

SMART SOLUTIONS

SUMMER 2022

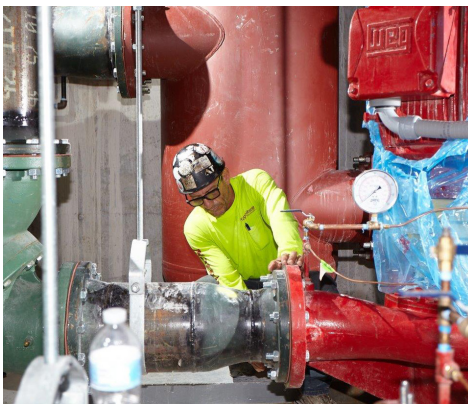
Helping contractors save money and enhance productivity

Nagelbush Tames Florida Heat With EVAPCO Cooling Towers

South Florida's weather poses many challenges, so **Nagelbush Mechanical, Inc.** relied on **EVAPCO** cooling towers to withstand the heat, sea air, and high winds for residents of the luxurious three-tower Park Grove complex along the shores of Biscayne Bay in South Florida.

The new towers bring modern architecture to a historic section of the city. Each high rise has 22 stories with high windows that offer grand views of the ocean. The three towers are connected with a common podium structure housing two levels of retail space, a bank, a large restaurant, and parking. Residents of the building expect ample cooling to keep Miami's heat and humidity at bay. Building managers expect a system that minimizes energy consumption using reliable equipment.

When it came to designing the cooling tower system, engineers from Steven Feller P.E., LLC, sought assistance from Integrated Cooling Solutions, LLC, which provided input on technical aspects of the equipment. Nagelbush was the contractor of choice, with a portfolio containing multiple condominium complexes in Miami and a reputation as a leading mechanical systems installer.



A Nagelbush Mechanical worker makes the piping connections for the EVAPCO cooling towers at the luxury Park Grove high rise in Florida. Project Manager Andrew Sanek praised EVAPCO products as easy to work with, which helps during installation.

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GTP Services STRATUS Software Helps Waldinger and Danforth Help Each Other

In the early months of the COVID-19 pandemic, **The Waldinger Corporation** had several projects delayed or cancelled, while the **John W. Danforth Company** needed additional detailing support. Using **GTP Services'** STRATUS software, they successfully collaborated on a large project, to the benefit of both companies. STRATUS allowed the contractors to share resources and also digitize their paper-based workflow, eliminating mistakes and increasing productivity.

Waldinger, located in Des Moines, IA, purchased their first Tigerstop automated cutting saw in November 2017 and integrated it using a new software tool: GTP's STRATUS.

After a few months of trial and error, they had a workflow setup that sent information directly from the model to the Tigerstop saw. Not only did STRATUS control the saw, it generated a label that was applied to the hanger and had all the fabrication information needed.

Fast forward three years to 2020. Danforth of Tonawanda, NY, was contracted for an addition and renovation to an existing laboratory building for the University of Vermont Firestone



Partnering with Waldinger and using GTP Services' STRATUS software, Danforth fabricated 4,500 hangers in their Tonawanda, NY, shop and shipped them to Vermont for field installation.

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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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MCAA

Adding Value to Your Supply Chain



Tech Triumphs

Many of the projects featured in this issue of *Smart Solutions* highlight how our industry is keeping pace with the times, leveraging technology and software to work smarter. W.E. Bowers estimated saving at least \$35,000 per year and 20–30 hours of labor per week by taking full advantage of the PypeServer software that came with one of its CNC pipe profilers. Geauga Mechanical Company transitioned from paper recordkeeping to eSUB CLOUD project management and time tracking software, recouping more than 750 office hours annually. Within eight months of adopting ServiceTrade's commercial service software, Air Systems Service & Construction saw significant improvements in customer communication and increased efficiency.

Facing a tight labor market, Warwick Mechanical Group turned to XOi for technology solutions that make it easy for less-seasoned technicians to get information and communicate with supervisors and customers quickly, helping the company's bottom line in the bargain. Winger Companies found that Watts-Mueller machines allowed them to increase their fabrication capacity while cutting the cost of both consumables and manhours.

Collaboration and Creativity

In a model MCAA member collaboration, The Waldinger Corporation and the John W. Danforth Company used GTP Services' STRATUS software to work together seamlessly on a large project to the benefit of both companies. W.D. Manor Mechanical Contractors devised a dialysis box plumbing system that is easier to install than traditional systems and partnered with Whitehall Manufacturing, a division of Morris Group International, to manufacture and market it. Close collaboration between IMI TA, a branch of IMI Hydronic Engineering, and building designers helped an Oklahoma public building save 23 percent in annual energy consumption. Great Lakes Plumbing and Heating Company placed a high priority on early coordination and constant communication with Sloan in the construction of Sloan's new showroom, which helped in overcoming roadblocks along the way.

News You Can Use

In this issue, Tyfoom describes research demonstrating how training makes your employees more productive, more profitable while at work, and more committed to your organization. Reliance Worldwide Corporation spotlights how new products, such as HoldRite's TestRite system, can streamline and improve the time-consuming and potentially dangerous process of drain, waste, and vent testing for new pipe installations.

Our manufacturer/supplier partners strive to provide products that meet your needs—such as the EVAPCO cooling towers that Nagelbush Mechanical, Inc. relied on to withstand South Florida's heat, sea air, and high winds for a luxury high-rise; the NIBCO grooved butterfly valves that General Piping, Inc. counted on to meet the strict deadlines of a high school renovation project; or the MIFAB Quick Hub couplings and fixture carriers that saved Har-Con time and money on a school expansion project. Read on to find your next smart solution!

Christopher Catania
Chair, MCAA Manufacturer/Supplier Council Executive Committee

Great Lakes Plumbing and Heating Company Overcomes Challenges for New Sloan Showroom

Plumbing a new Sloan showroom comes with high expectations, so Great Lakes Plumbing and Heating Company placed a priority on early coordination and constant communication with Sloan and its construction company, Skender, throughout the project. That partnership paid off when the project faced some roadblocks, which Great Lakes Plumbing resolved using Sloan products.

For Sloan's largest North American showroom, Great Lakes Plumbing was faced with creating a space that would not only spotlight Sloan products on day one, but also adapt to show off those products as the company expands with new innovations. Sloan opened its new flagship showroom and office space in downtown Chicago in May 2022. Showcasing Sloan's touch-free, sustainable, and aesthetic product offerings across the entire restroom, the space offers visitors an immersive experience in restroom design.

Mark Harmon, vice president, Special Project Division at Great Lakes Plumbing, called the challenge of creating custom displays for Sloan products "a rewarding experience." Serving the greater Chicago area since 1946, Harmon said it was also an opportunity for Great Lakes Plumbing to collaborate with architectural and construction firms to bring the showroom to life.

As a leader in sustainability and wellness, Sloan wanted its new showroom to mirror that commitment, ensuring the project was LEED Silver and WELL Gold certified. But challenges pertaining to the newly finished yet unoccupied space below Sloan's 10th floor showroom provided a few roadblocks to meeting the plumbing requirements.

For example, in one instance the drawings called for a fitting to allow for future waste tie-in (or waste future) on the ninth floor that was in a finished space on the floor below. To avoid having to open up these finished ceilings in the space below, Great Lakes Plumbing was able to find another waste stack in the unfinished portion of the space below and cut into the waste stack to run Sloan's piping.

In another example, the layout for an individual restroom was changed because of a new door location. The new layout had a vertical steel beam in the plumbing wall, so the original plan to use a wall-hung toilet on a carrier would no longer work. Great Lakes Plumbing instead used a Sloan floor-mounted toilet and piped the restroom to the new desired layout.

The new showroom also serves as an office space for Sloan employees. Great Lakes Plumbing and Skender looked at the space as essentially two separate projects, each with its own unique characteristics and properties. The result is an innovative area for Sloan guests and employees alike to enjoy.

