionella*, because it's wet and humid and exposed to sunlight," explained McKinney. "The *Legionella* will colonize the walls of the tower, and the colony will grow bigger and bigger."

Cooling towers have a long history of effectively expelling heat from the water used in many commercial and industrial applications. However, even when they are disinfected and properly maintained, cooling towers are potential breeding grounds for *Legionella*, according to the CDC.

*Legionella* bacteria spread to humans when expelled water vapor or mist containing the bacteria is inhaled. For this rural Kentucky school district, the location of their cooling towers amplified their concerns over this issue.

"One of the towers sits right by the football stadium," said McKinney. "Can you imagine if they had an outbreak right there with all those people in the stands? That would be bad news!"

### *Back to School*

The school district ultimately selected a TM series 310-ton cooling tower and a 250-ton Paragon model manufactured by Delta Cooling. The company pioneered engineered-plastic cooling towers in the 1970s and recently innovated the first cooling towers featuring antimicrobial resins in not only the fill, but also the entire base cooling tower structural material, sump, and drift eliminator.

The engineered-plastic towers are made of high-density polyethylene (HDPE), which is impervious to the natural and chemical causes of rust and corrosion. The towers are also unaffected by the acidity from water sources, including evaporation make-up water and even the water treatment chemicals that attack metal towers from the inside out. This feature solved the second issue for the school district.

“Durability was a huge part of what won us that job,” added McKinney. “With HDPE, the whole tower is molded in one piece, so you don’t have any of the leaking points that caused the failures in metal towers. Plus, it doesn’t hurt that Delta puts a 20-year warranty on their towers. You just don’t get that kind of lifespan with metal towers.”



Because Delta Cooling’s antimicrobial cooling towers are eligible for federal relief funds to address environmental health hazards in schools, Bluegrass Hydronics and Pump helped a rural Kentucky school district obtain two much-needed towers at no cost.

To further reduce ongoing cost and maintenance requirements, the school district also wanted to get away from the belt-driven fan systems that require periodic downtime for replacement. The Delta Cooling direct-drive fan eliminates the belts entirely. In addition, the variable-frequency drive motor, which requires less horsepower than the school district’s previous towers, is already translating into a substantial savings on electric power consumption.

“We are actually already working to roll this out again at other schools,” concluded McKinney. “The ESSER funds are still available, and with these antimicrobial HDPE cooling towers, we know we can help other schools improve their situation.”

*For more information, visit [www.deltacooling.com](http://www.deltacooling.com), call 800-289-3358, or email [sales@deltacooling.com](mailto:sales@deltacooling.com).*

## **Harder Mechanical Tackles Welder Shortage, Amps Up Productivity With Novarc’s Spool Welding Robot**

By implementing Novarc’s Spool Welding Robot (SWR), Harder Mechanical Contractors has helped with the shortage of highly skilled welders and increased productivity from an average of 120 factored diameter inches (FDI) per shift to more than 200 FDI, while also achieving a repair rate of 0 percent and maximizing arc-on time. Moreover, because the SWR is a collaborative robot—or cobot—Harder Mechanical can assign less experienced welders to operate the machine, significantly improving shop productivity and resulting in high-quality welds every single time.

### *Weathering the Welder Shortage*

The welder shortage, caused by the combination of an aging welder workforce and the lack of uptake of the welding trade, is affecting many industries, and it is one of the main reasons why Harder Mechanical decided to look into welding automation solutions. With over eight decades of experience, Harder Mechanical is a large, nationally recognized contractor with an outstanding reputation, based in Portland, OR.

“Our biggest priority was to get qualified welders,” said Mark Nastari, corporate quality director at Harder Mechanical. “Like everybody else in construction, we’re seeing a lot of skilled labor retiring and the new generation of workers not choosing blue-collar union jobs. So we were getting pretty nervous about finding specifically hard wire welders for our shop.”



With Novarc’s SWR cobot, Harder Mechanical Contractors has minimized their need for highly skilled welders and increased productivity from an average of 120 FDI per shift to more than 200 FDI so far.



Nastari noted that the shortage of highly skilled welders is a particular concern. “To find people who have the skill to weld hard wire with a gun and be able to pass X-ray was getting harder,” he said. “Our biggest concern was buying equipment that we can train people on easily and get them up and running and making X-ray quality welds.”

Harder Mechanical was looking at pipe welding automation solutions that would help them combat the shortage of skilled welders when they came across Novarc’s SWR, a cobot designed specifically for pipes, small pressure vessels, and other types of roll welding.

“We’re very tech savvy at Harder Mechanical, and we’re always looking for better tools, better means and methods,” said Nastari. “So we looked at a variety of mechanized and automatic weld equipment. It came down to a decision between Novarc and another pipe welding machine that we had seen at FABTECH. What made the Novarc machine stand out was the quality of the root pass, the laser, and the technology.”

#### ***Dramatically Increasing Productivity***

Nastari noted, “In our wheelhouse piping, which I call 2”–16” diameter pipe, a good welder would average about 120 diameter inches [per shift]. With the SWR, we have already exceeded 200 diameter inches, and we are not even at full throttle.” In fact, he predicted substantial advances for the future. “It will be easy for us to get to 300 diameter inches on our wheelhouse piping with the SWR.” The significant productivity improvements provided by the SWR can help contractors become more competitive when bidding on jobs and increase their profit margins on current jobs.



Harder Mechanical found that even junior welders using the Novarc SWR can produce excellent welds, none of which have required repairs.

#### ***Robot Boosts Safety, Efficiency, Accuracy***

Nastari pointed out other upsides of the new technology. “Another benefit of the Novarc machine is worker safety. You don’t have welders hunched over, breathing fumes; they are standing back behind a weld screen, looking at the HMI [human machine interface], recording it. They really don’t need to get near the weld except for when they start it and when they stop it,” said Nastari.

Nastari continued, “The robot really kicks butt because we do not need to stop and clean in between passes. We’ve had a lot of clients come to see our shop during the bid process, and they go crazy when they see the robot. They love it! They love the videotape capability. We play back the welds for them and they are absolutely gorgeous welds.”

*“Prior to purchasing [Novarc’s] SWR, we were experiencing failure rates of 2–3 percent, which is better than industry average. But on the current job with the robot, we are doing X-rays, and we haven’t had any repairs,”*

— Mark Nastari, Corporate Quality Director  
Harder Mechanical

The ability to train less experienced welders to use the robot has also proved to be a substantial boon to Harder Mechanical. “Currently we have three people trained. We are a union contractor, and two of the people trained are apprentices. The third person is a journeyman, and all three of them are about the same as far as skill level. It has been rare to have apprentices who could wire a weld and pass X-rays before. That’s a huge benefit to us, and it’s fantastic!” said Nastari.

