

SMART SOLUTIONS

WINTER 2015

Helping contractors save money and enhance productivity

EMC Sees 30-Percent Labor Savings with Victaulic 3D Renderings and Installation-Ready Couplings

Having installed Victaulic grooved products numerous times, Environmental Mechanical Contractors, Inc. (EMC) knew Victaulic could help them meet a tight deadline for renovations at Kansas' Fort Leavenworth. Working with Victaulic's Construction Piping Services department (CPS) to create 3D renderings of the project also allowed EMC to minimize rework and identify and troubleshoot potential problems.

"We picked up a 30-percent labor savings from fabrication to install[ation] because of the isometric drawings and Victaulic Installation-Ready™ couplings," said Marcus Howell, EMC's senior project manager on the Fort Leavenworth project (now director of construction operations).

continued on page 14



Installation-Ready technology from Victaulic allowed EMC to increase productivity and safety on the job and meet compressed schedules for the Fort Leavenworth renovation.



SLOAN PARK™

The Chicago Cubs will rename their new spring training facility Sloan Park in honor of its new partnership with Illinois-based Sloan Valve Company. Sloan products have been in the Cubs' Wrigley Field since 1914.

Chicago Cubs' Spring Training Facility To Be Named Sloan Park

Sloan Signs On as Cubs' Legacy Partner and Official Water Efficiency Partner

As reported in the Summer 2014 issue of *Smart Solutions*, Major League Baseball's Chicago Cubs specified Illinois-based Sloan Valve Company's plumbing systems for its spring training facility in Mesa, AZ. Recently, the Cubs announced that Sloan has joined the organization as a Legacy Partner and the team's Official Water Efficiency Partner. As part of this agreement, the Cubs' spring training facility will be named Sloan Park.

Sloan, the world's leading manufacturer of intelligent water solutions, will help the Cubs expand their ongoing sustainability efforts and improve the fan experience at Sloan Park and at Wrigley Field. Sloan's expertise in water efficiency will help the Cubs reduce their overall environmental impact—especially important in drought-prone areas such as Arizona.

"We are a global organization founded in Chicago, so partnering with another iconic Chicago brand is a natural fit.

continued on page 16



8



7



10

WHAT'S INSIDE

F. W. Spencer Meets Tight Deadline with Jay R. Smith	3
Parker Hannifin Assists Lynch with Cleanroom Retrofit	4
Carrier Helps Hospital Earn LEED Certification, Rebate	6
Sauer Increases Productivity by 300 Percent with Tri Tool	7
Viega Provides Tips for Preventing Waterborne Pathogens	11
Laptop Computer and Mobile Device Security Tips from CNA	12

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 Your Supply Chain

SMART SOLUTIONS

Helping contractors save money
and enhance productivity

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Proud To Be Partners

Finding new ways to increase productivity and save money means constantly keeping an eye out for products and services that can help. Jim Thomas, president and owner of JS Thomas Service, Inc., found the answer he needed in a story he read in *Smart Solutions*. In this issue, learn how JS Thomas moved from paper service tickets to iPads® using iBusiness Technologies' MobiliForms, speeding up customer billing and payment.

That's just one example in this issue of how contractors rely on MCAA Supplier Partners. William F. Lynch Co., Inc. recommended Parker Hannifin's Transair aluminum piping over copper piping to meet a tight deadline and save costs. Environmental Mechanical Contractors, Inc. teamed with Victaulic's Construction Piping Services department to create 3D renderings, minimizing rework and troubleshooting potential problems. Working with Sauer Group, Tri Tool Field Services developed weld procedures and deployed its portable machine tools and AdaptARC multiprocess welding systems, improving Sauer Group's productivity as much as 300 percent.

Supplier partners take partnership seriously. The enduring relationship between Major League Baseball's Chicago Cubs and the Sloan Valve Company has led to the Cubs naming their spring training facility Sloan Park.

Also in this issue, Zurn Industries, LLC engineered a range of customized products in less than four weeks for the rapid renovation of Orlando's Citrus Bowl Stadium. Carrier worked closely with New Jersey's Shore Medical Center to achieve LEED® Silver certification and earn a \$117,000 energy-efficiency rebate in the process. By installing a Variable Refrigerant Flow zoning system, Mitsubishi Electric US Cooling & Heating Division helped an energy-efficiency consulting firm slash their electricity and gas costs.

Contractors are always looking for creative ways to achieve their goals. Thomas J. Dyer used innovative aerial service provider Erickson Incorporated to place air handling units and a condenser on a plant roof in less than one hour. Geiler Plumbing found that using Wayne Water Systems' Blue Angel Pumps cut down their installation time, improving overall productivity. F. W. Spencer & Son, Inc. turned to Jay R. Smith Mfg. Co.® for products designed with prefabrication in mind, allowing them to meet the accelerated deadline for the NFL's new Levi's® Stadium. The Waldinger Corporation discovered that PENTA Technologies' Mobile Field Service application not only saved time but also boosted sales and marketing opportunities.

Smart Solutions also includes advice you can use to manage risk. Viega offers tips to improve plumbing design to avoid bacteria build-up. CNA describes how to protect laptops and mobile devices from theft and data breaches. This issue is filled with examples of how MCAA Supplier Partners are proud to be your partners in productivity.

A handwritten signature in black ink that reads "James C. Allen".

Jim Allen, Chairman

F. W. Spencer & Son Meets Levi's Stadium's Tight Deadline Thanks to Jay R. Smith Prefab-Ready Products

With just over two years to build the NFL's new Levi's® Stadium, F. W. Spencer & Son, Inc. turned to Jay R. Smith Mfg. Co.® for products designed with prefabrication in mind, allowing them to meet the accelerated deadline. Installing a big battery of water closets typically involves prefabrication to save time, but the building of Levi's Stadium in Santa Clara, CA, took prefab work to another level entirely. With careful planning and quick turnaround on materials, F. W. Spencer & Son succeeded in constructing all the fixtures in its warehouse and installing them in time. The stadium is home to the San Francisco 49ers.

Usually, a contractor gets everything approved and then starts the project. But for Levi's Stadium, timing was everything. All aspects of the work had to be done efficiently and quickly. F. W. Spencer & Son was able to manage multiple complex

tasks occurring all at the same time. To keep the project moving quickly, Jay R. Smith Mfg. Co. got the materials requested together and shipped them before they were even needed on the job.

Prefab Paves the Way for Smooth Installation

"We built the entire job basically in a warehouse," said Steve Sandkohl, project manager at F. W. Spencer & Son. That meant every battery, every fixture location, and all the rough-in plumbing work for the concessions and restrooms were completely built and fastened right into a concrete slab in the prefab warehouse.

Jay R. Smith Mfg. Co. Quarterback Water Closet Supports were designed with prefabrication in mind. F. W. Spencer & Son chose them based on anchorage requirements and ease of mounting to shipping channel for transport to the jobsite. Levi's



F. W. Spencer & Son relied on prefabrication to ensure smooth, speedy installation of plumbing fixtures to meet the accelerated schedule for the new Levi's Stadium. Jay R. Smith Mfg. Co. Quarterback Water Closet Supports were designed with prefabrication in mind.

Stadium was the first project to use the new Quarterback Water Closet Support.