"The opening of the new Chicago office is an important component of Sloan's continuous efforts to retain and attract new talent with state-of-the-art amenities, multiple locations, and flex working policies," said Kim Darke-Miller, Sloan senior manager of strategic accounts. "With a cutting-edge collaboration center, product showroom, and offices, the Fulton Market District location enables Sloan to offer employees an amazing building and workspace."

For more information, visit www.sloan.com.



Great Lakes Plumbing and Heating Company relied on Sloan products to overcome challenges in building a new Sloan showroom in Chicago.

General Piping Flies Through Installation With NIBCO's Grooved Butterfly Valves Tool

General Piping, Inc. counted on NIBCO grooved butterfly valves to meet the strict deadlines of a high school renovation project. "NIBCO's grooved butterfly valves were easy and fast to install, and they've performed well," said Justin Richardson, project manager, who led the renovation of Lawrence Central High School in Indianapolis, IN.

Extensive Renovation Underway

Originally built in 1963, approximately 463,000 square feet of the high school's 531,000 square feet was included in the renovation, along with a three-story addition to the front of the original building. The building has gone through several renovations since it was built but had not seen any significant updates since 1989. It is in the midst of a four-year, \$80-million renovation project.

Not only will the school look completely refreshed, but it will also function better, with modernized plumbing, heating, and cooling systems that will promote student comfort and learning. General Piping of Indianapolis began work on the high school in July 2020.

"We were brought in to install all the hydronic piping for the heating and cooling systems, as well as the entire plumbing portion of the renovation, which included new piping, new fixtures, and new mechanical equipment," said Richardson.

For the renovation, the interior portions were completely gutted, and, in some cases, the concrete floors were taken down to dirt to pave the way for a complete redesign of the interior and exterior of the building. Once the building was demolished and the area was made safe, General Piping's crew got to work.

With a total budget of approximately \$13 million for the mechanical and plumbing systems, General Piping set out to install

75,000 linear feet of piping and 378 individual plumbing fixtures, including new sinks, toilets, water fountains, and emergency eye wash stations for the science laboratories. A central main plant in a separate building behind the high school contained all the major mechanical equipment, including the heating system boilers and cooling system chillers.

Tight Timing

Because the high school was in session for part of the renovation, some work took place in an occupied building, which presented challenges from a timing perspective. To expedite the installation, General Piping prefabricated all the major mechanical room work offsite at its fabrication shop and then shipped it to the jobsite for installation. All the mains and branch piping for both the hydronic



To expedite the installation, General Piping prefabricated all the major work for the high school's mechanical room. Offsite, they completed the welding required for the NIBCO LD2000-5 ductile iron butterfly valve and the NIBCO F910-B-LF silent check valves (in light blue).

and plumbing systems were prepared and installed in the field.

"We had a window of time when we shut down the heating system in April and had to have everything torn out and the new system installed and functional by October, when it started getting cooler. Because of the amount of welding that was needed, the only way to achieve that was to fabricate everything offsite," explained Richardson.

Once the heating system was installed, General Piping duplicated the process with the chilled water system, removing the old system in October and having the new system in place by the end of March, before the weather turned warmer.

To complete the project, General Piping used primarily NIBCO fittings, valves, and FLO-BOSS® Coil-Connect® kits, which come bagged and tagged ready to use for specific pieces of equipment. The project specifications also mandated that copper sweat fittings be used rather than press fitting systems.

"For the prefabbed portion that was brought onsite, we strategically placed our grooved joints, using the grooved system (or grooved valves in some cases) as a natural break to connect the system as quickly as possible without problems," said Richardson.

The owner of the building had specified a specific grooving system that meant General Piping had to modify standard lug butterfly valves by using an adaptor or by fabricating weld flanges to the valve in its fabrication shop to make the grooved connection. These were used on the mechanical hydronics system for 2-1/2" steel pipe and larger, up to 12".

"Upon learning this, our NIBCO representative brought to our attention that they offered grooved butterfly valves

that could eliminate the extra work,” said Richardson. “I’d estimate that nearly 80 percent of the valves on this project are grooved valves.”

NIBCO’s grooved butterfly valves are faster to install than others because they have two bolts regardless of their size, while standard lug valves have a minimum of four bolts, and larger valves have even more bolts. Contractors also find that the grooved valves are easier to orient in a system, because they can be pushed and adjusted into place before torque is applied to lock the valve into position. Finally, grooved valves are overall lighter in weight.

NIBCO Products Preferred

General Piping has a long history—more than 20 years—of using NIBCO products, especially its valves. “More often than not, NIBCO is our preference,” said Richardson.

The majority of General Piping’s work is bid/spec, which allows the contractor to choose from several different manufacturers that meet the specifications outlined. “NIBCO almost always is an option, so when all things are equal, NIBCO is our go-to,” added Richardson. “In a competitive, low-bid environment, cost is always important, and NIBCO products are always priced competitively, giving us peace of mind in knowing our material cost will be in line with our competitors.

“Since we have been using NIBCO products as long as we have, we have great comfort in the quality of NIBCO products,” he continued. “We rarely have problems, and in the rare instance we do, the problem is addressed in a timely fashion, and we know that NIBCO will stand behind its products.”



General Piping’s Jason Miller (left) and Newt Briar installed NIBCO’s #GD4765-5 grooved butterfly valve on the exterior chilled water piping that feeds the high school’s new air-cooled chillers. The ease of installing the NIBCO products helped General Piping stay within the narrow window for completing the cooling system.



Some of the renovation of Lawrence Central High School took place in occupied buildings during the school year, so General Piping used prefabrication and NIBCO products to keep the project moving quickly and smoothly. Estimated completion is fall 2024.

Distribution is available locally in Indianapolis, making it convenient for General Piping to find products in stock. If they are not in stock, they are only a day or two away.

“NIBCO’s got a great local distribution network,” said Richardson. “We know that we can get almost any product we need quickly, which is important on a renovation project such as Lawrence High School, where unforeseen issues arise daily.”

While press fitting technology was not an option on the Lawrence Central High School project, in recent years, General Piping has been using more and more press fittings on projects. From a business standpoint, General Piping realizes the advantages of pressing because of the labor cost perspective. Pressing installations are quicker and problem-free.

“Now, when we have the option of using press fittings, we go exclusively with pressing on copper systems,” said Richardson. “And we always choose NIBCO for the same reasons as the valves—quality products. We don’t have issues, and if we do, they are taken care of immediately.”

That quality assurance has made the Lawrence Central High School project, scheduled for completion in fall of 2024, go smoothly so far.

“Really, the only challenges that we faced on this project are the same ones that the entire world is facing—the lead times on many building products have ballooned,” said Richardson. “Other than that, the project has gone smoothly.

“Having NIBCO products on this project has been instrumental,” Richardson continued. “NIBCO products are user-friendly; they install without issue, and we have the confidence that the company stands behind its products. I just can’t say enough good about NIBCO.”

For more information, visit www.nibco.com.

W.D. Manor Partners with Morris Group International to Expand Reach of Dialysis Box

Novel System Cuts Installation Time and Labor Costs

W.D. Manor Mechanical Contractors devised a better, safer dialysis box plumbing system, and now they are partnering with Whitehall Manufacturing, a division of Morris Group International, to manufacture and market the system. The W.D. Manor All-In-One Modular Dialysis Box by Whitehall® (model numbers 8193 and 8194) is easier and faster to install than traditional systems. Banner University Medical Center of Phoenix, AZ, installed the All-In-One Modular Dialysis Boxes in a major expansion project, saving hundreds of hours compared with traditional dialysis systems.

Combating Infections

Healthcare-associated infections are a top concern for hospitals. Patients undergoing dialysis treatment are of particular concern because they have weakened immune systems, so they are at higher risk for infection. They often require frequent hospitalizations and surgery, putting them in an environment where they might acquire an infection. Regrettably, the very tool used for treatment—dialysis—puts patients at risk of infection caused by water-borne pathogens.

Typically, a health care specialist uses a dialysis machine that requires cold, potable water at the unit itself. The process also entails that the wastewater connection is adequate to receive no less than 1.6 gallons per minute.