The SWR minimizes human error and therefore reduces the failure rates from the North America industry average of 3–5 percent to less than 1 percent, resulting in massive cost savings for fabrication shops. “Prior to purchasing the SWR, we were experiencing failure rates of 2–3 percent, which is better than industry average. But on the current job with the robot, we are doing X-rays, and we haven’t had any repairs,” said Nastari.

Harder Mechanical has also been pleased with Novarc’s support as they put the SWR into practice. “The support was fantastic; we were always able to get ahold of the Novarc support team. They were always able to work on the screen in real time, and they always showed up when they said they were going to show up,” said Nastari.

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

## Ridge Tool Company Offers Tips for Selecting Ergonomic Tools to Minimize Strain, Increase Productivity

Not long ago, the impact of a tool on its user was not given much thought when it came to tool design. Today, thanks to advancements in technology and a better awareness of how repetitive use of a tool can contribute to injury, ergonomic tool design is becoming the norm. To help ensure you are making the best equipment investment for your team, here are basic ergonomic tool features to look for.

- Tools that are well balanced, lightweight, and can be operated with one hand are ideal. The weight will vary depending on the use of the tool. Thanks to technology, tools are becoming smaller and lighter, minimizing strain and fatigue for the user while increasing productivity on the jobsite. Look for the smallest and lightest tools to meet the demands of your typical jobsites.
- In the case of hand or press tools, the center of gravity should be aligned with the center of the gripping hand. In other words, the tool should feel “easy” to hold either in an upright position or in the position in which it will be used.
- For hand tools used for precision work, the handles and grips should have a “power grip.” Handle diameter recommendations vary, but in general, cylindrical handles of 1½” offer a better power grip, although they can range from 1¼” to 2”. For precision grips, a diameter of 1¼” is recommended. The larger diameter will allow for maximum torque, while the smaller diameter helps with dexterity and speed.

- To ensure a good grip, sufficient friction must exist between the hand and the handle, and friction should remain consistent even with a sweaty hand. Hand tools should be made of non-slip, non-conductive, and compressible materials, such as textured rubber, that help keep the tool from slipping out of the hand.
- To avoid tendonitis in the index finger (otherwise known as “trigger finger”) from tool use, look for solutions that allow you to use two or three fingers to activate switches to reduce discomfort and minimize the risk of injury.



Tools that are light and can be operated with one hand, such as the RIDGID RP 115 Mini Press Tool, minimize strain and fatigue while increasing productivity on the jobsite.

Minor aches and pains add up over time, taking individuals off the jobsite because of injuries or down a different career path entirely. Using tools with even a few ergonomic features will go a long way toward reducing this physical strain and injury.

*For more information, visit [ridgid.com](https://www.ridgid.com).*

## CNA Risk Control e-Talks Offer Insights Into Business Resilience

You cannot eliminate the possibility of business disruptions—but you can prepare for them. Whether the cause is a storm, a cyberattack, or another unexpected event, a sudden disruption could affect your organization at any time. To grow and thrive in an uncertain risk environment, your business needs preparation to absorb, adapt, and be resilient to disruptive events. CNA, a benefactor of MCAA23, offers a series of short podcasts (about 15 minutes each) on risk and resilience.

### *Season 1: Resiliency*

This business resiliency series addresses how natural and manmade catastrophes, pandemics, and civil unrest create uncertainty, complexity, and challenges that unfold in real time. Episodes explore the resilient mindset of firms that survive unprecedented events, innovative strategies to sustain operations, and how to make informed decisions in times of uncertainty.

### *Season 2: Income*

In the second season, episodes discuss business income, with a focus on demystifying this complex topic. Topics include selecting the right coverage to be prepared for disruption, restarting business after a disruption, and how to handle the most common resiliency issues that businesses face in the current environment.

*For more information, visit [www.cna.com](https://www.cna.com). MCAA thanks CNA for being a benefactor of MCAA23.*

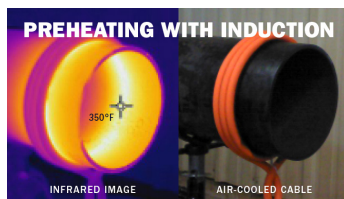
# Miller Electric Illustrates Benefits of Induction for Welding Preheating

Welding preheating is used to ensure weld quality and reduce the chance of cracking and other defects that can result in costly rework. Preheating is commonly used in field and shop applications when welding steel or steel alloy pipes or plates that are 1" thick or more. Applications that often use preheating include power plant and structural construction, as well as pipe fabrication. Here, Miller Electric outlines four common methods for welding preheating and how to choose the best option for your application.

## When To Use Preheating

The process of preheating involves heating the area around the weld joint or the entire part to a specified temperature before welding. This reduces the weld cooling rate and drives out moisture, which helps prevent hydrogen buildup and the potential for cracking.

Determining whether an application requires preheating depends on several factors, including the type and thickness of the base material. Often, use of preheating is dictated by the welding procedure specification (WPS), which outlines the minimum and maximum preheating temperatures as well as the necessary duration of preheating. Welders typically must monitor and document the base material temperature between weld passes to ensure the metal remains within the required temperature range.



Compared with other methods, induction heating is an efficient, consistent method for welding preheating, bakeout, and stress relieving for a wide range of part shapes and welding applications, helping you save time and money.

## Weld Preheating Methods

Several methods can be used for preheating, and each option offers benefits and drawbacks. Determining the best method for a specific application often depends on the material thickness, weldment size, project timeline and budget, and available personnel and expertise.

- **Induction** creates a magnetic field that generates eddy currents within the base metal, heating it internally from within. Accessories such as cables or blankets are placed on or near the part to generate the magnetic field. Induction provides quick setup time—often less than five minutes—and a fast time to reach the desired temperature. This method also produces a uniform heating area, making it easy to achieve and stay within the necessary temperature window. In addition, because the output coils do not get hot or create an uncomfortably hot environment for welders, induction can be safer than other methods. It also delivers flexibility to heat parts of many sizes and shapes. Induction can have a higher

initial cost and require some operator training to ensure proper wrapping techniques.

- **Open flame** involves operators using a fuel gas and compressed air torch (sometimes called rosebuds) to apply flame directly to the metal part. Flame preheating requires little operator training, but it does have several drawbacks. Flame often provides inconsistent temperature uniformity, has a slower time to reach desired temperature because of its inefficient process, and also compromises comfort and safety for operators working near the soot, smoke, and gases produced. This method also includes the extra expense of gas storage and distribution.
- **Resistance heating** uses electrically heated ceramic pads placed on the base metal. The tiles transfer heat to the part through radiant and conductive heat, specifically where the pads are in contact with the part. This method can offer temperature consistency as long as no heating pads are broken. Downsides of resistance heating include cost and inefficiency. This method is often contracted out to a third party, increasing the cost. It can also sometimes take an hour or more to arrange and secure the heating pads on the part; the required cool-down time also adds significant time to the process. Broken heating pads can cause hot and cold spots in the part and add repair and replacement costs to your heating process. Also, resistance heating elements get extremely hot and can pose a safety hazard.
- **Ovens** use convection heating, and the entire part is placed inside the oven, resulting in uniform heating. This method allows for heating many parts at once. However, ovens can be quite large and must be connected to an electrical outlet or gas supply, so they lack mobility. When large parts are involved, you may have to transport hot parts through your facility. In addition, the oven may need to be preheated for several hours before it is used, adding time to the process.