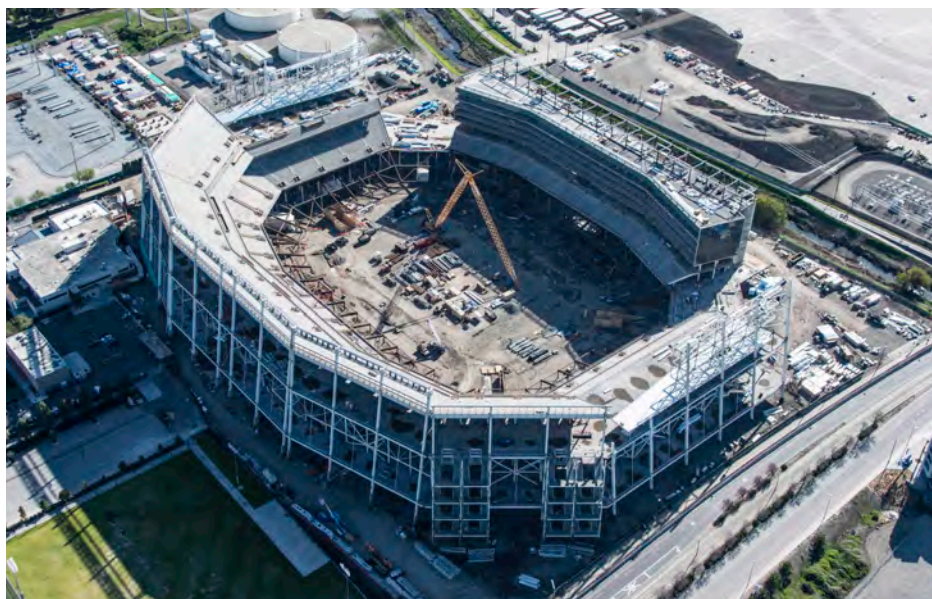
Because F. W. Spencer & Son was building as much as possible ahead of time, how to transport the finished build to the stadium was a key consideration in choosing the materials. "It doesn't do any good to do prefab if you can't safely transport without damage," said Sandkohl. "A lot of the decision-making on elements we used weighed all those factors."

Once everything was air-tested and complete, F. W. Spencer & Son cut the finished installation into manageable sections to be transported to the jobsite. Because everything had been staged with precision, it was a case of simply coupling everything together onsite.

Custom Designs Meet Client Demands

The job also called for modified heavy-duty trench drains to be

continued on page 17



Building a new professional sports stadium would typically take at least three years, but Levi's Stadium was completed in just over two years, thanks to contractors like F. W. Spencer & Son, who used a massive prefabrication effort and prefab-ready products from Jay R. Smith Mfg. Co. to meet the short deadline.

Parker Hannifin's Transair Aluminum Piping Helps Lynch Complete Cleanroom Retrofit in Six Months

To meet a tight deadline, William F. Lynch Co., Inc. recommended Parker Hannifin's Transair aluminum piping over copper piping, saving installation time, labor, and material costs. By using Transair, Lynch was able to install twice the piping specified in the initial design and still finish the job on time.

Nypro, a plastics injection molding company in Clinton, MA, contracted Lynch, of Worcester, MA, to retrofit an abandoned building so that it could expand and upgrade its health care production facility. As facilities age and building restrictions tighten, retrofitting an older building for modern-day manufacturing can be challenging, especially in the medical industry. In addition, the project timeline allowed just six months for construction.

Seizing an Opportunity

Nypro has been negotiating with a pharmaceutical company to fill the medical delivery devices manufactured by Nypro with the medicine at the time of production, improving efficiency for both parties. However, Nypro's Clinton facility was too small to handle the expanded scope of work, said Senior Manager of Maintenance & Facilities Mark Butler.

Nypro sought an additional location for its health care division with adequate space for an ISO 8-compliant cleanroom, which has strict regulations regarding airborne particulate cleanliness. The room also required laminar flow—in which air flows in a parallel pattern with no mixing of layers—and HEPA air filters installed in the ceiling, Butler pointed out.

"We keep the particle count down by pressurizing the room, so when you

open the door, the minute particles, if any, blow out instead of in," Butler said. "We're also very particular about the room's temperature and humidity."

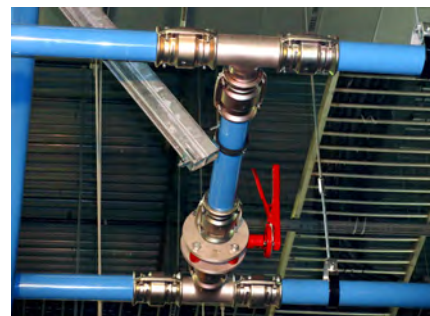
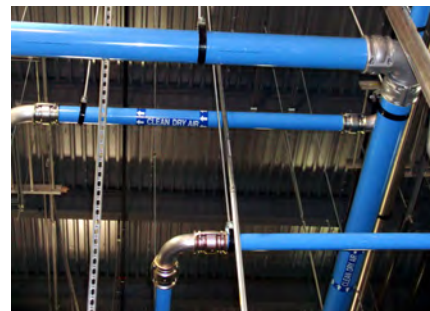
The company found a 193,000-square-foot abandoned building with 58,400 square feet for the cleanroom and another 18,000 square feet for cleanroom expansion. The rest of the building houses support, warehouse/shipping, and offices. Project work included rework of the mechanical systems and the design and installation of a compressed clean dry air (CDA) system. CDA air is critical to Nypro's manufacturing process, primarily for molding equipment and other pneumatic devices in the assembly area that operate the high-speed assembly equipment.

Aluminum: Alternative to Copper

Initially, Nypro wanted to install a copper CDA piping system, which would have taken more than 1,300 labor hours, said Lynch's president, Mac Lynch. The complex project schedule did not provide enough time for a CDA installation. After exploring options to reduce man-hours, Lynch recommended Parker Hannifin's Transair aluminum piping.

"The initial design had about 2,300 feet of CDA piping," Lynch said. "As the project evolved and all parties saw the advantages of using this system, other phases of the project incorporated Transair into the design. Total installed CDA pipe was more than double the initial design—about 5,400 feet, a little over a mile—and we still met the project deadline."

Using Transair allowed Lynch to meet the deadline and the CDA requirements. Aluminum is lighter



Top: Parker Hannifin's Transair aluminum piping was so easy to install that Lynch was able to install twice as much as the initial design called for and still meet Nypro's six-month project deadline.

Middle: Unlike traditional copper piping, Transair does not require any brazing or purge gases, eliminating the need for that added labor expense for the Nypro retrofit. "One man can install most of the pipe alone, and the fittings save quite a bit of labor," said Mac Lynch, president of Lynch.

Bottom: The Nypro installation required about 5,400 feet of CDA pipe, which would have taken more than 1,300 labor hours with copper—exceeding the project's six-month deadline. With Parker Hannifin's lightweight Transair piping and quick-connect fittings, Lynch met the deadline and the CDA requirements.

and easier to manage than copper and does not require any brazing or purge gases, observed Lynch, thus

continued on page 16

The Waldinger Corporation Finds PENTA Mobile App Drives Productivity and Sales

The **Waldinger Corporation**—a leading HVAC, plumbing, sheet metal, electrical, and service contractor with local presence throughout Iowa, Nebraska, Kansas, and Missouri—expected that using **PENTA Technologies’** Mobile Field Service application would improve productivity and save money when it came to capturing and keying in information. “What we may have underestimated is the ability of our sales team to use the added abilities to market our services,” said Dave Miller, Waldinger’s senior vice president of Operations. “We have definitely had proven results on the sales and marketing fronts.”

Waldinger’s first mobile experiences were with the original Windows® version of the PENTA Mobile application, which were running on

a small handheld device, the ES400. The solution accomplished many of their goals, but it was not as intuitive as they would have liked. “The new iOS version that we are now running on iPad minis™ has been extremely well-received,” said Miller. “The software is much more intuitive and has many new features, and the hardware is stable.”

The company adopted PENTA Mobile Field Service so that its technicians would have more complete information to better serve customers. Technicians can now see previous service history by piece of equipment, so they know more going into the call.