That machine connects to a dialysis service cabinet, commonly called a dialysis box, containing a hose bib and drain connection. Hidden from view is the backflow preventer and

trap primer (required by code) and all the distribution piping that goes from the box up into the ceiling and back to a closet or utility room.

Traditional dialysis box plumbing designs often have long, dead legs of water stagnant in the pipe between the dialysis boxes, potentially traveling hundreds of feet from the utility closet. Certain jurisdictions allow the supply boxes to be linked downstream of one backflow preventer, increasing the risk of cross-contamination between dialysis supply boxes.

W.D. Manor designed a dialysis box plumbing system with the needs of health care facility owners, caregivers, designers, construction teams, and patient safety top of mind. The all-in-one dialysis box system has a point-of-use backflow preventer, eliminating any potential for cross-contamination.

“When you protect the source, you protect the patient,” said Pete DeWitt, vice president and owner of W.D. Manor.

Expanding Reach

While contractors were thrilled with W.D. Manor’s all-in-one system, the company knew it was not reaching as many people as it could. DeWitt explained, “We’re a contractor who became a manufacturer by circumstance, because we had such a great product the customers and contractors wanted. But we didn’t have a sales or marketing team, so engineers and contractors had to find us.

“We need to get the message out to engineers because our product has to be incorporated into the design. This is a specification and design-driven dialysis box,” DeWitt noted. Joining forces with Whitehall Manufacturing, a division of Morris Group International, was just what W.D. Manor needed.

Whitehall Manufacturing President Kristin Kahle said, “Whitehall has been making dialysis boxes for decades, but we sat up and took notice when W.D. Manor released their all-inclusive units. Their boxes were the best dialysis units on the market.” Kahle added, “They are better because they were designed by mechanical contractors with a deep knowledge of their market.”

Not only does the W.D. Manor dialysis box help protect patients by protecting the water source at the point of connection, but it also has significant advantages for the installing plumber or mechanical contractor:



W.D. Manor installed its All-In-One Modular Dialysis Boxes by Whitehall throughout Banner University Medical Center’s 17-story hospital expansion in downtown Phoenix, AZ, completing the job in just 300 hours—a 64% reduction compared to the projected hours required for a traditional dialysis system.

- Easy to install, reducing installation labor hours and material costs
- Pre-plumbed for speedy connections
- Consolidates all the required components in one convenient, self-contained, stainless steel box
- No need for a designated room to house the backflow preventer
- Eliminates excess distribution piping and associated hangers in crowded wall and ceiling spaces, making much-needed room for other systems and eliminating unnecessary building information modeling coordination
- Self-contained unit reduces the number of connections, thus reducing potential mistakes in the process
- Point-of-use backflow preventer minimizes liability and protects patients when they are most vulnerable

Real-World Results

Recently, Banner University Medical Center planned a 17-story hospital expansion. The project had four levels with 22 patient beds each that included dialysis supply connections in each room. By changing the plumbing design to use the all-in-one dialysis boxes, the medical center eliminated the excess piping and all the labor and material that goes with a conventional plumbing design for dialysis service. The W.D. Manor dialysis box by Whitehall yielded considerable savings to the project by reducing material and labor costs.

“A traditional stick-built system would have required more than 840 labor hours plus additional material at an estimated cost of \$128,000 per floor at the time of this project. Instead, we were able to get the job done in just 300 labor hours (a 64% reduction) for \$89,000 (a 30% savings),” said DeWitt.

“The hanger installation labor on an overhead system can be 40 to 60 percent of your labor, so our box becomes a big labor saver

for the installing contractors,” DeWitt continued. “The W.D. Manor box system is a plug-and-play unit. You take it out of the box, mount the unit to the framing, you make one connection on the supply and one connection on the drain, and you walk away.”

Creative Applications

The partnership with Whitehall Manufacturing gives W.D. Manor the marketing expertise they need to get their box into more hands and the precision manufacturing power to ensure the boxes are built to last and perform exceptionally well. DeWitt noted, “Whitehall brings with them their relationships with health care organizations and the health care design community.”

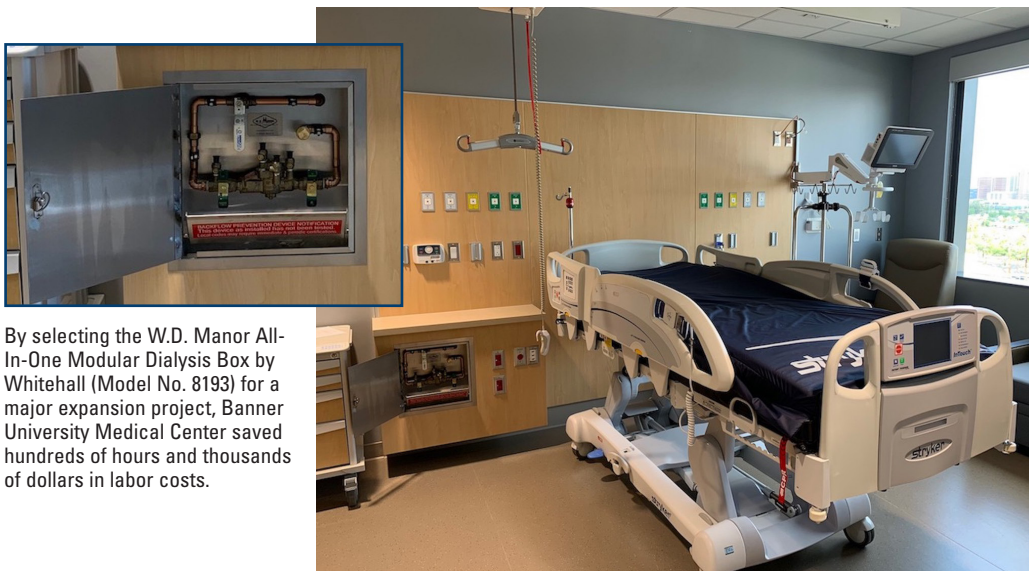
Kahle is satisfied with how well the partnership is working. “Word is getting out, and engineers are embracing the box. Of course, engineers being engineers, they’ve impressed us with their creative problem solving and uncovering other ingenious uses for the dialysis box in situations where cross-contamination could be a problem.”

Engineers have added the W.D. Manor box system to a surgical waste management system for operating rooms, sterilizer hook-ups, laboratory spaces, and birthing tubs. They are also finding creative uses outside of health care applications, such as using them with ice machines and soda fountains.

With 28 divisions spanning commercial construction markets from health care to correctional to fire safety, Morris Group International has a broad range of skills, expertise, and capabilities to help mechanical engineers do their jobs effectively and efficiently. They also recognize an exceptional product when they see one.

“We are a company that grows. We grow by enhancing our brands. We drive our business with new products, engineering, and uniqueness. If there are no new products, we suffer in the future,” said Donald E. Morris, CEO of Morris Group International.

For more information, visit www.morrisgroup.co/home.



By selecting the W.D. Manor All-In-One Modular Dialysis Box by Whitehall (Model No. 8193) for a major expansion project, Banner University Medical Center saved hundreds of hours and thousands of dollars in labor costs.

EVAPCO

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Maximizing tenant space is a priority for real estate developers. Yet, for water-sourced heat pump systems installed at Park Grove, cooling towers are some of the largest pieces of equipment in the mechanical mix. “One challenge was [the mechanical] footprint and getting the right air capacity into the cooling tower space,” said David Fernandez, P.E., LEED-AP, CEO of Integrated Cooling Solutions.

Andrew Sanek, project manager for Nagelbush, described the unique challenge faced by the bank. “The way Park Grove is built, the podium area is a two-story feature,” he said. “The whole thing is constructed with landscaping, trees, and pools that are actually located over the bank. So the bank technically has no roof. Its roof is an interstitial floor below the pool deck. And because the bank didn’t really have a roof, we had to make sure we designed it properly so that adequate air could come in to supply the cooling towers with what they needed.”