## Induction Provides Many Benefits

Many critical welding applications require preheating. Understanding the differences between the preheating methods can help you choose the one that optimizes efficiency, reduces costs, and minimizes safety hazards for operators. Contractors in numerous industries have seen significant time savings with a move to induction heating—reducing cycle time by several hours per weld in some cases. Compared with other methods, induction heating is an efficient, consistent method for preheating, bakeout, and stress relieving for a wide range of part shapes and welding applications, helping you save time and money.

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



## Pipe Fabrication Institute Standards Help Contractors Meet Demanding Criteria

Complex and sensitive facilities—such as nuclear and fossil fuel plants, refineries, steel and paper mills, chemical processing plants, and semiconductor and pharmaceutical manufacturing plants—require sophisticated piping systems. These systems must perform under great stress while adhering to strict safety, health, and governmental regulations. Relying on well-developed, industry-recognized standards ensures that your work meets even the most demanding criteria.

Since 1913, the **Pipe Fabrication Institute (PFI)** has been developing and writing Standards for the pipe fabrication industry. These Standards are referenced by ASME B31 piping codes; engineering, procurement, and construction companies (EPCs); and multiple end users.

PFI's piping Standards are developed and maintained to the current ASME Codes and Industry Standards by the PFI



The Pipe Fabrication Institute develops Standards to help you meet the strict safety, health, and governmental regulations that come with the most complex building challenges.

Engineering Committee, a group of engineers, quality inspectors, fabrication software consultants, and flange and fitting manufacturers who meet twice a year. The committee's unique blend of expertise helps make PFI's Standards the highest referenced Standard with EPCs and end users in the pipe fabrication industry. Among their most notable

Standards is ES-03, *Fabrication Tolerances*, which establishes the acceptable tolerances for fabrication. Referencing PFI ES-03 in your next bid or fabrication drawing can increase a potential client's confidence in your work.

Another popular Standard is ES-48, *Random Examination*, which describes a commonsense approach that gives you options for achieving the ASME's B31.3 code requirements for random examination. Standard TB-10, *Guidelines for Calculating Factored Weld Diameter Inches*, establishes methods for calculating diameter inches of weld that can be consistently applied to pipe spool fabrication to measure job progress.

The PFI Engineering Committee continuously develops new Standards to promote progress in the pipe fabrication industry. One of the newest Standards, ES-50, *Internal Oxidation for Piping Welds*, serves as a simple means of identifying the acceptable level of discoloration of the root side of stainless-steel pipe welds. It also gives general guidance on the level of root surface discoloration that can be tolerated for some service conditions. Additionally, the Standard lists estimated purge time to reduce the parts per million of oxygen inside the pipe, which affects discoloration and integrity of the root pass.

With over 40 Standards and Technical Bulletins, ranging from branch reinforcement worksheets to visual examinations, PFI has the fabrication Standard to help you meet client demands.

For more information, visit [pfi-institute.org/home](http://pfi-institute.org/home).

## Raken Outlines Five Ways to Manage Generational Gaps on the Jobsite

From apprentices to expert craftsmen, the construction industry employs a workforce that spans multiple generations. While an age-diverse workforce brings well-rounded skills and experiences to the table, it is not always easy to manage efficiently. Employee expectations and preferred communication styles vary greatly from generation to generation. With today's labor shortages and low employee retention rates, if mechanical contractors want to attract and keep top talent, they need to explore strategies to help their age-diverse crews work together effectively.

### 1. Automate Communications

Clear, consistent communication is vital on a construction project but is one of the most difficult challenges of managing a multigenerational workforce. Each age group is accustomed to

sharing and consuming information differently and has unique preferences regarding channels, content, and frequency.

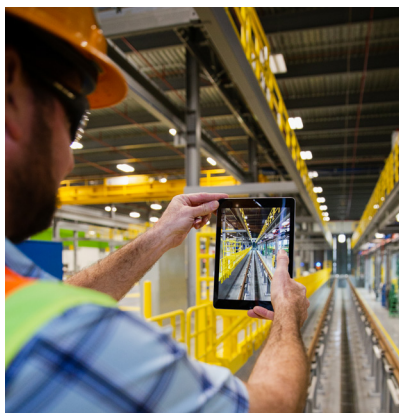
The best way to accommodate a variety of preferences is to use technology to automate communications. For example, daily reporting software that provides report templates, checklists, photo capabilities, automatic notifications—and other features that simplify the way data are collected and shared—helps mechanical contractors reduce errors and misunderstandings.

Traditional methods of communicating in the field, such as handwritten reports or Excel spreadsheets, are time-consuming and leave plenty of room for error. Standardized digital reports remove doubt and help employees of all ages share information in a consistent manner. Field contractors can use templates

to capture the right data without guesswork, attaching photos and videos for added clarity. They can also share standardized digital reports instantly, so there is no need to scan documents or compose separate emails, and reports can be collected and combined for managers automatically.

## 2. Use the Right Technology

Not all technology is created equal. And, just as they have unique communication preferences, older and younger generations prefer to use technology in different ways. When looking for software to improve communications and daily reporting, prioritize ease-



Raken notes that clear, consistent communication is one of the most difficult challenges of managing a multigenerational workforce. Using technology that lets you easily attach photos and videos for added clarity is one way to improve communication.

a solution that accomplishes your goals without convoluting simple processes with unnecessary features.

## 3. Create a Formal Mentorship Program

Younger and older employees will naturally exchange tips and techniques while working together. Creating a formal mentorship program encourages this behavior and gives employees the opportunity to learn on the job, something that is valued by workers of all ages.

Establish official guidelines for mentorship that include approved schedules and subjects to cover. Determine criteria for both

of-use to appeal to varying experience and comfort levels. Focusing on solutions that offer intuitive interfaces and simple, easy-to-understand workflows encourages high adoption rates.

Complex software that requires significant training to use may overcomplicate communications instead of streamlining them. Conduct thorough research before investing, and make sure to choose

program eligibility and completion, and, if possible, provide incentives for both mentors and mentees to participate.

Your program does not need to stick to the traditional structure of older, more experienced workers taking on the mentor role. Young employees may have skills they can share with older workers. Having a formal program promotes employee retention by demonstrating the company's commitment to its workers' professional growth.

## 4. Schedule Diversity Training

Providing diversity training helps employees better relate to and communicate with workers from other generations. It promotes empathy and understanding. Many diversity education programs are available in person and online. Some programs focus specifically on age diversity. You may even be able to devote several toolbox talks to this topic.