Waldinger also wanted to eliminate duplication of efforts. Miller explained, “Technicians used to write

down a description of work, inventory usage, labor, meter readings, and purchases only to have someone in the office rekey all of that information into PENTA. Now, PENTA Mobile captures the information, we review it in the office, and then it’s automatically entered” into the

continued on page 15



Technicians at The Waldinger Corporation appreciate how easy it is to use PENTA’s Mobile Field Service on an iPad. The app has improved productivity and customer service, which has translated into more sales for Waldinger.

Geiler Plumbing Cuts Installation Times with Wayne Water Systems’ Blue Angel Pumps

Geiler Plumbing found that using **Wayne Water Systems’** Blue Angel Pumps cut down their installation time, improving overall productivity. The new Blue Angel Pumps’ Pre-Assembled Back-Up and Primary System combines all the components needed for a sump pump with a high-quality backup pump and an autodialer that can notify up to five numbers.

“It’s definitely easier (the installation). You’re not playing with acid, and you don’t have to put prongs in anywhere and make sure you have everything wired up correctly,” said Jose Varos, technician for Geiler Plumbing. “With the old ones, you’d

have about 15 lead wires coming over and each one has to be hooked to a certain side. It’s nice that they (Blue Angel) color-code all of them.”

The cast-iron primary pump pushes 60 gallons per minute, while the fully submersible thermoplastic backup pump pushes 47. The backup system includes connection ports for

Blue Angel Pumps’ Pre-Assembled Back-Up and Primary System combines all the components needed for a sump pump with a high-quality backup pump and an autodialer that can notify up to five numbers, which simplified installation and saved time for Geiler Plumbing.

third-party security system notification, while the autodialer allows plumbers to input up to five numbers (including their own) to be alerted in the event flooding occurs. Is this beneficial to the consumer? “I think it is, for quite a few reasons,” Varos said.

“People never go down and

continued on page 17



Carrier Helps Hospital Earn LEED Certification and \$117,000 Energy Rebate

To meet the Shore Medical Center's goal of obtaining LEED® certification, Carrier specified a range of chillers and a web-based integration system for its new Surgical Pavilion, earning the Medical Center a \$117,000 rebate from the New Jersey Clean Energy Program™ in the process.

Shore Medical Center, formerly known as Shore Memorial Hospital, provides a broad range of health care services to the people of southern New Jersey. The main campus is located in Somers Point, with a regional Dialysis Center in Northfield, about four-and-a-half miles away. To meet the needs of a diverse population in the 21st century, the hospital

Top: Carrier installed an i-Vu Pro web-based user interface to integrate new Carrier AquaEdge 23XRV water-cooled chillers with ancillary equipment and the existing BACnet Building Automation System at Shore Medical Center, which saves the engineering staff both time and money.

Bottom: Thanks to high-efficiency Carrier chillers and monitoring systems, Shore Medical Center's new state-of-the-art Surgical Pavilion not only obtained LEED Silver certification but also earned a \$117,000 energy rebate from the New Jersey Clean Energy Program.

leadership decided to add a new Surgical Pavilion where physicians and staff in the facility's numerous Centers of Excellence could employ the latest technology to provide optimal patient care in safe, comfortable surroundings. The resulting pavilion houses 11 state-of-the-art surgical suites as well as beautifully appointed patient and family areas.

Hospital leadership wanted to maximize energy efficiency in the cooling system of the new facility as one step toward earning LEED certification. Other sustainable features included a white roof and rooftop gardens and the exclusive use of building materials manufactured within 500 miles of Somers Point.



To meet the customer's efficiency goals, Carrier recommended an "N+1" cooling system in which each component has a backup device for safety and reliability—specifying two 23XRV AquaEdge™ chillers and one 30HXC AquaForce® chiller as an emergency backup. With a peak facility load of 700 tons, the 200-ton 30HXC chiller provides emergency redundancy for either 500-ton 23XRV chiller. The 23XRV chillers have an Integrated Part Load Value (IPLV) of .326 kW/ton, a marker of very high efficiency in operation.

“While the technical capabilities of the i-Vu interface are excellent, it's the savings—in both time and money—of combining system monitoring, diagnostics, and notification by email that make it an invaluable tool for us.”

—Anthony Carino, Chief Engineer,
Shore Medical Center

Darryl Hitchcock, sales manager at Carrier, said, “The 23XRV AquaEdge chillers are so reliable that even when, at start-up, the cooling towers were returning water that was above optimum temperature, the chillers just kept running efficiently while we resolved the situation.”

Carrier also installed an i-Vu®Pro web-based user interface to integrate the new chillers with some existing equipment and the existing BACnet® Building Automation System. Anthony Carino, chief

continued on page 19



Sauer Group Increases Productivity by 300 Percent with Tri Tool High-Performance Welding Solutions

Sauer Group wanted to ensure high-quality welds while reducing time and costs on a natural gas processing station project, so they used Tri Tool Inc.'s AdaptARC® system, configured for flux core arc welding (FCAW) deposition, which increased productivity 300 percent over traditional stick welding. Brian Stahovec, project superintendent for Sauer Group, said, "The welding process we're using was developed by Tri Tool in conjunction with Sauer especially for this project. Utilizing that method, we've been able to not only cut costs but also make sure the schedule's been maintained."

The project involved a cryogenic natural gas processing and compressor station for the Marcellus and Utica Shales where oil and gas were separated and the final product was delivered directly from the active well using horizontal drilling and hydraulic fracturing. The Sauer Group's work on the project for Mark West Energy Partners was the largest undertaking of its kind in its 100-plus-year history.

The project scope called for outdoor installation of 1,920 linear feet of 36"-42" outside-diameter X 1" wall finger-type slug catchers fabricated from seam-welded High Grade API 5L X70 pressure piping using ER70S-2 high-tensile-strength filler material. Tasks identified in initial planning included restoring shop-fabricated spool ends to specification, precision-machining a total of 54 weld joints to ensure proper fit-up, and performing 100-percent X-ray welds at accelerated deposition rates.

To achieve their goals, Sauer Group decided to work with an onsite field

services subcontractor who was also an original equipment manufacturer (OEM) of welding and portable machine tools. Prior experience with Tri Tool's field machining services led Sauer Group to consult Tri Tool for a comprehensive field machining and welding solution.

Working with Sauer Group and Mark West Energy Partners, Tri Tool Field Services developed, tested, and validated weld procedures per ASME B31.8 and deployed certified project managers, machinists, and welders using patented Tri Tool portable machine tools and AdaptARC multiprocess welding systems. To meet schedule constraints, two sets of two weld heads, each operating in tandem

continued on page 18



Top: Sauer Group cut costs and stayed on schedule thanks to Tri Tool, which redesigned a torch head to perform the large-bore eccentric I.D. weld overlay, counterbore, weld prep, and finished weld in under 36 hours from identification to weld-out.

Bottom: Using Tri Tool's AdaptARC system increased Sauer Group's productivity 300 percent over traditional stick welding, saving the contractor two to three shifts of welding time.



With a Lift from Erickson, Thomas J. Dyer's Installation, Labor Costs Plummet

Toyota Motor Manufacturing Plant's Rooftop Units Placed in Less Than an Hour

Thomas J. Dyer placed six air handling units and a condenser on a plant roof in less than one hour by relying on innovative aerial service provider Erickson Incorporated. Thomas J. Dyer commissioned Erickson to lift and place the HVAC components onto curb installations on top of the Toyota Motor Manufacturing plant in Georgetown, KY. After the air handling units and condenser were placed on the single-story building by helicopter, Thomas J. Dyer crews completed the installation.