Cool Solutions

Cooling plant equipment for towers one and two are similarly sized at 2,000 tons and 2,400 tons, respectively, but smaller for tower three (the Club Tower) at 1,440 tons. Each of these buildings is served by a two-cell EVAPCO cooling tower: Model USS-212-528 for One Park Grove, USS-212-4N28 for Two Park Grove, and USS-29-924 for the Club Tower residences.

“This is a typical type of system for condos in Florida,” Fernandez said. “The cooling towers serve water source heat pumps across the heat exchangers. Each cooling tower is paired with a set of pumps, then a heat exchanger to

isolate the loop, eliminating the risk of mineralized scale in the building’s distribution piping, and the heat pumps are also on an isolated loop.”

The cooling towers serve more than just the connected heat pump system. “For fresh air to the building, three Petra rooftop units provide 100-percent outside air, using condenser water for their DX [direct expansion] cooling systems,” said Sanek. “Towers one and two each have two 8,000 cubic feet-per-minute (CFM) rooftop units while tower three has one 21,000 CFM unit because of the larger corridor area in that tower.”

The bank has a fully redundant system with two EVAPCO LSTE-4312-s cooling towers providing a total of 300 tons. “The bank wanted complete redundancy,” said Sanek, “so they have double the equipment in order to achieve 100-percent backup.”

The EVAPCO units offered several advantages to this application. “The units were constructed using stainless steel, which is popular for good reason in south Florida where salty air can be quite corrosive,” said Fernandez. “EVAPCO’s wind pressure tolerances were also important because of the risk of hurricanes.”

As proof, the units stood strong through Hurricane Irma’s category four devastation in September 2017.

Getting Creative

Tower dimensions for the required capacities were critical because of the tight spacing available. “The footprint and the layout presented a challenge,” said Fernandez, “and we had to get creative with how these units were arranged. Fortunately, the EVAPCO units are modular and can be oriented for the piping to work.”

Having sufficient airflow around a cooling tower is fundamental to its performance, which is why most cooling towers are located on open rooftops. For Park Grove, however, cooling towers did not match the building’s sophisticated look.

Hiding a cooling tower on the rooftop of a 22-story building is not easy. “We put these units in a recessed area of the roof with three walls so only one side was available for airflow,” said Sanek. “The parapet walls are 10 feet high around all the rooftop equipment to hide it. We had one side that was basically all louvers to allow airflow to the cooling towers.”

To preserve the modern design of the Park Grove complex, Nagelbush hid the EVAPCO cooling units in a recessed area of the roof yet managed to ensure they had sufficient air flow for peak performance.



Sanek said the EVAPCO products “are very easy to work with, and the design team gave excellent support to the engineers. So most issues were already taken care of before installation.”

“Today, Park Grove is one of the trendier places overlooking Biscayne Bay,” said Fernandez.

For more information, visit www.evapco.com.



Nagelbush Mechanical installed EVAPCO cooling towers in a 22-story complex in south Florida, in part because their stainless steel construction can resist the corrosive salty air, and their wind pressure tolerances can withstand hurricanes.

GTP SERVICES

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Research Center, and Waldinger had an unexpected decline in workload. As the two companies discussed collaboration, the main concern was how to integrate fabrication and construction processes when the companies were using different modeling software. The solution was GTP’s STRATUS software.

Under the direction of Danforth’s project management team, including Craig Rexford and Thomas Walker, Waldinger’s Virtual Design and Construction team completed a coordinated, construction level detail for the project. The original building posed construction challenges because of its short floor-to-floor heights filled with a myriad of laboratory gas apparatus and other piping.

After construction and coordination was complete, the first items to be fabricated were the hangers in May 2021. At about the same time, Danforth had just purchased a new Tigerstop cutting system for their hanger fabrication and were starting to work with the STRATUS software.

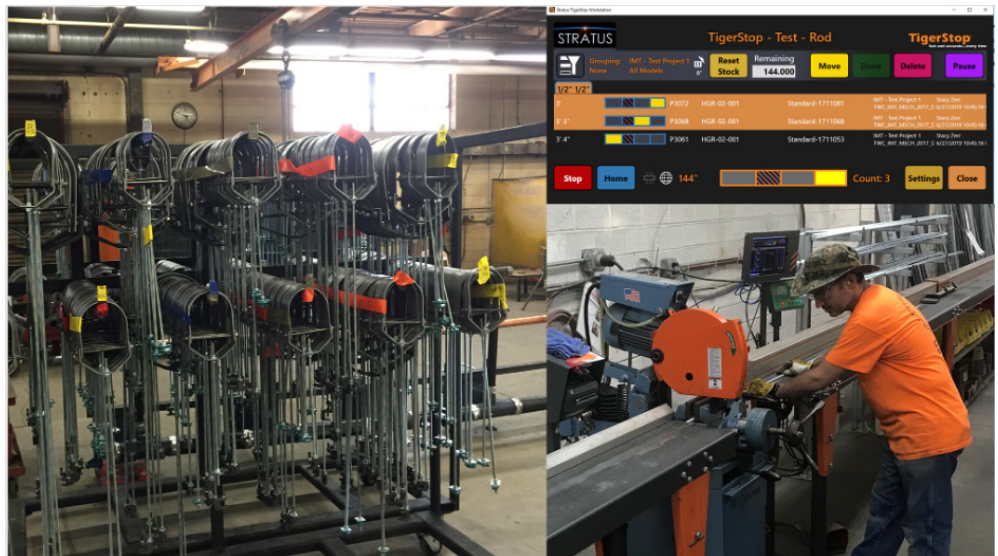
Waldinger offered Danforth a login to their STRATUS software, enabling Danforth to drive their Tigerstop with the Waldinger STRATUS database. Teams from both companies worked together to develop a label that would

work for Danforth’s fabrication and field crews. In the end, Danforth fabricated 4,500 hangers in their Tonawanda shop and shipped them to Vermont for field installation.

Patrick Moran, Danforth’s vice president of Virtual Design and Construction, said, “We’ve been doing hanger fabrication for a long time. We purchased STRATUS and the Tigerstop to help take our fabrication to the next level and eliminate some of our paper-based processes—but being able to partner with someone who had already implemented the Tigerstop with STRATUS gave us a jumpstart and reduced our implementation time.”

Waldinger’s Director of Preconstruction Services, Stacy Zerr, added, “STRATUS is a tool that we are using to eliminate paper through our shop fabrication processes—from hanger fabrication to pipe cutting and shop assembly. We were grateful to be able to collaborate with Danforth and keep our detailers busy through an unexpected dip in our workload. We were able to share best practices and software tips that aided both companies. It’s a great example of how MCAA brings contractors together for the benefit of both organizations.”

For more information, visit stratus.gogtp.com.



Danforth set up its Tigerstop cutting system with STRATUS software to improve fabrication processes and eliminate paper-based processes. Waldinger helped Danforth get up to speed with STRATUS as the two companies worked together on a project for the University of Vermont Firestone Research Center.

The Cost of Not Training

Tyfoom Explains How Training Makes Employees More Productive, Profitable, and Committed

By Frantz Belot, Ph.D.

President, Tyfoom

Training is key in driving desired systematic improvement in any organization. Yet many businesses see training as an optional cost rather than as a necessary investment with a significant return. Consequently, training often drops to the very bottom of companies' priorities.

Prioritizing training, however, makes your employees more productive, more profitable while at work, and more committed to your organization.

The Hard Costs of Training

At first glance, investing in employee training may seem like a high-priced expense. Most businesses understand the need to help new employees get up to speed with a basic understanding of their role and responsibilities, but many mechanical contracting companies struggle to see the benefit of ongoing training outside of weekly toolbox talks or an occasional mandatory safety training.