Training can also teach interpersonal skills that workers can use to identify and resolve conflicts related to age differences. These soft skills help current managers mitigate age gaps in the workforce and help younger employees grow into management positions.

## 5. Seek Feedback

Don't overlook one of the simplest ways to better manage age-diverse employee groups: ask your employees for feedback. While different generations tend to share preferences among themselves, not every member of a given age group feels exactly the same. You may be surprised by some of your employees' preferences and pain points.

Choose a method—or methods—for gathering employee feedback and invite employees to provide honest opinions about the company's processes and procedures. Review the information you receive to identify areas for improvement. Address common concerns, and if concerns cannot be resolved, explain why. Employees of all ages appreciate being heard and feeling recognized by their employer.

*To learn more about field-first reporting that is easy for all generations to use, visit [www.rakenapp.com](http://www.rakenapp.com).*



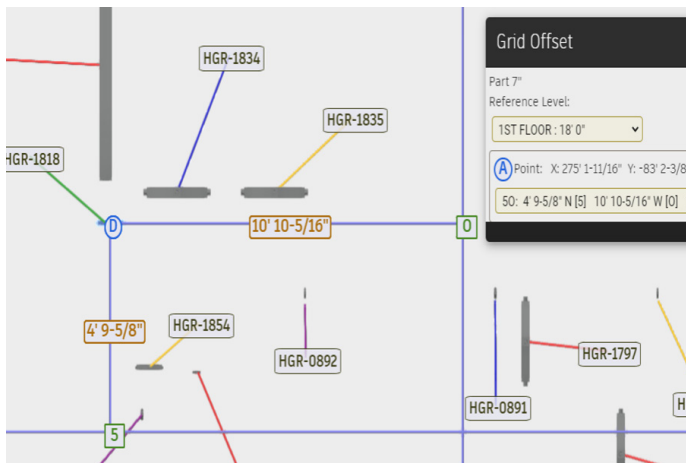
# MANUFACTURER/SUPPLIER TRAINING

Looking for a specific Manufacturer/Supplier partner's training information? Save yourself time and let MCAA connect you to the latest Manufacturer/Supplier member's training opportunities.

Visit the Resource menu at [MCAA.org](http://MCAA.org).

# Postler & Jaeckle Boosts Productivity Using GTP's STRATUS Manufacturing and Installation Labels

With a goal of eliminating paper in the shop, increasing efficiency in cutting, and using barcode labels to improve shop workflows, Postler & Jaeckle started working with STRATUS software from GTP Services in 2015. Since then, the company has seen a continuous return on investment with STRATUS, most recently by using labels to increase efficiency with hangers.



By pairing STRATUS-generated labels with the software's grid offset tool, Postler & Jaeckle's workers can easily read the hanger coordinates on the label and install a hanger without using a tablet or referencing installation drawings, speeding up installation times.

To reduce the amount of time field workers spent laying out hanger points or searching for material, Postler & Jaeckle began using STRATUS to create hanger packages, pre-cut hangers in the fabrication shop, and generate labels. STRATUS extracts information directly from the model, makes it available in a digital model viewer, and prints it directly on the label.

The contractor previously tried different methods for hanger installation. For example, they would send a person with a tablet to layout points on the floor in advance and have an installer use the tablet to continuously find the location of each hanger. Another method involved using a total station to map out points or creating a shop drawing with dimensions and tags. All of these approaches led to a bottleneck further in the process, as the field workers were left depending on one person with a tablet or total station or waiting for the drafting shop to complete a sometimes difficult-to-read installation drawing.

STRATUS bypassed all those issues by simply creating a

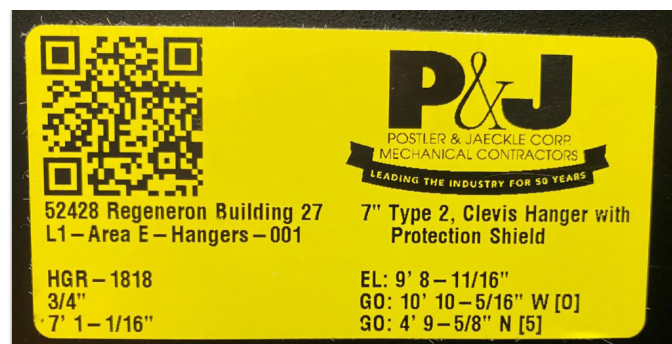
Postler & Jaeckle uses STRATUS software from GTP to generate labels directly from models that give its workers all the information they need to install hangers. The approach allows smaller crews to get the work done faster.

label designed for manufacturing and installation. The labels include information such as the hanger number, rod size, rod length, hanger type, elevation, attachment type, and grid offset. The grid offset tool in STRATUS tells a user exactly how far east, west, north, or south of a gridline to install a hanger. Now, an installer can easily read the hanger coordinates on the label and install a hanger without using a tablet or referencing installation drawings.

In a recent project that involved more than 10,000 hangers, Postler & Jaeckle prefabricated most of the hangers in packages of roughly 250 hangers each, with a built-in allowance for rod length adjustment. They had 3,000 hangers built in the truck before installation began, and they did not have any issues with slab sag or structure. Overall, fewer than 1.5 percent of the 10,000 hangers were duplicated or changed. That project solidified the company's conviction that manufacturing from labels reduces material handling and dependence on tablets or internet connections. As a result, Postler & Jaeckle could install hangers with smaller crews and reduced supervision time.

"The STRATUS Manufacturing and Installation Labels (MAIL) have allowed us to gain double-digit productivity savings," said Jesse Gorman, operations manager at Postler & Jaeckle. "Productivity gains allow us to have bigger margins and win more work."

Utilizing labels for efficiency does not stop with hangers. Postler & Jaeckle continues to pioneer innovation with labels for pipe installation. Using a system of sequential lettering labels, the field crew can install assemblies similar to building with an erector set. Starting with a STRATUS "reference" label to locate one specific part in a package coupled with the grid offset functionality, the "A-A" or "B-B" labels on each end of every assembly quickly show the orientation of assemblies. This simple approach provides an installation roadmap for the workers in the field.





Postler & Jaeckle's commitment to embracing streamlined and impactful solutions drastically decreased redundancies, increased efficiency, and contributed to the quality of their finished product. In New York state, where journeyman labor costs \$1.20 a minute, saving minutes brings value quickly. As demonstrated by Postler & Jaeckle, increasing efficiency by building directly from labels produced by STRATUS is a quickly attainable win for any company.

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



Postler & Jaeckle uses STRATUS to create hanger packages, pre-cut hangers in the fabrication shop, and generate labels, reducing the amount of time field workers spend laying out hanger points or searching for material.

## FARO Offers Five Tips for Maximizing Profitability With 3D Reality Capture

When processes are not aligned at every stage of a construction project, costly delays and unnecessary expenses are inevitable—and in the worst-case scenario can even result in legal disputes. Communication with stakeholders, the ability to monitor site progress, and the interconnected nature of construction work can all pose challenges to your bottom line.