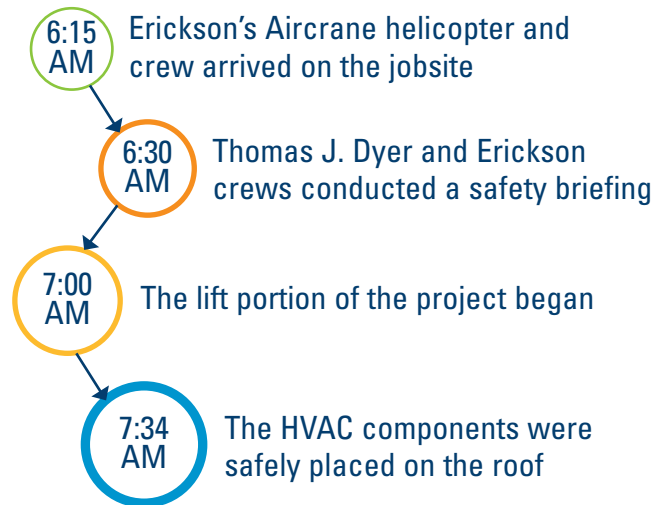
On July 12, 2014, Erickson's Aircrane helicopter and crew arrived on the jobsite at 6:15 a.m., and Thomas J. Dyer and Erickson crews conducted a safety briefing at 6:30 a.m. The lift portion of the project began at 7:00 a.m., and the HVAC components were safely placed on the roof by 7:34 a.m. With a total of seven lifts and a flight time of just 34 minutes, Erickson proved instrumental in accomplishing Thomas J. Dyer's goals in a short time while exceeding safety expectations. Although the lift was quickly completed, it was no small undertaking. All seven placements were flown with steel cable rigging as 4-point lifts, and package weights ranged from 3,950 pounds to 12,800 pounds.

Thomas J. Dyer's collaboration with Erickson represents an effective, efficient, and modern approach to infrastructure installation and construction. Erickson's placement lifts not only saved time on the ground, but also saved labor costs because they were much more efficient than standard ground-based methods. In addition, the project was approved by the Owner Controlled Insurance Program (OCIP) in which Toyota is enrolled.

This kind of project is not new to Erickson. The company prides itself on the delivery and installation of heavyweight ventilation and air conditioning units onto a variety of challenging rooftops and structures. Erickson's Aircrane is uniquely designed, piloted, and crewed to perform specialized lifts. Erickson has successfully and safely placed over 40,000 HVAC units onto multistoried buildings, automobile plants, and aviation hangers across North America and Europe.

For more information, visit ericksonaviation.com.

July 12, 2014



Seven lifts + flight time = 34 minutes



The Erickson Aircrane helicopter placed six air handling units and a condenser on a plant roof in less than one hour, minimizing installation and labor costs for Thomas J. Dyer.

JS Thomas Service, Inc., Gets Paid Faster Using MobiliForms from iBusiness Technologies

By making the transition from paper service tickets to iPads® using iBusiness Technologies' MobiliForms, JS Thomas Service, Inc., sped up its billing process, so now they get paid faster. The move also improved customer satisfaction. Because MobiliForms is compatible with QuickBooks®, the switch was easy.

JS Thomas is a full-line mechanical service company supporting custom-

iBusiness Technologies has partnered with Apple® to provide the iPad-based MobiliForms solution to MCAA members. Field techs are now interactively completing their familiar, identical forms and instantly sending them back to the office for same-day invoicing. This process eliminates paper forms that can be difficult to read, get lost, or need to be driven or shipped back to the office. Technicians love the ability to capture images and even mechanical sounds right into

bring to life his familiar service ticket, which now easily captures essential information and automatically computes parts, materials, and labor hours. JS Thomas' existing refrigerant log, pricing request sheet, and time sheet are also now all iPad-based.

Using 13 iPads, the JS Thomas service team stores completed forms and project documentation in the cloud for immediate access by the office. This instant accessibility boosts customer satisfaction by speeding up processing and ensuring tight recordkeeping.

For Thomas, the ability to leverage mobile solutions for daily invoicing without the upheaval of replacing his software was a tremendous benefit of the transition from paper to MobiliForms. "I saw MobiliForms as a way to neaten service tickets, project the expertise of our technicians, and look more professional to our customers, but I am most pleased with how MobiliForms has accelerated our billing process, positively impacting our cash flow."

For more information call 877-565-3261 or visit iBusiness-Tech.com.

"I am most pleased with how MobiliForms has accelerated our billing process, positively impacting our cash flow"

—Jim F. Thomas, President, JS Thomas Service, Inc.

ers in the commercial office, medical, manufacturing, industrial, and data center businesses throughout Atlanta and north Georgia. "We have some of the best technicians in the industry working for us," proudly stated Jim F. Thomas, president and second generation owner of JS Thomas. "Our HVAC service team members rank among the best in Atlanta in expertise—from two-ton split systems to 1,000-plus-ton centrifugal chillers. Unfortunately, their handwriting and paperwork organization skills sometimes do not rise to the same top-notch levels."

Thomas does not hire his field team members on the basis of managing paperwork, however, and his home office staff did their best to handle the paper service tickets that came in weekly from the field. When Thomas read in *Smart Solutions* about how iBusiness Technologies is working with other MCAA member companies to convert paper forms and project documents to mobile, he knew he had found a solution to his burdensome and common problem.

MobiliForms. Customers like signing on the iPad. The compatibility of MobiliForms with QuickBooks provides JS Thomas with a low-cost, powerful, and complete business system with mobile capabilities.

Thomas collaborated with iBusiness Technologies' programming team to



JS Thomas technicians Danny Hunter and Tony Bussie use iPad-based MobiliForms at a customer's site. The switch from paper to digital forms has sped up billing and improved customer satisfaction.



Contractors completed a massive renovation of Orlando's famed Citrus Bowl Stadium in 10 months thanks to Zurn Industries. Zurn was able to engineer and ship customized drainage products and carriers in less than four weeks.

With Hurry-Up Offense and Zurn Products, Orlando's Citrus Bowl Stadium Renovation Completed in Ten Months

When the scoreboard of the original Orlando Citrus Bowl Stadium was torn down in January 2014, the project team began a hurry-up offense to complete a roughly \$200-million renovation in only ten months. **Zurn Industries, LLC** was drafted to provide its products and to meet the challenges of an expedited project timeline with made-to-order requirements.

Everything below the stadium's upper deck was targeted for demolition and reconstruction to update the storied venue, which opened in 1936. The game plan provides Orlando, FL, a modernized stadium the city can use to host College Football Playoff games, World Cup soccer, and other major entertainment events that require a big, modern venue.

The large-scale renovation included new restrooms, concessions, kitchen facilities, and a team facilities building, as well as locker rooms for athletes and game officials. Zurn

products were specified for all of these spaces.

"Zurn's Custom Specification Drainage products and carrier banks were engineered, approved, ordered, and shipped in less than four weeks," said Bill Verdecchia, director of Specification Drainage Product Marketing & Engineering for Zurn.

The roster of products used in this project is lengthy and filled with high-performance veterans, including stainless steel linear floor drains, lavatory and urinal carrier banks, closet carriers, stormwater drainage, custom debris covers, wall hydrants, cleanouts and light-duty grease traps, floor sinks, and floor drain stabilizers.

Plumbing contractors found that using Zurn carriers enabled them to cut the installation time in half for water closets, urinals, and lavatories. They also found that using Zurn products allowed them to

prefabricate sturdy units that were then moved to the site and installed with no damage or leaks.

Construction crews worked in 24-hour shifts, and everyone associated with the project was laser-focused on the play clock. Products that allowed for fast, easy installation were essential.