The Society for Human Resource Management reports that it costs roughly \$4,100 each time a new employee is hired in the United States—most of this is spent training and onboarding until the new employee becomes productive at around five to eight months. This is what it costs for that employee to be successful in the new job. (You can find a link to the 2016 Human Capital Benchmarking Report here: [https://www.shrm.org/hr-today/news/hr-news/pages/shrm-benchmarking-report-\\$4,100-average-cost-per-hire.aspx](https://www.shrm.org/hr-today/news/hr-news/pages/shrm-benchmarking-report-$4,100-average-cost-per-hire.aspx)).

When it comes to ongoing training, companies spent an average of \$1,071 per employee in 2021 in the United States (according to TrainingMag.com's 2021 Industry Training Report, available here: <https://pubs.royle.com/publication/?i=727569&pre=1>). While this amount is down \$215 from 2019, this figure has been considered the baseline of what companies should spend to empower their employees and make them successful.

Using these two spending figures, we learn that it is 73-percent less expensive to invest in current employee training than it is to hire new employees. Effective microlearning tools, like Tyfoom, are even less expensive to implement. We'll explore this further in a moment, but untrained or undertrained employees can become a significant liability for the company, affecting quality of work, safety, productivity, customer experience, employee turnover, and even the company brand.

Most of us know this, but ensuring that we invest in employee training when times are difficult can be a challenge. So, what

happens to mechanical contractors who spend little or nothing on training?

The Cost of Not Training

Employees have become more demanding of their employers for training and engagement. Engagement in this context means employees feel a two-way connection to the organization and leaders that employ them and are committed to mutual success. As a result, employees naturally want more touch points with leaders who can mentor them. They want to shrink the skills gap, and they want to become more expert at what they do. If they do not feel their organization is investing in them, they become unengaged with the business and uncommitted to their work environment. And the consequences can be cataclysmic—especially for mechanical contractors.

One study by Gallup asked what employees want from their jobs. Number three out of the top six things reported was “the ability to do what they do best.” (You can read more about the study here: <https://www.gallup.com/workplace/236261/better-health-best-every-day.aspx>). In fact, according to another Gallup study, 87% of millennials—the single largest demographic in the workplace - say professional development at work is important to them. (Learn more about the poll of millennials here: <https://www.gallup.com/workplace/236438/millennials-jobs-development-opportunities.aspx>) And nearly 70% of other generations also see jobs as opportunities to learn and grow.

The Gallup study of millennials in the workplace also specifies that when employees are trained, they enjoy their work and remain engaged. Engaged employees are 87 percent less likely to leave their place of work (according to data from The Muse, cited by TechJury here: <https://techjury.net/blog/employee-engagement-statistics/#gref>), while disengaged workers have an 81 percent increase in absenteeism, 64 percent more safety incidents, 59 percent higher turnover, and are responsible for 41 percent more defects than highly-engaged teams (according to other Gallup data, found here: <https://www.gallup.com/workplace/236366/right-culture-not-employee-satisfaction.aspx>). In our industry these numbers are game changing.

The linchpin for employee engagement is training and development. When employees feel that the organization is developing them both as individuals and as workers, they feel valued and they become engaged, leading to higher productivity and ultimately more profitability. Gallup estimates between \$450 billion and \$550 billion is lost each year in the United



Various research studies show that investing in employee training improves a company's productivity and profitability.

States due to disengaged employees. (See Gallup's report, *State of the American Workplace*, for additional insights: <https://www.gallup.com/workplace/238085/state-american-workplace-report-2017.aspx>)

In our industry, employees who are not trained work inefficiently and are at the root of many preventable issues and injuries in the workplace. In fact, the Occupational Safety and Health Administration reports that more than \$1 billion a week is spent by U.S. businesses on serious non-fatal workplace injuries—resulting in nearly \$59 billion in direct U.S. workers' compensation costs. (Read the agency's business case for safety and health: <https://www.osha.gov/businesscase>.)

The risk of not having development opportunities in your organization far outweighs other concerns when it comes to your employees.

The Return on Investment of Training

On the other end of the spectrum, effective and profitable mechanical contractors are systematic at employee

engagement, disciplined at sharing of best practices, and laser-focused on developing employees in order to become operationally efficient as an organization. The heart of this approach is an emphasis on training.

One landmark study found that companies that invest \$1,500 on training per employee can see an average of 24 percent more profit than companies that invest less. (Get the details from *HR Magazine*: <https://www.shrm.org/hr-today/news/hr-magazine/pages/0101wells.aspx>.) While this study is 20 years old, new research shows that profitability for companies who engage is statistically the same at 23 percent two decades later. (See more here: <https://www.gallup.com/workplace/236366/right-culture-not-employee-satisfaction.aspx>.)

Another study by IBM found that a 10-percent increase in educational development produced a 9-percent gain in productivity. (Read the full story here: <https://elearningindustry.com/training-engagement-boost-bottom->

line.) Most organizations would be quite happy with this amount of productivity gains and double-digit profitability improvement. Yet, we trade that \$1,500-per-employee investment for less effective and untested programs that have not been proven again and again over time.

Aside from keeping employees productive, profitable, and committed, training helps organizations standardize work processes and outputs so that the things a company produces

are uniform, wastage is reduced, and safety is improved. It also optimizes and reduces the time it takes to complete a task. From an employee-morale standpoint, training improves job satisfaction, increases loyalty, empowers employees, and develops future leaders. Each affects your organization's brand.

Excellent products and services are delivered by well-trained employees. Happy, loyal, and productive employees are well-trained, and organizations need a platform that will help them get their employees well trained.

Investing in Training

So is training an unnecessary cost or a crucial investment? You decide. The data is, however, conclusive that employee training improves engagement, thereby increasing the productivity and profitability of an organization while making employees happy.

For more information, visit www.tyfoom.com.

W.E. Bowers Cuts the Cost of Cutting Pipe with PypeServer

Mark Caudle, shop foreman of W.E. Bowers, estimated saving at least \$35,000 per year and 20-30 hours of labor per week by taking full advantage of the PypeServer software that came with one of its CNC pipe profilers. W.E. Bowers, a mechanical construction, service, and repair firm serving Maryland, Virginia, and Washington, DC, operates a 42,000-square-foot steel shop with six overhead cranes, CNC pipe profilers from both Watts and Vernon (each running PypeServer Enterprise), and 11 pipe turners and automated welding stations, each with a certified welder and a shared fitter.

Caudle, who has been with the company for about 12 years, starting as a journeyman welder on the shop floor and then as shop foreman, said, “Since we’ve been bringing in more automation and software, my responsibilities have shifted towards making sure our processes are as smooth and efficient as possible.”

More than 95 percent of W.E. Bowers’ work is done in Autodesk Fabrication CADmep, exported to a PCF file, then uploaded to PypeServer on either the Watts or Vernon machines. Until about a year ago, W.E. Bowers was using the PypeServer software that came with its 2019 Watts machine just to program the machine one part at a time. “This took someone about 20 hours a week and created the opportunity for lots of mistakes, so we decided to take fuller advantage of PypeServer’s importing abilities,” said Caudle. “Now we pull the PCF files straight into PypeServer and avoid all that machine programming labor.”

“You just set PypeServer up once with the O-let names to look for and the hole modifications you want for each size, and it handles it automatically from there on out. This can easily save me several hours of work per week and it saves our welders a lot of time too, especially for thread-o-lets.”

—Mark Caudle, Shop Foreman
W.E. Bowers

Seeing the benefits of importing, W.E. Bowers added PypeServer to its 2008 Vernon machine. In addition to importing, PypeServer added nesting and other new capabilities to the Vernon machine. Caudle noted, “It really gave that old machine a new life for a relatively small amount of money.” PypeServer Enterprise is compatible with pre-2020 Watts machines and most post-2008 Vernon MPM machines.



Mark Caudle, W.E. Bowers shop foreman, leveraged Pypeserver software to streamline tasks and bring new life to old equipment. He estimated that the company saves at least \$35,000 per year and 20–30 hours of labor per week as a result.