However, if you streamline your construction progress management, you can mitigate risk and avoid losses. Here are five ways that 3D reality capture can help you avoid poor process management that could result in lost income.

### 1. Avoid Costly Project Disputes

According to an Arcadis report, the global average cost for construction disputes in 2021 was \$52.6 million, and disputes lasted an average of 15.4 months. Without a tool to track onsite progress accurately at every stage of your project, your organization might be leaving itself open to the risk of legal disputes, which can cost millions of dollars in settlements and legal fees.



Faro's 3D reality capture products allow you and your clients to see the jobsite, which can help you eliminate waste and rework, avoid miscommunication and disputes, and gain repeat customers.

Misaligned expectations of construction quality, delays in delivery, and the handoff between contractors are three common areas where construction disputes arise. These risks can be easily avoided with proper documentation and recordkeeping. So, when it comes time for a construction project handover, a comprehensive progress record like 3D reality capture can mitigate the risk of legal disputes.

### 2. Build Long-Lasting Customer Networks

If construction progress is not managed, tracked, and communicated efficiently, stakeholders are left in the dark about the status of their projects, which can lead to doubt, confusion, and a reduced likelihood of future business opportunities for your firm.

Without being able to visualize the site in its entirety, stakeholders might need to make regular site visits to gain peace of mind about progress and to ensure that everything is on track. Site visits can be inconvenient, time-consuming, and costly, possibly damaging your reputation with clients. However, by using 3D reality capture tools—such as the FARO® Focus Premium and Focus Core Laser Scanner, alongside the FARO Sphere Cloud Platform—you can capture site conditions in a visual format easily to ensure an up-to-date, as-built record.

### 3. Collect Complete As-Built Documentation

Securing repeat jobs with clients is always a positive outcome. With each maintenance and renovation project, contractors must complete and update as-built documentation. If that documentation is not up to date, every time a new project begins, a comprehensive walk-through and additional pre-work must take place before the work is started. These walk-throughs are not only time-consuming but also add to labor costs. Maintaining a reliable as-built record of the site that is updated

within a shared, cloud-based platform, such as Sphere, allows you to avoid the extra time and labor costs.

#### 4. *Minimize Expensive Rework*

According to a 2018 survey by PlanGrid, in the United States, almost 50% of rework results from miscommunication. The lack of a visual representation of the jobsite and communication that happens in disjointed email threads or group texts can often lead to misunderstanding about what is really happening onsite. Without a shared platform to coordinate, collaborate, and execute plans, decisions can be made based on inaccurate or incomplete data.

In this setting, 3D reality capture provides a huge competitive advantage in profit margins for your construction firm. The accuracy and objectivity it provides prevent many miscommunications that can lead to costly rework.

#### 5. *Make Accurate Cost Estimates*

Inaccurate cost estimation can easily lead to cost overrun for your construction firm. Bids that overestimate or underestimate the costs of materials or labor can significantly impact not only the project's completion, but also your firm's bottom line.

Overestimations may lead to a client choosing not to hire your firm at all, while underestimations can mislead clients about the size of the investment—potentially delaying payment to your contractors or project completion, which could result in litigation and damage your company's reputation. These issues are most often caused by a simple lack of good visual data of the jobsite. You can easily avoid inaccurate cost estimations with a fast, accurate 3D reality capture setup.

#### *Minimize Risk With Better Data Faster*

When properly implemented, 3D reality capture—from a construction progress management platform like HoloBuilder™ to the accuracy provided by a FARO Focus Premium Laser Scanner—lets your team collect, analyze, monitor, and integrate field data for a variety of specific uses.

By capturing the jobsite in 3D, your onsite and offsite teams can collaborate seamlessly while keeping stakeholders in the loop at any point of the project. Once the project is complete, you will have an accurate, objective progress record to eliminate doubt and minimize the risk of legal disputes, improving the likelihood of repeat business.

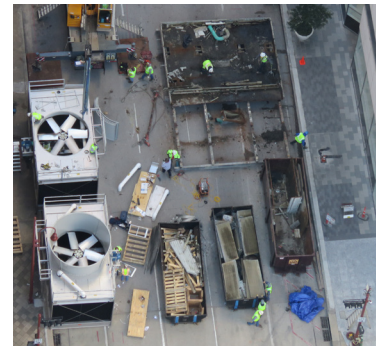
For more information, visit [www.faro.com](http://www.faro.com).

## Graco Mechanical Upgrades Houston Highrise in One Weekend with SPX Cooling Towers

For Graco Mechanical of Houston, TX, Marley NC® Cooling Towers from SPX Cooling Technologies proved to be the ideal solution for replacing a highrise building's aging cooling tower in a tight space with an even tighter timeline—just one weekend. These factory-assembled, or “package,” towers allowed for faster installation than a field-erected option while meeting the building's needs.

### *A Tall Order*

Installing a cooling tower on a roof of any height is never an easy task. Graco Mechanical was called on to disassemble an old wooden cooling tower and replace it with a new one for the Lyric Tower, a 26-story modern office tower in the theatre district of downtown Houston. The building needed a new tower—or towers—that was efficient and could be installed inside the existing mechanical pit without altering too much of the existing piping arrangement and structural steel. To add to the challenge, Graco Mechanical would only have a single weekend to complete the project, so as not to disrupt service for the tower's tenants.



Graco Mechanical successfully replaced a Houston office tower's aging cooling towers in just one weekend by installing factory-assembled Marley NC Cooling Towers from SPX Cooling Tech.

Based on the required load and flow factors, the project team selected two cells of model NC8407 to handle up to 1,800 gallons per minute and 700+ cooling tons per cell. The Marley NC cooling towers' heat transfer media, fans, gravity-flow water distribution, and mechanical drive systems work together to provide industry-leading cooling and energy efficiency.



Using two Marley NC Cooling Towers, Graco Mechanical met the Lyric Tower's need for new, efficient cooling towers that could be installed inside the existing mechanical pit without altering too much of the existing piping arrangement and structural steel.



The Lyric building's downtown Houston location posed problems for local crane operators and even helicopters, so Graco Mechanical found one of only two cranes in the state that could handle the job—allowing them to meet the extremely tight deadline for cooling tower installation.

The units were also specified as all stainless-steel construction, which provides additional corrosion resistance and long-term durability. The units were equipped with variable flow nozzles to maximize effectiveness and energy savings while supporting chillers and pumps during off-peak periods.

### *Reaching for the Sky*

Once the cooling towers were selected, Graco Mechanical was tasked with finding the best way to get them to the rooftop. Being in downtown Houston, there was little room for error, and the unique combination of height, reach, and load weight was beyond the capabilities of all locally available cranes. Using a helicopter lift would have its own limitations because of weight and air traffic regulations.

Eventually, the Graco team sourced one of only two cranes in Texas that could handle the job, with the help of TNT Crane & Rigging. Despite being one of the largest costs of the project, this crane still provided significant savings over all other proposed ideas.