The Citrus Bowl project demonstrates the breadth of engineered water solutions that Zurn provides. "It makes it so much easier for everyone involved to specify, install, and use products that are designed to work as total building systems," said Frank Schaetzke, National Sales Manager for Zurn. "And needless to say, this is a huge building."

Florida Citrus Sports runs major events in the Citrus Bowl. The group was instrumental in getting the stadium renovated.

continued on page 19

Viega Provides Tips for Preventing Waterborne Pathogens in Plumbing Systems

In the United States plumbing industry, focus on water quality and waterborne pathogens is increasing. For public water systems, the Environmental Protection Agency regulates 88 different contaminants. Of these, *Legionella* has received the most recent attention.

Legionella is the bacteria that can cause legionellosis. (Legionnaires' disease is a form of legionellosis.) If not treated properly, legionellosis can be fatal. When legionellosis occurs, building owners and engineers may face legal action and damage from negative public relations surrounding the case. The best defense for a commercial plumbing system is to understand waterborne pathogens and how to minimize the risks they pose.

How Waterborne Pathogens Spread in Plumbing Systems

Legionella is a naturally occurring bacteria that affects the body's respiratory system. Once aspirated, the



Legionella, the bacteria that causes Legionnaires' disease and legionellosis, can reside in stagnant water in a plumbing system. Once established, the bacteria can multiply exponentially every few minutes.

Photo: Janice Haney Carr, Centers for Disease Control and Prevention.

bacteria establishes itself in the lungs, causing pneumonia-like symptoms. *Legionella* colonization in plumbing systems can pose a significant threat.

Sources of *Legionella* in a building system may include piping systems, cooling towers, decorative fountains, standalone ice machines, and spas. Specific to piping systems, shower vapor or the mist from a lavatory aerator in which the bacteria exists can introduce *Legionella* into the respiratory system.

Temperature and flow conditions in a commercial plumbing system matter more than material type. Regardless of the piping, fitting, and sealing elements used, most modern plumbing systems are designed using a branch-and-tee concept, which often results in dead legs. Dead legs result in stagnant water, and stagnant water poses a significant risk of harboring and fostering microbial growth.

Legionella bacteria that reside in stagnant water conditions will flourish within a broad temperature range, typically 95°F to 122°F. Because bacteria multiply exponentially every few minutes, undisturbed sections of piping can be the source of *Legionella* contamination for the entire system.

Legionella secretes a polymeric slime, forming a biofilm on the inside of the pipe wall. Once the biofilm forms, it serves as a protective blanket for bacteria living within it and can withstand extreme treatment methods such as thermal and chemical disinfection. If the colony is not rendered inert throughout the system, it will recolonize after treatment, regardless of the treatment method used.

Five Tips To Minimize Microbial Growth

One of the best approaches for minimizing the risk of *Legionella* forming in a building plumbing system is



Viega's new double drop elbow fittings allow a single fixture to generate flow through many fixtures up to the point of connection, minimizing dead legs between tees and wall penetrations that can harbor stagnant water and foster bacteria growth.

to prevent it from occurring in the first place. Design strategies can be coupled with good operational and maintenance practices and a secondary disinfection program to effectively prevent a problem before it begins.

The challenge with any type of disinfection, including thermal disinfection, is its reach. If the process is not complete, there is a risk of leaving bacteria and biofilm undisturbed throughout the system, allowing regrowth. To discourage microbial colonization, all parts of a system should experience flow and be maintained at the proper temperature.

Even with recirculation, stagnation can occur in dead legs because of the lack of water exchange, which represents a challenge to the plumbing system designer. Dead legs should be eliminated wherever possible.

One solution is to daisy-chain fixtures so their individual drops (dead legs) are avoided. Any time one fixture is used, the remaining fixtures will see flow up to the point of connection even if they are not used.

continued on page 19

The Real Cost of a Lost Laptop Is \$49,246

Laptop Computer and Mobile Device Security Tips from CNA

Laptop computers are vital tools used by a wide population of contractors and are also the number-one risk they are facing due to theft. Since laptop computers and handheld devices are not typically used in a fixed, securable location such as a jobsite, additional measures are needed to protect them.

- A formal security policy detailing end-user responsibility for securing these devices and the data they contain is essential. Devices should never be left unattended.
- Cable locks and docking stations should be used but only when the device is left in a secure location, such as an office, for short periods.
 - These security methods are easily compromised, and higher-security options should be used when leaving a laptop in an office overnight (locked in storage area, file cabinet, etc.).
- Travel procedures should address common high-risk situations:
 - Avoid storage in automobiles.
 - Do not leave devices unattended in hotel rooms.
 - Airport security areas, check-in counters, baggage claim, restrooms, food courts, and curbside pick-up areas are all high-risk

areas for theft of portable devices. Warn end-users to maintain extra vigilance in these areas.

Potential losses associated with exposure of sensitive data stored on stolen laptop and desktop computers can be much greater than the cost associated with replacing the stolen equipment. A key finding of the Ponemon Institute's *The Cost of a Lost Laptop* study conducted in 2009 was that the average value of a lost laptop was \$49,246. This value is based on seven cost components: replacement cost, detection, forensics, data breach, lost intellectual property costs, lost productivity, and legal, consulting, and regulatory expenses. Occurrence of a data breach represents 80 percent of the cost. Therefore, it is important to take additional steps to prevent losses related to data breaches associated with the theft of data storage devices and media.

- First, carefully evaluate the need for storage of sensitive information on any type of portable device or removable media. In many cases, it will be determined that the need for storing information on these difficult-to-secure devices is not worth the benefit given today's threat environment.
- Where possible, prohibit such storage in an information security policy but also evaluate technical

means of preventing this data leakage—disabling or monitoring usage of USB ports, content filtering, and other methods are possible.

- If it is determined that storage on portable devices or removable media is absolutely necessary, these data must be protected, and encryption is the most common means of doing so.

Encryption is the process of making data unreadable except to those who possess the appropriate key to decode and read the data. Many state breach notification laws do not mandate notification of affected parties if the data involved are encrypted. Following are two resources for encrypting stored data:

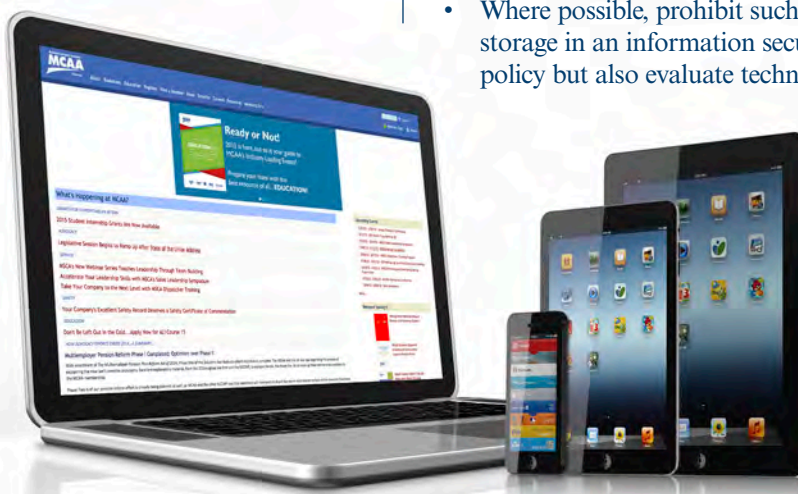
EFS—The Encrypted File System has been available on professional versions of Microsoft Windows® since Windows 2000. EFS allows file-level encryption of sensitive files. Additionally, Microsoft BitLocker® Drive Encryption is available on Microsoft Windows XP and Vista®. With BitLocker, all data on a PC can be encrypted, preventing unauthorized users from being able to circumvent operating system passwords and access data.