W.E. Bowers is among the first users of PypeServer’s new O-let lookup table functionality. The PCF file exported from Autodesk Fabrication CADmep includes all the nominal O-let diameters from W.E. Bowers’ database, but modifications are common. “We like to open up the holes about 2/10” to get a better joint,” said Caudle. “I used to have to edit the PCF file to change all those diameters before we could import the file. Some of our drawings would have over 100 O-lets, which made a lot of work for me and could easily lead to mistakes. If you have to re-cut a 42’ piece of pipe, those mistakes can be very expensive.”

Now, using PypeServer Enterprise’s O-let lookup tables, the software recognizes every occurrence of “Anvilet” in the PCF file and automatically adjusts the holes for each size O-let so they are cut to the exact diameter the welders want. The shop has standardized on Anvil brand O-lets, but the software can do the same thing with other brands, even if they are mixed in the same spool, Caudle explained. “You just set PypeServer up once with the O-let names to look for and the hole modifications you want for each size, and it handles it automatically from there on out. This can easily save me several hours of work per week and

it saves our welders a lot of time too, especially for thread-lets,” said Caudle.

Caudle estimated that W.E. Bowers’ machine operators save at least 12 hours per week by importing the PCF files directly into PypeServer Enterprise. Based on that, he said, the company saves about \$35,000 per year in labor for each machine. “Add on the time I save with PypeServer’s new O-let functionality and there’s tens of thousands of dollars more labor costs saved,” Caudle noted. There are also significant pipe savings from eliminating programming and cutting mistakes.

Caudle also appreciated the technical support he got from PypeServer in setting up the new features, especially from Ken Barrack, PypeServer’s head of Customer Support. “I was pretty skeptical at first about the O-let lookup table features he was promising, but he quickly got me all set up and it did everything he promised,” said Caudle. “Ken also showed me how to add entries to the lookup tables, which I did on my own for a few odd O-let sizes I found after the initial setup.”

For more information, visit PypeServer.com.

Har-Con Saves Time and Materials With MIFAB’s Quick Hub Couplings

Since the beginning of 2022, Har-Con has played a crucial part in a school expansion project, using MIFAB’s Quick Hub couplings and fixture carriers to stay on track. “The quick coupling is a great product that has saved Har-Con time and money through material cost and labor savings,” said Travis Welch, Har-Con project estimator.

“The [MIFAB] quick coupling is a great product that has saved Har-Con time and money through material cost and labor savings.”

—Travis Welch, Project Estimator
Har-Con

The 30,000-square-foot expansion at Legacy Preparatory Christian Academy will house 21 new classrooms to accommodate the recent growth of the school in The Woodlands, just outside of Houston, TX. The project will continue through the rest of 2022. The expansion will allow the Academy to lift restrictions on enrollment and will provide ample space for learning and classroom activities.

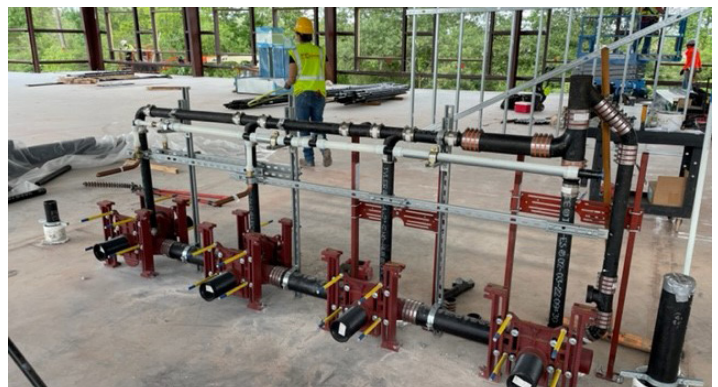
While contractors have struggled with supply chain issues across the nation, MIFAB has over a million couplings stocked in their Chicago warehouse, ready for deployment. In contrast to traditional couplings, MIFAB’s Quick Hub couplings do not require the separation of the gasket and seal, so they can simply be placed on the pipe for installation.

Some contractors are skeptical that Quick Hub couplings will not work the same as traditional couplings, but Har-Con did not find that to be the case. “This is a highly recommended product, and it was much quicker than the traditional method,” said Welch.

The couplings come in both regular and heavy duty and in diameters up to 15” for the heavy duty version. Har-Con used both on the school expansion progress. They found that MIFAB’s heavy duty couplings were less expensive than competitors’ versions and could be installed in half the time as traditional couplings. Har-Con appreciated that Quick Hub couplings are industry-certified by the IAPMO, UPC, and the National Sanitation Foundation.

To complement the Quick Hub couplings, Har-Con used MIFAB’s fixture carriers. MIFAB makes installation easier by shipping the hardware in two separate packs—one for the rough-in and one for the finished trim—to prevent the potential for misplacing hardware over the course of an installation. In addition, the bolts of legs on the carriers connect directly to the faceplate from the front and come with built-in washer designs, which also saved Har-Con installation time.

For more information, visit www.mifab.com.



Har-Con saved time and money using Quick Hub couplings from MIFAB on a school expansion project. The couplings do not require the separation of the gasket and seal and can simply be placed on the pipe for installation in about half the time as traditional couplings.

The Benefits of Nontraditional DWV Testing

RWC's TestRite System Offers Faster, Safer Option

By Neil Ross, Product Manager, Reliance Worldwide Corporation (RWC)

For decades, plumbing contractors have used inflatable or plumbing test balls to perform drain, waste, and vent (DWV) testing for new pipe installations, as required by plumbing code. But those traditional DWV testing systems often slow the plumber's job down and can put them at risk of physical harm. In today's world of labor shortages, plumbers and contractors need the best technologies available to get the job done efficiently and safely.

To address the common challenges of working with traditional DWV testing systems, new products have entered the scene, such as test wedges that integrate with permanent test tees, which increase productivity, improve cost savings, and enhance safety on the jobsite—all while remaining code-compliant.

Faster DWV Testing

The DWV testing method of using an inflatable test ball system is a tedious process and can create jobsite delays. The test ball process includes first having to insert and inflate the ball without rupturing it, adding water into the upper piping system until it reaches the upper terminal, and then checking for any escaping water.

When the entire DWV testing process is completed, a leak may be discovered, which becomes a costly situation due to the extended hours and labor needed to repair it. And with inflatable test balls, there is not an option to let some water out of the pipe to fix the issue. You must drain the entire test water, repair the leak, and begin the process over. With a test wedge, plumbers can conduct partial tests, draining the pipe where needed, which

reduces unneeded repetitive work, saves water, and provides more flexibility.

Finally, an inspector is called to sign off on the permit, and you deflate the test ball. If the building is multistory, that is even more time spent, since you will need to complete the process for each floor.

With available products on the market, such as HoldRite's TestRite system from RWC, you can save time by using technologies that are designed to make your job easier. This solution helps streamline DWV testing:

- Requires one simple tool and fewer steps to complete the test, making the process two to four times faster.
- Eliminates the need to climb to upper floors or the roof to fill water into the piping system. Though you can still follow that process with test wedges, they can also be filled from the bottom up. This creates a more accurate and speedier test.
- Helps you perform the test correctly on the first attempt. Some DWV testing systems hold tests for the full 15 minutes required and then some, which is not always the case for traditional inflatables. Holding the water level consistently longer allows the test to be held as long as it is needed to complete the full test on the first try.

More Cost Savings

Whether you are performing a test or fixing a leak from a traditional inflatable device, the usual method will always cost you extended hours and labor. Modern testing methods not only streamline workflow but may even save on expenses in other ways:

- Reduce the need for initial materials costs. For example, TestRite does not require additional tools like air pumps, compressors, and thread sealants, which are expenditures that can add up.
- Increase the lifespan of the testing product. A test ball has about five uses maximum, but a test wedge can be used five to 10 times more than a traditional plumbing ball. You can also replace the O-rings, if damaged, to extend the life of the device.

Enhanced Safety

One of the most significant facts to note about the traditional plumbing ball testing method is it can expose contractors to all the Occupational Safety and Health Administration (OSHA) "fatal four" top causes of worker fatalities: falls, electrocution,



Modern methods for DWV testing for new pipe installations, such as HoldRite's TestRite system from RWC, are faster, easier, and safer than the traditional approach using inflatable test balls.

being struck by an object, and being caught in or caught between objects or machinery.