### *Working Through the Weekend*

Teardown on the existing tower began Friday afternoon. The crew at Graco Mechanical and a handful of subcontractors worked day and night in shifts to remove all the components of the existing field-erected tower.

“Plans were sent out to each subcontractor with the layout of the streets and how the staging area would be set up, so each sub knew the exact part they were playing and when they were due up,” explained John Kanouff, general manager of service for Graco Mechanical. “This step was critical to completing the project on time.”

Starting at approximately 1 a.m. on Sunday, the new towers were lifted into position. Once they were safely placed in the mechanical yard, the crew immediately began reassembling the mechanical, plumbing, and electrical systems.

“The crane group did a great job on the lift plan, and they calculated, down to the inch, the clearance they would have when the crane swung on each lift,” added Kanouff.

By the time tenants started arriving on Monday morning, the Graco Mechanical crew had done exactly what they set out to do: the new Marley cooling towers at Lyric Tower were up and running—as was the central plant—for the workforce returning from the weekend.

*For more information, visit [spxcooling.com](http://spxcooling.com).*

## Engineered Water Heater Solutions Versus Field-Devised Methods: Advice From Reliance Worldwide Corporation

Confidence in your installation and its reliability are important to any contractor, but labor shortages and economic constraints can often make you feel like you have to choose between speed, cost, and quality. Balancing all three can be a challenge, especially when it comes to water heater installations. Water heater supports, in particular, often get cobbled together using leftover jobsite materials or other makeshift methods in hopes that they will keep the unit stable in the long run. While this may be the cheapest solution in the moment, it is not the best choice for your budget or your reputation.

Here, we break down the shortcomings of makeshift water heater supports and share the different reasons you should be using manufactured, tested solutions instead.

### *Problems With Makeshift Water Heater Accessories*

Field-devised water heater stands and platforms offer no

engineering data on the stability or longevity of the support and are not designed with code requirements in mind. This can lead to several issues if the manual method fails:

- Project delays and wasted time if the installation fails inspection
- Injury, leaks, or even an explosion hazard if natural gas is involved
- Extra liability to the installer if the method fails during a natural disaster
- Voided warranty if the untested accessories damage the water heater itself

### *Four Benefits of Manufactured Water Heater Supports*

Instead of rigging together a stand, restraint, or platform for a water heater, using engineered solutions can pay off quickly, despite the higher upfront costs.



### 1. They provide reliable support.

When you use a manufactured solution, you can have peace of mind that jobs will last long after installation. Engineered water heater products are more reliable because they are made of strong materials, such as heavy-gauge galvanized steel. They come with explicit weight limits, so you can sure they will support the water heater. They may also combine water heater accessories to minimize potential failure points.



Manufactured water heater supports are more reliable than makeshift solutions and can save installation time. For example, HoldRite Quick Stand platforms are preassembled, watertight, and eliminate the need to buy and install a separate drain pan.

### 2. They satisfy code requirements.

Using an unapproved product or method could result in a failed inspection, which slows you down and eats up cash. When searching for engineered water heater supports, check the manufacturer's information to see which specific certifications and code requirements the product satisfies.

Some brands, such as HoldRite, go the extra mile. They might conduct third-party laboratory tests to ensure their solutions exceed code requirements. Or they may even set a higher standard by using a double safety factor when establishing their products' weight ratings.

### 3. They save you time.

Manual methods may seem more economical because you can use what you have on hand to piece together a water heater support, but doing so takes more time than installing a prefabricated, tested solution. And all those extra minutes increase your total labor costs.

Engineered supports come ready to install and may also combine different water heater accessories to make the overall assembly even faster. HoldRite Quick Stand platforms, for example, are preassembled, watertight, and eliminate the need to buy and install a separate drain pan.

### 4. They can free up space.

In a small mechanical room, you may find that you need to elevate the water heater to free up extra space. Engineered water heater platforms safely support tank units in these scenarios, as they are specifically designed to accommodate different load capacities. When you are suspending a tank, you want a reliable platform, such as HoldRite's Quick Stand platform, which is the only engineered and tested water heater platform on the market. You can find options that are compatible with concrete or framed walls and work with different drain fittings.

You can also install water heaters outside to create more space. Water heater sheds are designed to safely protect the unit from the elements while freeing up room inside the building. Sheds often feature front panels for easy service, streamline installation with basic tool assembly, and provide a professional appearance.

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

## F+F Mechanical Slashes Pipe Cutting Time and Labor Costs With Watts-Mueller Machine

Recognizing that pipe fabrication was slowing down its prefabrication process, F+F Mechanical Company invested in a Watts-Mueller pipe cutter that dramatically improved speed and quality while decreasing labor costs. In fact, thanks to the efficiencies gained from prefabrication using the Watts-Mueller machine, F+F Mechanical recently completed a full boiler room change-out for a hospital in just three months.

Several years ago, F+F Mechanical, a full-service mechanical contractor based in North Haven, CT, recognized the need to embrace new technology. John Ferrucci, vice president of F+F Mechanical, said, "We needed to move into prefab units and modular construction. As we started this process, it quickly became clear that pipe fabrication was taking too much of our projected time and consuming too much of our budget—piping was the bottleneck in our progress. We had four men fully dedicated to cutting, beveling, and prepping pipe."

Ferrucci continued, "We visited a few large fabrication shops and observed them using the advanced technology we were considering—we had to upgrade our capital equipment. We were already looking at Watts-Mueller and one other manufacturer; everyone we talked with advised us to look at Watts-Mueller."

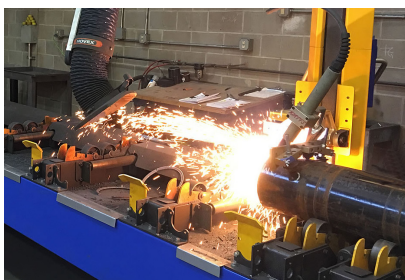
In 2017, F+F Mechanical purchased the Watts-Mueller W-242 (two axis) machine with a 25' bed and a conveyor outside the building for



Thanks to the efficiencies gained from prefabrication using the Watts-Mueller machine, F+F Mechanical recently replaced three 1,000-horsepower boilers and all the high-pressure steam mains in the power plant of a local hospital in just three months, with no time loss for the hospital.

preloading and feeding pipe into the building. “We quickly went from two men working all day cutting pipe each day to cutting pipe two days a week. The labor savings alone justified the purchase of our new Watts-Mueller pipe cutting machine,” said Ferrucci.

“Another cost-saving benefit was gained efficiency with welding X-ray joints,” continued Ferrucci. “We had been using oxy-fuel in our pipe cutting. The quality of beveling with the plasma torch on the Watts-Mueller machine dramatically improved the speed and quality of our X-ray joints. All large-bore, high-pressure steam piping that requires radiographic testing passes at 100 percent now. One of the contributing factors to the success is the good end prep from our new machine.”