The **Data Encryption Toolkit for Mobile PCs**, from Microsoft, provides guidance and software tools needed to effectively use both EFS and BitLocker for encryption of sensitive data. See <http://technet.microsoft.com/en-us/library/cc500474.aspx>.

For more information, visit <https://www.cna.com>.

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Mitsubishi Electric's VRF Zoning Systems Slash Electric, Gas Costs for Franklin Energy

By installing a Variable Refrigerant Flow (VRF) zoning system from Mitsubishi Electric US Cooling & Heating Division in its new headquarters, Franklin Energy Services, LLC saved 32 percent in electricity and 48 percent in gas in its first year, compared with average usage for a comparable building. The savings are all the more impressive because the new headquarters are in a historic building in Port Washington, WI.

Franklin Energy has consulted with utilities, municipalities, and states to create energy-efficiency programs for their commercial, industrial, agricultural, and residential customers since 1994. For example, Franklin Energy's Focus on Energy program has been working with Wisconsin residents and businesses for more than 10 years to install cost-effective energy-efficient and renewable energy projects.

A Showcase for Energy Efficiency

Franklin Energy moved its 10,000-square-foot national headquarters into a historic structure on the shores of Lake Michigan in

January 2011. Formerly the Smith Brothers processing plant (Port Washington was once famous for the national distribution of white fish, chub, perch, and trout), the building is on the National Register for Historic Places. According to Franklin Energy CEO Paul Schueller, the company had always made its headquarters a showcase for the firm's approach to energy efficiency. "We have a long history of selecting underutilized buildings for our headquarters and regional offices," Schueller said.

The choice to use Mitsubishi Electric's VRF zoning technology was based on several factors:

- Energy savings
- Ease of installation
- Superb quietness (sound attenuation)

- A great ability for load-sharing (not possible with conventional systems)
- Ingenious INVERTER[®]-driven compressor
- Small footprint and lightweight modularity of the outdoor units
- Industry-exclusive simultaneous cooling and heating ability

Data Demonstrate Savings

Mark T. Kuntz, P.E., Mitsubishi Electric's vice president of Marketing & Engineered Solutions, said, "Franklin Energy is a very high-profile project for us. They have an excellent reputation for helping utilities and municipalities all over the U.S. achieve impressive energy

Energy Usage	CBECs Average	Franklin Energy Actual	Savings
Electric	17.9 kWh/ft ² /y	12.2 kWh/ft ² /y	32%
Gas	42.3 ft ³ /ft ² /y	21.9 ft ³ /ft ² /y	48%

savings through sound program implementation practices."

Kuntz said that Mitsubishi Electric is delighted that Franklin Energy selected the Mitsubishi Electric VRF zoning system for its headquarters building. "Not only do we respect Franklin Energy's work in the area of energy efficiency, but the installation provided an opportunity for our engineers to collect 12 months of solid energy-savings quantification," Kuntz said.

Using actual utility meter data as well as measured data from an energy monitoring system, the results showed significant energy savings compared to the average Commercial Buildings Energy Consumption Survey (CBECS) energy usage for a building of its size and construction type (see the chart).

These results validated the original energy model projections. The actual energy usage for electricity and gas

continued on page 20



The small footprint and lightweight modularity of Mitsubishi Electric's R-2 Series outdoor units allowed for rooftop installation at the new Franklin Energy headquarters, helping to transform an historic building into a model of energy efficiency.

VICTAULIC

continued from page 1

Going Deep

Renovations at Fort Leavenworth, the oldest active United States Army post west of Washington, D.C., focused on Building 120, also known as Eisenhower Hall. It includes the Combined Arms Research Library, high-tech classrooms, a conference center, and the DePuy auditorium. In operation for over 180 years, the facility required a full restoration of its three-story, 220,000-square-foot interior.

With their expertise in sustainable projects and quick-turnaround commercial/industrial HVAC heating and cooling, sheet metal, ductwork and piping design, EMC was selected for the renovations. The most involved aspect of the project was replacing the existing HVAC system with a more energy-efficient hybrid geothermal system featuring 240 geothermal wells drilled 500 feet into the earth. The new system would enable Building 120 to achieve a 40-percent energy savings under the ASHRAE 90.1-2001 standards. Other renovations included a new HVAC installation within the library, complete removal and revamp of restrooms on all three floors of the building, general mechanical and maintenance repairs, and a full-building test and balance of the HVAC system.

Racing against the clock with \$8 million for mechanical upgrades and a tight deadline of only 540 calendar days, EMC engaged Victaulic to overcome the challenge of not only a compressed schedule, but also configuring the piping around an existing geothermal system. Howell was familiar with CPS, Victaulic's drafting and building information modeling (BIM) services, and called on them to draw and coordinate the mechanical room. At EMC's request, the CPS team developed isometric



EMC partnered with Victaulic's CPS for BIM, creating isometric drawings that solved unique challenges. For example, laying out piping in 3D allowed EMC to overcome space constraints and include more piping in the mechanical room at Fort Leavenworth.

3D renderings to identify the pad, equipment, and overall piping layouts and provide prefabrication support.

Strategic Planning

"Environmental Mechanical Contractors firmly believes that if we spend time upfront to make the right decisions prior to construction, like we did with Victaulic Construction Piping Services, it will have a direct and positive result on the project's success," said Howell. "Having this aspect under our control helps assure the project schedule. That means responsiveness, cost-effectiveness, and delivering on time to the specifications the project requires."

Using the drawings allowed for strategic planning to ensure economical, practical, and proper installation and to avoid conflict and changes at the time of implementation. For example, refining pipe routings in the drawings guaranteed there would be proper clearance for installation and maintenance, which was especially beneficial when making accommodations for the new geothermal water system.

"The isometrics changed the way EMC communicated," said Howell. "It gave our team a clear picture of how the finished job would look and allowed us to accelerate project collaboration and efficiency in real time. It also minimized the potential for miscommunication by eliminating the need to use our own imagination to interpret the plans."

Improving Safety and Savings

To help avoid delays and save time and money, EMC enacted a variety of processes, including developing accurate bills-of-material (configured from the pipe routing drawings) to ensure precise material orders and roll grooving and prefabricating the pipe at their headquarters. Using detailed pipe cut sheets provided by CPS, pipe marking, lengths, and quantity data offered a guide for crew members to match the pipe to the isometrics. Furthermore, to help increase the speed and ease of field installation, EMC shipped preassembled lengths to the jobsite for final assembly. They also labeled the additional grooved products and accessories with location and date information.



Victaulic's BIM services and Installation-Ready couplings saved EMC 30 percent in labor costs as they renovated Building 120 (Eisenhower Hall) at U.S. Army post Fort Leavenworth. Projects included replacing the existing HVAC system with a more energy-efficient hybrid geexchange system featuring 240 geothermal wells.

Isometric drawings solved unique challenges within the mechanical room. Space constraints were overcome by laying out the piping in 3D. Four-inch pipes connected the distribution piping and heat pumps for the 640-ton geothermal heating and cooling system, while pipes 12" in diameter and smaller were used for connections off the chilled, hot, condenser, and geothermal waters in the mechanical room. Just as large as the other systems in the mechanical room, the geothermal water piping connected to the underground heat exchange, requiring EMC to reroute the pipes to accommodate the new system. To avoid costly specialty joints, Victaulic CPS specified tightly stacked triple-service valves, providing elasticity and vibration attenuation while avoiding flexible connectors for pumps.

At the onset of the project, EMC planned to weld the systems. But to increase productivity and safety on the job and meet compressed schedules, they chose Victaulic couplings, which feature proprietary Installation-Ready technology for piping up to 8" in diameter. Howell stated that these couplings contributed to labor savings on the project because they can be installed in less than half the time of standard grooved couplings and up to five times faster than welding. "We are huge fans of these new couplings," said Howell. "Victaulic

standard grooved couplings are fast and easy to use, but these are even more so. We'd use them for everything if we could, and we're excited that they're available for 10" and 12" sizes now as well."