- **Falls:** Slip-and-fall hazards on floors could be created if the test ball ruptures or as the test ball is deflated at the end of the testing process, spraying water out of the test port location.
- **Electrocution:** Water spillage could mix with power cords onsite, creating an electrocution hazard.
- **Struck by an object:** Test balls are very sensitive to inflation pressures. This makes it easy for them to overinflate and burst, which could cause flying shrapnel.
- **Caught in or caught between:** When a test ball deflates, it can get sucked down the pipeline, putting a contractor at risk of getting a hand sucked into the pipe because of the force of rushing water.

When looking to purchase a DWV testing system, look to manufacturers that provide products that meet plumbing code requirements, such as TestRite:

- Rated up to 50' of head pressure, 22 psi, and five floors
- Laboratory-tested and IAPMO (UPC/cUPC/IPC) listed

By using updated methods of DWV testing, you can avoid plumbing test balls failing during placement, inflation, and removal. And by using products that address the limitations of outdated testing methods, you can save time and money on the jobsite, all while keeping yourself and your team safe.

For more information, visit www.holdrite.com/us/en/dwv-plumbing.

ASSC Rapidly Improves Efficiency, Customer Experience With ServiceTrade Software

When Sacramento-based **Air Systems Service & Construction** (ASSC) began shopping for new software, their main priority was improving customer experience. Within eight months of adopting **ServiceTrade**'s commercial service software in 2021, ASSC was already seeing significant improvements in customer communication and increasing efficiency. ASSC was established in 1996; they specialize in fast-track, complete turn-key mechanical systems and now serve clients all over Northern California.

Better Customer Experience

"There's nothing sexy about purchasing a preventative maintenance program," said ASSC Operations Manager Gregg Perry. "Nobody gets excited about how we spend money on air conditioning repairs. So a big driving factor in our software decision was the ability to enhance the customer experience and use it as a differentiator among our competitors."

After just eight months of using ServiceTrade, Perry feels ASSC has accomplished this.

"The number-one thing I hear from customers is that they value communication. Now, if they want, we can tell them when their tech is in route, tell them when he gets there, and when he leaves. All of that is available."

With ServiceTrade, ASSC customers also enjoy being able to access work summaries

and invoices as well as approve quotes in seconds via their online service reports.

Improved Efficiency

The added efficiency that ServiceTrade brings to ASSC has further improved customer experience and reduced time-to-bill.

"The speed of doing business has improved greatly. We pride ourselves on getting quotes to customers within 24 hours and usually on the same day. I also have a goal of getting our time-to-bill down to seven days, and I think that's very possible," Perry said.

With their data centralized in ServiceTrade, ASSC can quickly provide customers with any information they need.

"We might have a customer that calls and says, 'We're going to sell this building. Can you send me my last six months of PM [preventive maintenance] history, all the open deficiencies, and open invoices?' Before, we'd have to find them, print them all, scan them all. Now we just click on what we want to include and send it out," said Perry.

ServiceTrade's QuickSight dashboards also enable the ASSC team to access internal data on demand.

"I like having that dashboard," Perry noted. "I can see my open costs on a daily basis. I can see open work orders, open PMs, and revenue being billed on a daily basis. I'm not waiting until the end of the month when our financials come out to see how well we did."

For more information, visit ServiceTrade.com.



Within eight months of adopting ServiceTrade's commercial service software, ASSC was already seeing significant improvements in customer communication and increasing efficiency in estimations and billing. Technician Spencer Smith is part of the ASSC service team using the software in the field.

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

Close collaboration between IMI TA, a branch of **IMI Hydronic Engineering**, and building designers led to a 23-percent savings in annual energy consumption (equivalent to \$19,341) for an Oklahoma public building. The Lawton Public Safety Facility in Clay Coe, OK, is a 100,000-square-foot, four-story building with 350 working stations. The original design strategy for the facility included proportional control valves with no balancing valve on each terminal and a variable speed pump (VSP) differential pressure (DP) sensor.

IMI TA offers free service through its Engineering Support Center to help with project review for functional checks, possible problems, solutions, take off, selections, and energy calculations. IMI TA worked closely with the building designer to implement a design with proportional control valve with manual balancing, a Δp controller on each branch, and a VSP DP sensor. An analysis using IMI TA's energy estimation tool found substantial energy savings.

A well-balanced system can help identify issues and provide energy savings on your pumps and chillers. Strategic balancing also allows manual balancing in modules, so contractors can balance and commission large projects by phase. Similarly, DP control provides added flexibility. Sections can be added or removed independently of the existing parts, so contractors can work on any part of the system without affecting the part that is already commissioned.

For more information, visit www.imi-hydronic.com.



Close collaboration between IMI TA and building designers led to a 23-percent savings in annual energy consumption for the Lawton Public Safety Facility in Oklahoma.

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Warwick Mechanical Boosts Business with XOi System for Technicians

Facing a tight labor market, **Warwick Mechanical Group** turned to **XOi** for technology solutions that make it easy for less-seasoned technicians to get information and communicate with supervisors and customers quickly. Warwick's revenue reached around \$115 million in 2021, and Ron Clark, vice president of Service, credits solutions like XOi with contributing to that success.

Warwick focuses on commercial and industrial projects—such as military, federal government, hospital, and educational facilities—throughout central Virginia and northeast North Carolina. Clark was tasked with turning the service division into a profitable part of the business. Immediately, he recognized that building a culture for best-in-class service was the way to grow their business. He applied his sales management experience to build relationships with technicians and develop processes to increase productivity and sales.

Support in the Field

Clark quickly learned how important it is to take care of his team out in the field. "If I want a tech to take care of a customer the way I want them to, I need to take care of them, too."

He reached out to XOi because Warwick did not have enough qualified technicians. "If the more-experienced techs are unavailable, the only option is to send a less-seasoned tech to assess the situation. They may make numerous calls back to the office, or a supervisor may be needed at the jobsite to facilitate the repair."

In late 2020, Warwick began using the XOi Vision solution to help bridge the skills and equipment knowledge gap. The software provides technicians with the tools needed to accurately perform service tasks and satisfy internal and external customers.

"Partnering with XOi not only improves our operational processes but enhances value by increasing the trust between our technicians and our customers," said Clark. If techs get stuck by a particular jobsite problem, the cloud-based app allows techs to communicate with a supervisor and show exactly what they are working on.

"The supervisor sends a link via the XOi app to the technician, who authorizes mobile app access to the supervisor," Clark explained. "Now, the supervisor can see exactly what that tech is seeing."

To assist in onboarding and training, Warwick's service team assigns new technicians a few XOi videos to watch and recap what they have learned. "It's a good onboarding tool for the newer guys. It's hard finding a seasoned technician who knows what they are doing, so we need to develop our own. This process is our way of getting new techs up to speed much quicker," Clark noted.

Building Trust

XOi's powerful curb-to-curb technician enablement solution offers Warwick essential tools for maximizing customer value through industry-leading efficiency, accuracy, and accountability. Incorporating XOi's data-based visual documentation platform equips Warwick to deliver the top field service

technician support and optimize customer deliverables.