F+F Mechanical VP John Ferrucci noted, “The quality of beveling with the plasma torch on the Watts-Mueller machine dramatically improved the speed and quality of our X-ray joints.”

Ferrucci noted, “For the quality of the machine and all the features, the price was competitive, but what really got my attention was that every mechanical company I spoke with raved about Watts-Mueller machines.”

When he attended the annual MCAA Convention, Ferrucci visited the Watts-Mueller booth. “I introduced myself to David Carr and told him about our needs. Working with David was really great. He has so much knowledge of the industry and honestly told me what we really needed, actually steering me away from the more expensive options I thought we needed.”

Recently, F+F Mechanical upgraded the Watts-Mueller 3DPP software. “We are seeing substantial improvements with office/shop communication as well as gains in efficiency and accuracy,” said Ferrucci. “Our cut/prep time has gained roughly 60 percent in efficiency since the addition of the W-242 pipe cutting machine. All of our connected fabrication capabilities have increased. We now can cut heavy-wall pipe, stainless steel, and nozzle outlets.”

F+F Mechanical credits its ability to replace the boilers at Yale New Haven Hospital’s Saint Raphael campus in just three months to its prefabrication capabilities. The project included a complete replacement of three 1,000-horsepower boilers and all the high-pressure steam mains in the power plant and was performed with no time loss for the hospital. “We could not have completed this project in this timeframe prior to having the Watts-Mueller machine,” said Ferrucci.

For more information, visit [www.watts-specialties.com](http://www.watts-specialties.com).

## McKinstry Relies on MSUITE to Gain Productivity Insights Across the Enterprise

McKinstry set out to gather more insight into fabrication shop productivity and enhance the connection between its Virtual Design and Construction (VDC) and Fabrication teams. They partnered with MSUITE to improve communication and better understand the costs of work, which ultimately will help them target investments and improve overall project management.

Driven by their passion for innovation, technological expertise, and a deep sense of responsibility to positively impact the environment and community, McKinstry has established a reputation for building the future, and they have discovered that prefabrication and manufacturing is the way to do it. The contractor turned to MSUITE with the specific goals of removing the spooling bottleneck, providing the field with an easier method for submitting and tracking orders, and coordinating multitrade prefabrication with multiple contractors and shops.

Companies are moving away from using spreadsheets to track manual activities such as fractions of labor hours, worker shifts, completion dates, materials, quantities, and multiplier formulas to calculate estimates. MSUITE automates and provides predictive analytics to improve fabrication operations. McKinstry chose MSUITE to help improve productivity tracking, status tracking, and demand forecasting for shop operations. “We selected MSUITE because it provided the greatest fidelity into our shop operations and the strongest link between VDC and Fabrication teams,” said C. J. Best, director of manufacturing at McKinstry. MSUITE enables McKinstry to increase visibility, productivity, and accuracy in the shop by managing production as work moves from drawing approval through site receiving.

Whether it is the endless emails asking when things will be shipped or the drawing changes on the fly, MSUITE streamlines communications between office, shop, and field teams with real-time notification of things like approvals for fabrication, drawing markups, and trucks leaving the shop.

MSUITE also enables McKinstry to leverage their building information modeling (BIM) data to review shop productivity across several vantage points. Currently, fabricators understand that pounds-per-hour or diameter-inches per hour are industry-standard metrics, but these metrics do not always provide enough insight into fabrication shop operations. For example, when fabricators are processing material that is cut and kit (commonly found on plumbing copper systems), measuring diameter-inches per hour makes very little sense, because none of the material is joined in the shop.



McKinstry is implementing MSUITE FAB to automate real-time production and material logistics directly from the shop floor.

MSUITE allows contractors like McKinstry to track all work based on workflows that have a different number of stages. When the fabrication shop crew performs the job, time is associated with each stage (and the related material or joint). Those data are connected to the work package and tied to the project. Such deep data connections allow McKinstry to better understand how their fab shop is performing by setting a baseline for comparison benchmarks. Now, new investment, training, and process flow changes are tracked, giving McKinstry insight on whether those processes should be deployed across all shops or one shop at a time.

Like other contractors, McKinstry operates with a network of shops, synchronizing their capacity planning and workload allocation across the Pacific Northwest. Using MSUITE can ensure project demands are met without confusion or missed opportunities—notably in tracking material and labor capabilities.

As fabrication processes continue to move towards automation, the insights provided by MSUITE are more crucial than ever for contractors to make informed capital investment decisions. Without this insight, construction firms are forced to rely on metrics that do not account for recent advancements in technology, networking, or human behavior.

MSUITE is helping McKinstry gain better visibility into their workflow, which will allow them to optimize manufacturing schedules for guaranteed project schedules. Tighter collaboration between detailing and manufacturing will help them deliver higher quality and strict tolerance compliance. Streamlined supply chain management will lower costs and decrease delays for clients. The ability to fabricate more equipment in their shop ultimately increases safety, quality and cost management for McKinstry.

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

## Therma Bridges Creativity and Collaboration with Procore's Construction Management Platform

Therma's steady growth and sterling reputation over the decades has been driven in part by its highly motivated and skilled innovators, each with their own approach to process—which also resulted in a disjointed recordkeeping system. They chose Procore's scalable construction management platform to standardize their project processes and centralize their document management, creating seamless collaboration, complete flexibility across project types, and a single source of truth and project data accessible to all. Now, workers collaborate through a common platform with deep visibility into all the information they need, all available on mobile devices.

### *Silicon Valley's Mechanical Contractor*

Founded in 1967 in the area that would come to be known as Silicon Valley, by 1970, Therma's clients included semiconductor companies before anyone knew what a semiconductor was. Therma made it a practice to put only the best and brightest self-starters in the field, the better to stay atop Silicon Valley's continually cresting wave. They became known as the go-to specialty contractor for biopharmaceutical and life sciences companies, data centers, and other technologically complex builds.

*{Compared with other platforms} “Procore is more automated, it's more collaborative, and it's a better tool for bridging the office and the field.”*

— Greg Conn, Director of Operations  
Therma

Greg Conn, director of operations at Therma, explained, “The company grew organically, and its success came from the motivated people who worked here. As the company grew, there were a lot of individual worker methodologies with little standardization. A project's actual documentation could live on someone's personal computer or somewhere else. Locating project files and records proved challenging if you were not the author. There were a lot of people doing it their own way.”

Sandra Sherry, Therma's virtual design and construction (VDC) software manager, concurred. “There was no single standard. Many people used spreadsheets and a variety of different apps that they might personally download to help



with documentation. There was no unifying tool or process,” said Sherry.

### **One Platform, One Standard**

For 50 years, Therma’s success has been fueled by their unique ability to do it all—from a one-day fabrication to a \$30-million data center job. Therma chose Procore’s construction management platform because it flexes to accommodate Therma’s diversity of projects in a collaborative, transparent ecosystem. Procore automatically standardizes project workflows, streamlines cross-project coordination and communication, and seamlessly connects field and office teams.