While cost, schedule, and a job's bottom line are important components to a project, even more so is the safety of its team. Grooved mechanical systems require no hot work, making them inherently safer than welding by minimizing the risk of arc flash and fire hazard. With no welding, EMC was able to eliminate the unproductive time associated with fire watch. Additionally, transporting complete assemblies to the construction site allowed EMC to reduce material handling, further controlling the work environment and minimizing risk.

"We use Victaulic on every project we can because we know the value they bring in helping us deliver a successful job," said Howell. "After working with the Victaulic CPS team on the Fort Leavenworth project, our people were really sold on it, so now we also use Victaulic drawing services on large mechanical rooms when we can."

For more information, visit www.victaulic.com.

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PENTA

continued from page 5

PENTA system used in the home office.

In addition, Waldinger sought to facilitate equipment service history reporting. "Since this mobile solution allows us to easily track and report service history by piece of equipment, we can communicate more effectively with facility directors. This has been an effective way to sell our services to larger chain accounts," said Miller.

The original Windows mobile version of the software was frustrating for some technicians, but the new iOS version is quite the opposite, Miller pointed out. "All of our technicians have embraced PENTA Mobile Field Service... and you'd have a hard time prying it out of their hands!"

Miller said Waldinger is just scratching the surface of the benefits that can be realized from mobile technologies. "We will certainly be looking to expand our use over the coming years to improve efficiencies and to provide more benefits to our customers," he noted.

Miller added that PENTA Mobile Field Service was simple to implement. "We selected a pilot group for testing, which allowed us to determine best practices for the solution before rolling it out to the rest of our company," he said. He suggested other companies planning to implement mobile applications "start small, develop your list of best practices, and then move to your larger rollout."

For more information, visit www.penta.com.

SLOAN

continued from page 1

Sloan products have been in Wrigley Field since 1914, and this exciting new partnership with the Chicago Cubs helps Sloan tell its story on a major-league level,” said Jim Allen, president of Sloan.

Allen continued, “Water is an increasingly important natural resource. By helping communities and organizations like the Chicago Cubs save water, Sloan helps to raise awareness of water conservation in this country and around the world. Responsible use of water is critical to local communities and to the world. Our partnership with the Chicago Cubs organization gives us the opportunity to help build winning teams through sustainable solutions.”

Cubs Chairman Tom Ricketts noted, “Teaming up with Sloan is an important move for the Chicago Cubs. Sloan brings more than a century of experience and success in creating cutting-edge water solutions for a wide variety of venues all around the world. We are pleased to work with and learn from Sloan as we enhance our facilities and build for the future.”

As part of the expansion and restoration of Wrigley Field and its surrounding facilities, known as the 1060 Project, the Cubs will use Sloan’s products to expand their sustainability efforts. At Sloan Park and Wrigley Field, Sloan will showcase their products and state-of-the-art water-saving technologies. Sloan is the sixth Legacy Partner of the Chicago Cubs, joining Anheuser-Busch, ATI Physical Therapy, Starwood Hotels and Resorts, Under Armour, and Wintrust.

For more information, call 800-9-VALVE-9 (982-5839) or visit sloanvalve.com.

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PARKER HANNIFIN

continued from page 4

eliminating the need for that added expense.

“We didn’t need a big crew hanging the larger Transair pipe,” Lynch said. “One man can install most of the pipe alone, and the fittings save quite a bit of labor.”

Easy to Install, Repair

During the project, workers built section mock-ups on the shop floor before fitting them in the ceiling braces. Only one pipe joint in the entire installation leaked during the testing process, and the quick-connect fittings allowed for an easy fix.

“With a brazed joint, we would have had to cut it out, replace with new, rebraze and purge again, costing a day’s labor plus materials,” Lynch said. “With Transair the repair was about 20 minutes, even at 25 feet above floor level.”

Transair also costs less than copper, said Lynch. The Transair cost savings over a pressed copper system were \$24,100, just under 10 percent, and would be more if compared with a brazed system. The cost savings were

a big selling point for Nypro.

“Long-time, experienced facility managers have ways of doing things that work for them and are hesitant to move in a different direction. It’s just human nature,” Lynch said. “We believe that the Transair system, once assembled, is as good as any other. We knew we could give Nypro the same quality they expected for a lower price.”

Transair’s smooth interior and full-bore design ensure optimal and constant airflow. Once installed, Transair is guaranteed to resist corrosion, which prolongs the life of both the piping and the facility’s equipment.

“I’ve known about Transair for a while and knew their specifications and claims,” Lynch said. “They delivered on these claims.”

Two compressors (150 horsepower and 350 horsepower) supply the CDA, and a branch for a future 350-horsepower compressor was added. Piping was sized and installed based on the specific pressure delivery needs throughout the facility.



Nypro had just six months to retrofit an abandoned building so that it could expand its manufacturing to include a pre-filled drug delivery device. Lynch convinced them to use Parker Hannifin’s Transair aluminum piping instead of copper, saving installation time, labor, and material costs.

Over sixty percent of the system ranges from 3" to 6" in diameter, and the rest from 1/2" to 1 1/2".

Quick Turnaround

With Parker's extensive distributor network, the project's supplier, **F. W. Webb** of Boston, was able to get Lynch materials quickly, sometimes with a one-day turnaround.

"Timing was everything for them," said F. W. Webb's Inside Sales/Customer Service Representative Mike Costa. "Webb has a good reputation of going out of our way to keep a customer happy. We paid the extra freight charges and did what we could do to get materials out to Lynch when they needed them."

F. W. Webb pulled from nearby distribution centers that keep a large quantity of material in stock, helping the company meet same-day orders, Costa said. Webb's intercompany trucking services helped get materials from one place to another quickly, sometimes with two orders in one day. "That's a value-added thing for Webb that a lot of companies don't do," Costa noted.

The project was completed in October 2014, meeting the deadline. From planning to completion, the entire project took nine months, with design work continuing through part of the build-out.

"Transair was very helpful in walking us through their product and getting things off on the right foot," Lynch said. "As contractors, we don't like surprises. For this project, Transair's support eliminated surprises, making us and the owner very happy."

For more information, visit www.parker.com.

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JAY R. SMITH

continued from page 3

installed on both sides of the field, specifically in areas where heavy equipment would be moving in and out of the stadium. Once again, Jay R. Smith Mfg. Co. moved quickly. They designed a heavy-duty grate to go with the trench drains that could withstand different load ratings. Ninety-foot sections were shipped to the staging warehouse where all the channels were connected together for each layout. Each section was framed and bonded together. The trench drains were then lifted onto flatbed trucks with cranes and taken to the stadium.

The prefabrication allowed longer runs to be installed faster on the jobsite with no delays to the job schedule because the joints were already made. All the contractor needed to do once the assembly was delivered to the jobsite was to set in place and secure the trench drain run for the pour.

Because the trench drains were made of fiberglass, there was some concern that they could be brittle. To address the concern, a strut channel was used

to box the trench drains in, essentially using the channel for support. As a result, everything stayed straight on the ground.

"The only way we could get the job done in such a short timeframe was to do it this way. You can have the prefab work going on for a longer amount of time. While they were building we were prefabbing," said Sandkohl. At the job's peak, they had 200 plumbers working.

Levi's Stadium, the first United States professional football stadium to achieve LEED Gold certification, hosted its first regular-season NFL game in September 2014. It will also host domestic and international soccer, college football, motocross, concerts, and various civic events and can expand for major events, such as Super Bowl 50 in February of 2016.