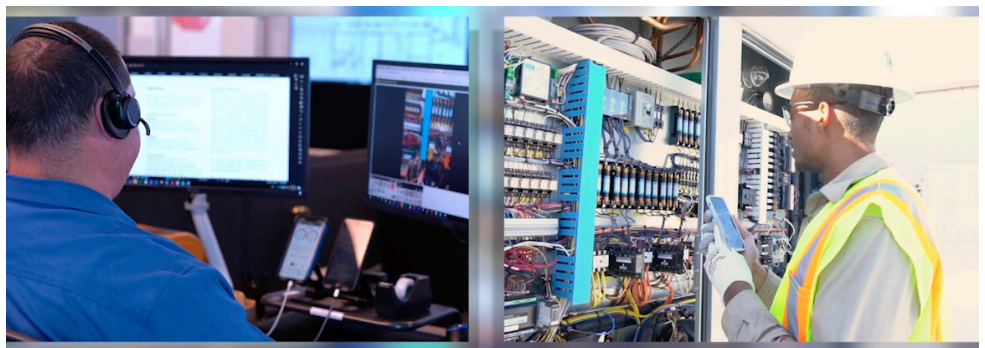
"In our industry, trust is not where I think it should be," Clark said. "With XOi, a technician takes videos before, during, and after the repair or replacement. They can share a link with the customer, who can see that the work was done as the technician said. It builds trust much quicker, especially with newer customers."

Customers can also send live videos to Warwick to help explain their dilemma before a technician comes to their location. This helps the Warwick team diagnose issues faster, provide better quotes, and select the correct parts for each piece of equipment.

Clark credits the Service team's success to establishing new ways of working and having the right solutions to get the job done and build relationships with their customers.

Sales teams also use XOi to document and explain repairs to each customer via a shared link and get direct feedback to inform the installation and service teams. This level of detail and quality customer experience helps technicians stay transparent, educate customers, and increase return on investment.

For more information, visit xoi.io.



If Warwick's technicians face a jobsite problem, XOi Vision, a cloud-based app, allows them to communicate with a supervisor and show exactly what they are working on so they can get help quickly.

Geauga Mechanical Reduces Duplicate Data Entry and Cost Overruns with eSUB Cloud

Ohio-based mechanical contractor **Geauga Mechanical Company** keeps projects on track and recoups more than 750 office hours annually through eSUB CLOUD's project management and time tracking software. Prior to transitioning to eSUB, the contractor's paper-based system of time reporting required field employees to call in to the office weekly or submit written time sheets that had to be reviewed, approved, and then manually entered into the accounting system.

Geauga needed a better application to track field time that would also easily work with their accounting and design systems, but "nothing did all of the things we were looking for," recalled Craig Berman, CEO of Geauga Mechanical. The company, which specializes in design/build construction of energy-efficient mechanical systems, used a sophisticated formula for assessing job data but lacked a system for collecting time sheets and allocating hours in the field to specific job codes and phases. This approach put them at risk of underestimating how much time was required for each task.

"When we saw eSUB, we realized it was a good fit for time reporting, but that it could also solve the problem of getting information into Sage without double data entry," Berman said. "There were a lot of solutions out there that were intriguing, but eSUB did more of the things we needed."

"We've really focused on technology as a way to make our crews more productive and allow them to get work done more efficiently."

—Craig Berman, CEO
Geauga Mechanical

Before eSUB, Berman said, "Our accounting staff was in the office every Monday, calling people in the field. This took at least two hours of time from people in the field and four hours from accounting. Now it takes only a few minutes. eSUB also saves me time approving timecards. If I'm out, I can quickly review and approve them from my phone."

The pandemic made an inefficient system even more tedious. It was clunky and left hours reported in a way that made job costing imprecise. "There was always a bit of confusion in the field as to task codes," Berman said. "A lot of stuff got dumped into 'duct installation' even it was something else. It was all going into one big bucket."

Switching to eSUB has made labor productivity tracking for Geauga Mechanical much more precise, like being able to see at a glance exactly how much time it took to hang 100' of



By transitioning from a paper-based system to eSUB CLOUD's project management and time tracking software, Geauga Mechanical projected saving more than 750 office hours annually.

duct work. One year into the transition to eSUB, the wealth of project data available is providing better visibility into productivity and job costing—and doing it in a lot less time.

One of the first jobs using eSUB showed early on in the project that labor costs were trending 15 percent over estimate. Being new to the software, the project team did not yet trust the accuracy of the data. "We got to the end of the job and we were about 15 percent over. Had we trusted eSUB, we could have done a few things differently to improve the outcome," said Berman.

"eSUB is a pretty good indicator, early on, of how we're doing," Berman noted. "We had been using the same formula, but the data we were getting was not that great. Now we can trust that the data is more accurate. With a high level of accuracy, we can see how we are doing on each task."

Along the way, eSUB support and the ability to tweak the system to the company's specific needs has more than exceeded expectations, and Berman said he would not hesitate to recommend it, especially to companies that are already using sophisticated data to track productivity and job costing.

For a company like Geauga Mechanical, success is built around strong customer relationships. "Being relationship-based, we can't afford to get a bad job or do something that is not up to the standards of our customers. We've really focused on technology as a way to make our crews more productive and allow them to get work done more efficiently."

For more information, contact eSUB for a personalized eSUB CLOUD demo or visit www.esub.com.

Winger's Productivity and Capacity Soar With Watts-Mueller Machines

Winger Companies tackled two challenges—the growing scale of its fabrication projects and a tight labor market—with **Watts-Mueller** machines that allowed them to do more with fewer people. General Manager Mike Smith said, “We increased our finished fabrications while cutting the cost of both consumables and manhours.”

Winger is a one-stop mechanical and electrical contracting company serving commercial and industrial markets. It is a fourth-generation, family-owned business that has grown to be the leader in mechanical construction for the Midwest region. Since it was established in 1942, Winger has continuously expanded into new markets to keep up with growth and demand.

“Our fabrication projects had grown to the point where we needed to add automation to our processes in order to become more efficient,” said Smith. “We bought a Watts-Mueller W-244 machine in 2015—that gave us more ability to cut and bevel pipe up to 24” OD [outer diameter],” but then Winger needed more.



Watts-Mueller pipe cutting systems are saving Winger time and money. Instead of two people needed to prep and mark up a pipe for a saddle cut, now one person can input the numbers into the 3D-Profile Plus software and run the machine, making even the most complicated cuts.

“We continued to grow in our fabrication projects, both in volume and with projects calling for larger pipe,” Smith continued. “In 2020 we purchased a second machine, a Watts-Mueller W-364 capable of cutting up to 36” OD pipe. This machine went into our Cedar Rapids fabrication shop and further extended both our efficiency and our capabilities.”

The most pressing reason to purchase the Watts-Mueller machines was to gain efficiency. “We needed to become more productive with the same manhours, and we needed to save on consumables,” said Smith. “Where it took 25 minutes to lay out and cut an 8” pipe, the same cuts are done in only around 90 seconds with the automated machine. The Watts-Mueller pipe profiling system allows us to make precise, uniform, clean cuts in a minimal amount of time. We are more efficient, spending less on prep time and less on manhours.”

Winger also purchased a conveyor system with the new W-364 machine: a 25’ machine bed with an integrated powered conveyor. In addition, Winger purchased another 20’ infeed conveyor and rack outside the building, enabling the pipe to be power-fed into the shop.

“Due to labor shortages in the industrial fabrication industry, we needed a way to get more productivity with less manhours,” Smith stated. “Where it used to take two people to prep and mark up a pipe for a saddle cut, now the job only requires one person to input the numbers into the 3D-Profile Plus software and simply run the machine. Even the most complicated



The automatic conveyors integrated with the Watts-Mueller machines mean Winger needs fewer people to move, stage, and prep large pipe—and they can do it without cranes, saving labor costs and increasing safety in the shop.

cuts can be done by one person, the machine operator.

“In addition, it used to take two people to move, stage, and prep large pipe,” said Smith. “Now, with the automatic infeed bed, we can load pipe outside the building, convey into the building and right onto the machine bed. Prior to having the feeding racks we had difficulty loading heavy pipe—we had to use a crane, which called for more workers. We are saving in manhour costs, and we have increased the safety for our employees in all of our fabrications.”

Smith also appreciated the 3D-Profile Plus software. “The software with the input communication of the measurements, angles, and outlets is very user-friendly,” he observed. “I can send numbers from my desk directly into the machine if I need to. Watts-Mueller support has also been good. Our machine operator likes how the support staff has working knowledge of fabrication and can offer more than just technical knowledge about the machine.”

For more information, visit Watts-Specialties.com.

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