Sherry described one example of how Therma leveraged Procore to increase transparency. “I was hearing that the field wanted the ability to view the models on their mobile devices,” Sherry said. “We utilized Procore’s Models tool to train all detailers on how to publish a model, and within an hour of publishing, the field could see the model and walk through it. The feedback was amazing.”

Therma evaluated several other construction-focused software,

*“We utilized Procore’s Models tool to train all detailers on how to publish a model, and within an hour of publishing, the field could see the model and walk through it. The feedback was amazing.”*

— Sandra Sherry, VDC Software Manager  
Therma

said Conn. Before they committed to another platform, though, Therma’s CEO, Jeff Sprau, wanted another look at Procore, which seemed more aligned with Therma’s needs and plans for growth. After a thorough leveling process, Procore beat the competition by including the most value in one platform—as well as the best price. “Looking back, we have not second-guessed our decision,” said Conn. “Procore is more automated, it’s more collaborative, and it’s a better tool for bridging the office and the field.”

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

## **ServiceTrade Helps B&W Mechanical Put Customers First, Building Long-Term Loyalty**

**B&W Mechanical**, one of the largest mechanical contractors in the Southeast, chose **ServiceTrade** software to help them make the move from paper to digital, shortening the time it takes to provide quotes for repairs. Swift, detailed, clear communication is one way that B&W builds trust that leads to long-lasting customer relationships.

### **Telling the Story**

The measure of B&W’s success has always been the quality of their work—whether their customers’ systems are operational and facility needs are met. But before implementing ServiceTrade, even while their priority was exceptional service, they found that communicating their top-notch work to customers was not always easy.

“Not knowing what the technician was up against or what was required—sometimes it’s difficult to justify what that invoice may be,” said Brad Boggs, vice president of B&W. With ServiceTrade, B&W customers now receive a chronological record that tells the full service and repair story.

“ServiceTrade helps us communicate clearly and accurately with our customers as well as transparently. They know everything that we know, and there are no surprises. When the invoice comes, there’s a clear, rich record of what was involved and what the customer is paying for,” said Boggs.



B&W Mechanical Vice President Brad Boggs documents an equipment issue using the ServiceTrade mobile app, which allows B&W to provide customers a clear picture of problems and speeds up the time to provide repair quotes.

### **Decades-Long Relationships**

B&W customers have come to expect that the right work will be done, and quickly. That kind of service nurtures customer relationships and grows businesses.

Using the ServiceTrade mobile app, B&W technicians document equipment issues during routine maintenance calls with rich media, such as images and audio files. When repairs are needed, those data are available instantly to the office, which uses the information to estimate the costs of repairs rapidly. Boggs pointed out, “The technician is able to gather a

lot of the data in the field, and that allows us to get a quote back to the customer a lot of times on the same day.”

And those rich media records, delivered to customer via a one-click link, help paint the whole picture. “Our customers really love the fact that they’re getting data in the form of visuals and narrative,” Boggs said.

“This customer experience gives us the opportunity to create relationships that last for decades, where we’re a trusted partner who gets the right things done quickly,” Boggs noted.

B&W also appreciates that ServiceTrade software caters to commercial service contractors. “If we wanted to be the best we could be as a mechanical contractor to our customers, we had to also know that the software company we used was specialized in their field,” said Boggs. “Since onboarding ServiceTrade, we’ve found that it’s differentiated us from our competition pretty significantly.”

*For more information, visit [servicetrade.com](https://servicetrade.com).*

## A. O. Smith Water Heaters Provide Reliable Hot Water at Any Hour for Hotel Guests

A hospitality industry veteran opted for **A.O. Smith** for a dependable water heating solution for a new four-story Hampton Inn in Ashland City, TN. “Hampton Inns thrive on being local,” said hotel general manager Sammy Naquin, “so it made sense to turn to A. O. Smith, who is right here in Ashland City, for a solution.” Naquin worked closely with A. O. Smith, which specified two 750,000 Btu/hr Cyclone® XL commercial gas water heaters, recommended for the hotel’s size and water heating demands.



Hampton Inn General Manager Sammy Naquin uses A. O. Smith’s iCOMM Connectivity Platform to adjust the Cyclone XL water heater’s settings; the application also allows him to monitor and revise settings remotely.

Just 30 minutes from downtown Nashville, the new hotel opened to the public on March 3, 2022. During planning and construction, Naquin wanted a continuous supply of hot water for the 75-room hotel, which also includes a full-size kitchen and industrial laundry facilities.

After 15 years in the industry, Naquin is familiar with the pain points guests sometimes experience. “In the past, I’ve had problems getting enough hot water up to the top floors at peak hours when more people are showering,” he

said. The water heaters he chose for the Hampton Inn had to guarantee hot water for every room at all times of the day.

The hotel mechanical room’s size posed some constraints. With a smaller footprint than other large commercial properties, the Cyclone XL water heater was the ideal solution to ensure ample hot water and allow adequate room for installation and maintenance.

The Cyclone XL water heater excels in applications with maximum hot water requirements by adjusting the firing rate to meet demand. The unit has a unique dual stainless steel heat exchange system that uses a two-step heat transfer process to deliver thermal efficiencies of 97 percent. It also comes equipped with A. O. Smith’s iCOMM™ Connectivity Platform, allowing hotel management to remotely monitor and adjust each unit’s settings.

“We have been incredibly pleased with the consistency the Cyclone XL units have provided—the water temperature you get on the first floor is the same temperature you get on the fourth floor,” said Naquin. “We’ve been busy since opening and even with reaching room capacity on multiple occasions, we have received positive feedback from guests about always having hot water. It’s good to have one worry off my shoulders and know that we can count on the Cyclone XL units to provide reliable hot water 24 hours a day.”

Based on his experience with A. O. Smith, Naquin said he would recommend the Cyclone XL water heater to others in the hospitality industry. “The communication from A. O. Smith was the best I’ve ever experienced from a vendor,” Naquin noted. “Every time I had a question or needed support, someone from A. O. Smith was there to help. That was a big deal for me.”

*For more information, visit [www.hotwater.com](https://www.hotwater.com).*



A. O. Smith’s Cyclone XL water heater was the ideal solution for the small mechanical room of a four-story hotel, reliably providing hot water to all rooms while taking up minimal floor space.

# Enhance Productivity & Profitability with MCAA's Virtual Trade Show

Mechanical contractors are constantly challenged with tighter budgets and shorter timelines, while also being pressed to innovate and streamline processes. MCAA's Virtual Trade Show connects our contractor members with solutions that enhance productivity and profitability from our Manufacturer/Supplier Council members.

**Visit the Virtual Trade Show at [mcaa.org](https://mcaa.org)** to find information about:

- Products that improve performance and efficiency, as well as decrease costs
- Software that streamlines business processes
- Complimentary services that free up project resources
- Programs that help you develop new product offerings and revenue streams