For more information, visit www.jrsmith.com.

MCAA thanks Jay R. Smith Mfg. Co. for being a supporter of MCAA 2015.

WAYNE

continued from page 5

look at their sump pump. I've gone out on inspections, and it's full to the drain tile, where it's been running for who knows how long."

A bright LCD screen displays the time, date, and various messages about the current state of the primary and backup pumps. The system is also extremely quiet while it runs. "It is super quiet. It's very nice. The only thing I hear is the check-valve when it closes, and that's how I know

it's actually working." When he first installed a system, Varos said, "I expected to go downstairs and see water everywhere because of how quiet the pump was."

Varos continued, "It's just really nice—for ease of installation, the simplicity, and how user-friendly it is."

For more information, visit www.waynewatersystems.com.

TRI TOOL

continued from page 7

and loaded with 1/16" wire, were run simultaneously, laying a total of 160–240 lb. of filler material per day. The AdaptARC system saved the contractor two to three shifts of welding time.

“Whether it’s safety, whether it’s quality, whether it’s just implementing their systems and bringing personnel on board, [the partnership with Tri Tool has] been an added plus to the entire project, and I highly recommend them,” said Stahovec.

Emergent needs presented challenges to both quality and schedule. Out-of-round pipe identified onsite required inside-diameter (I.D.) weld overlay and counterboring to achieve fit-up while maintaining minimum wall thickness. Working outdoors subjected critical equipment to severe conditions, but the rugged construction of the AdaptARC plus the initial assessment and qualifications of the FCAW processes resulted in a remarkably low weld rejection rate. The welding system is so easy to use that Tri Tool has trained and certified two additional local welders who are now contributing on this project.



A field machinist makes preparations to ensure a reliable weld on the pipes for a natural gas processing and compressor station. Tri Tool’s attention to quality and safety enabled Sauer Group to perform excellent welds at a rapid pace, meeting the project’s schedule constraints.

“Our continued diligence and focus on quality in conjunction with the use of the AdaptARC system has further reduced our rejection rate to below .5 percent, an industry ‘top tier’ performance indicator for this type of work,” said Pat Flippen, vice president of Tri Tool Field Services.

Tri Tool is the only service provider deploying both precision field machining and mechanized welding systems of its own patented design and manufacture, making it the only true sole source for both specialty field machining and welding solutions. This unique set of experience, capabilities, manufacturing capacity,

and inventory enabled Tri Tool to redesign a torch head to perform the large-bore eccentric I.D. weld overlay, counterbore, weld prep, and finished weld in under 36 hours from identification to weld-out.

Tri Tool’s expertise lies in applications engineering and execution of industry-specific field machining and welding solutions. Tri Tool Inc. is committed to the safe and successful completion of its clients’ projects, on schedule and within budget.

“We found a nice partner with Tri Tool,” said Dave Kretin, project manager for Sauer Group. “Due to the quality of people they had that developed the welding procedure, we were basically doing about 7" per minute with both welders running and putting down about 3/16" thickness [per pass]. That is outstanding—we’re getting 6 hours a weld! A few of the QA/QC guys and the nondestructive testing companies said that they’ve never seen a film that looked so good after we shot the weld. They’re all 100% X-rays. Tri Tool’s done an outstanding job, and I really enjoyed working with them.”

For more information, visit www.tritool.com.



To create precision welds on a tight schedule for a cryogenic natural gas processing and compressor station in the Marcellus and Utica Shales, Sauer Group partnered with Tri Tool Field Services, which developed weld procedures and deployed workers using Tri Tool portable machine tools and AdaptARC multiprocess welding systems.

ZURN

continued from page 10

“Just seeing it in real life, to be able to walk into the bowl—it just blows me away,” said Steve Hogan, CEO of Florida Citrus Sports, speaking to the *Orlando Sentinel*. “Most of the country that would look at bringing business to Orlando has heard about this now, but once they actually come and experience it, I think all bets are off.”

The new stadium was unveiled just days before the annual Florida

Blue Florida Classic football game November 22, 2014. The stadium hosted the nationally televised Buffalo Wild Wings Citrus Bowl on New Year’s Day.

For more information, visit www.zurn.com.

MCAA thanks Zurn Industries for being a benefactor of MCAA 2015.



Left: Prefabricating Zurn carrier systems allowed quick installation of plumbing systems in the modernized Citrus Bowl Stadium. The sturdy prefabricated systems were installed onsite with no damages or leaks. Right: “Zurn’s Custom Specification Drainage products and carrier banks were engineered, approved, ordered, and shipped in less than four weeks,” said Bill Verdecchia, director of Specification Drainage Product Marketing & Engineering for Zurn. Here, the prefabricated carriers are waiting to be transported to the Citrus Bowl for installation.

VIEGA

continued from page 11

In the case of seldom-used remote fixtures, water can be forced through the fixture (up to the point of connection) with the use of a venturi. This concept manipulates the pressure across the fixture to induce flow, thereby eliminating the dead leg that serves that fixture.

With flow, temperatures can be better maintained, and disinfectant residual can reach much more of the system. These concepts require the designer to reconsider the branch-and-tee concept.

It is up to the system designer to determine when the risk of

Legionella within the plumbing system requires specific attention as well as which disinfection methods and design concepts are best for minimizing that risk. Water quality and sound plumbing design involve far more than installing piping to connect fixtures. As plumbing requirements and risks evolve, so too must the plumbing industry.

For more information, visit www.viega.us.

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CARRIER

continued from page 6

engineer for Shore Medical Center, said, “The trending capabilities of the i-Vu interface are superb: we know at any moment what any given component is doing. In the event of an alarm, the system will alert me by text or email so I can act immediately, and the diagnostics make it simple to determine the problem.”

“In addition, the i-Vu interface is a real time- and energy-saver because we can monitor the heat pumps at the Dialysis Center from our offices here on the main campus, which saves us a 20-minute drive each way,” Carino continued. “We can tell immediately whether there is a problem in Northfield, without losing all that valuable time.”

Carino went on to say, “While the technical capabilities of the i-Vu interface are excellent, it’s the savings—in both time and money—of combining system monitoring, diagnostics, and notification by email that make it an invaluable tool for us.”

Shore Medical Center’s efforts to build a sustainable health care facility were rewarded. The 23XRV AquaEdge chillers qualified for a \$117,000 rebate from the New Jersey Clean Energy Program, an energy-efficiency initiative of the New Jersey Board of Public Utilities. Shore Medical Center achieved LEED Silver certification for the new Surgical Pavilion.

For more information, call 800-CARRIER or visit www.commercial.carrier.com.

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Trane – Tuesday and Wednesday Refreshment Breaks



MITSUBISHI

continued from page 13



By installing Mitsubishi Electric's VRF zoning system in its new headquarters, energy-efficiency consultants Franklin Energy saved 32 percent in electricity and 48 percent in gas in their first year. The individual room controls maximize comfort for the occupants.

were within one and five percent of the models, respectively. While saving a great deal of energy is an excellent result, comfort was still a top priority for Franklin Energy and the people working on site.

“This Mitsubishi Electric VRF zoning system has been a lifesaver for individual comfort and for helping us save on energy costs.”

— Paul Schueller, CEO,
Franklin Energy

“Because of the building’s orientation and outdated glass windows, solar gain was a huge issue for our HVAC systems selection,” Schueller said. “This Mitsubishi Electric VRF zoning system has been a lifesaver for individual comfort and for helping us save on energy costs. Because of the Mitsubishi Electric INVERTER technology and individual room controls, the perimeter offices in this old building have been very comfortable in all seasons.”

For more information, visit www.mitsubishi-pro.com.