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Book of Giants

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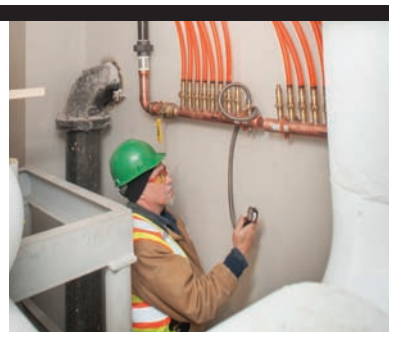
This year's Book of Giants concentrates on the confidence growing in the commercial sector. Contractors from across the country are feeling relatively positive, riding an increased backlog of work and a promising short-term outlook. Lower gas prices, steady commodity prices and no new regulation have a calming and stabilizing impact on the market. Yet, there is a sense of trepidation with the upcoming fall elections in which contractors will take a wait-and-see approach.

Our thanks to Viega LLC for once again sponsoring our annual Book of Giants issue.

➤ ***Our Book of Giants coverage begins on page 16***

WellSpan York Hospital launches radiant heated helipad

SPECIAL TO CONTRACTOR



YORK, PA. — For many people when asked to name the earliest example of airborne medevac, the TV show M*A*S*H, set in the time of the Korean War, comes to mind.

If you're among them, you

➤ ***Turn to WellSpan, page 8***

Uponor contractors talk big PEX in Las Vegas

BY ROBERT P. MADER OF CONTRACTOR'S STAFF

LAS VEGAS — Gathering together nearly 1,000 plumbing and HVAC contractors, vendors and other invited guests is a feat, but Uponor has pulled it off on a biennial basis, and this year's fest of all things Uponor at the Bellagio Hotel and Casino here was the biggest Uponor Convention yet.

Uponor packs its meeting with educational seminars, holds its own small trade show, and has some fun too.

Millennial Ryan Avery kicked off the convention telling contractors how to deal with his generation.

➤ ***Turn to Uponor, page 6***

Uponor Convention.

Giants Top 10 Reported Revenue in Millions

RANK	COMPANY	CITY	STATE	Revenue (Million)
1	EMCOR Group	Norwalk	Conn.	$3,081.20
2	APi Group Inc.	New Brighton	Minn.	$2,500.94
3	Comfort Systems	Houston	Texas	$1,331.20
4	ACCO Engineered Systems	Glendale	Calif.	$825.00
5	American Residential Services	Memphis	Tenn.	$819.00
6	Southland Industries	Garden Grove	Calif.	$569.48
7	TDIndustries	Dallas	Texas	$538.00
8	McKinstry Co.	Seattle	Wash.	$450.00
9	Brandt Companies LLC	Carrollton	Texas	$384.73
10	Dynamic Systems, Inc.	Austin	Texas	$354.26

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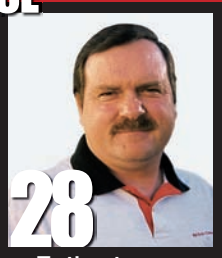
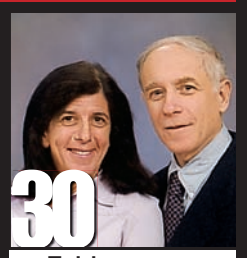




WellSpan York Hospital launches radiant heated helipad

➤ *Continued from page 1*

may be surprised to learn the early 1950s timeframe is nearly a century too late. The earliest recorded use of air transport to get trauma victims to medical treatment occurred in 1870, by means of hot air balloons, during the siege of Paris in the Franco-Prussian War.

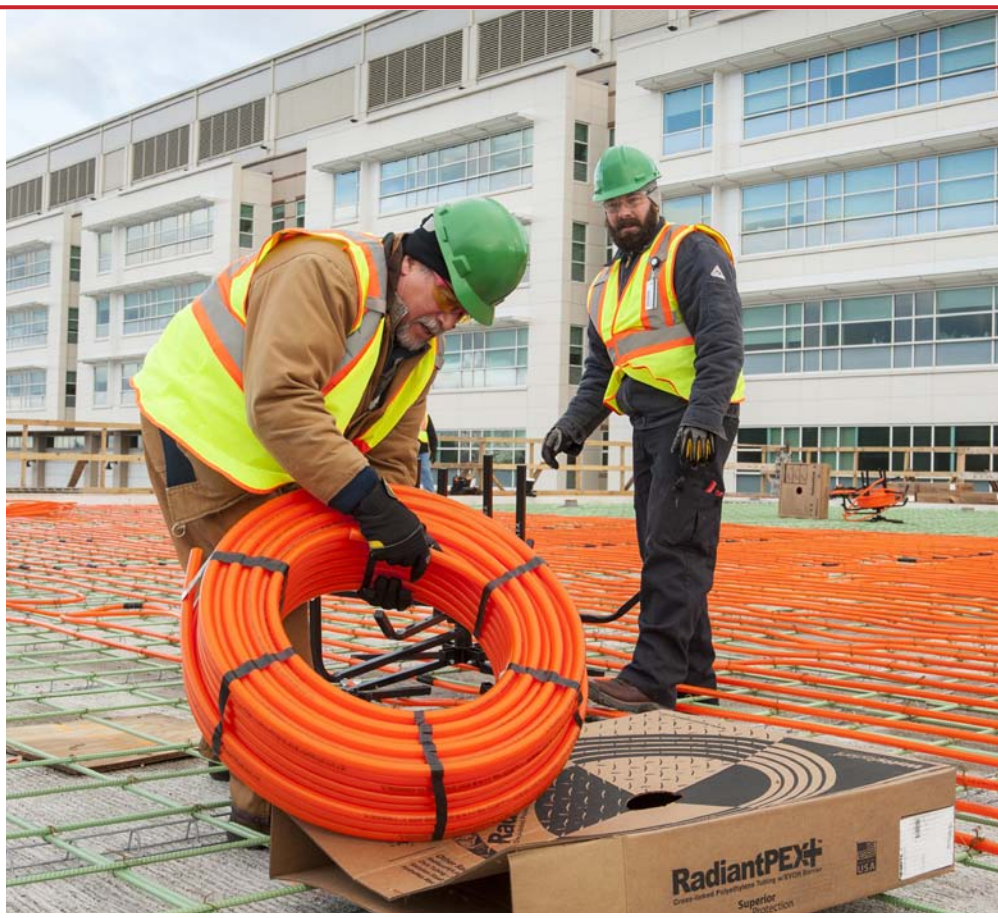
We've come a long way. Today, medevac helicopters have twin jet engines, terrain awareness systems, on-board weather radar, night vision technology and a plethora of life saving, high-tech medical equipment.

For the birds

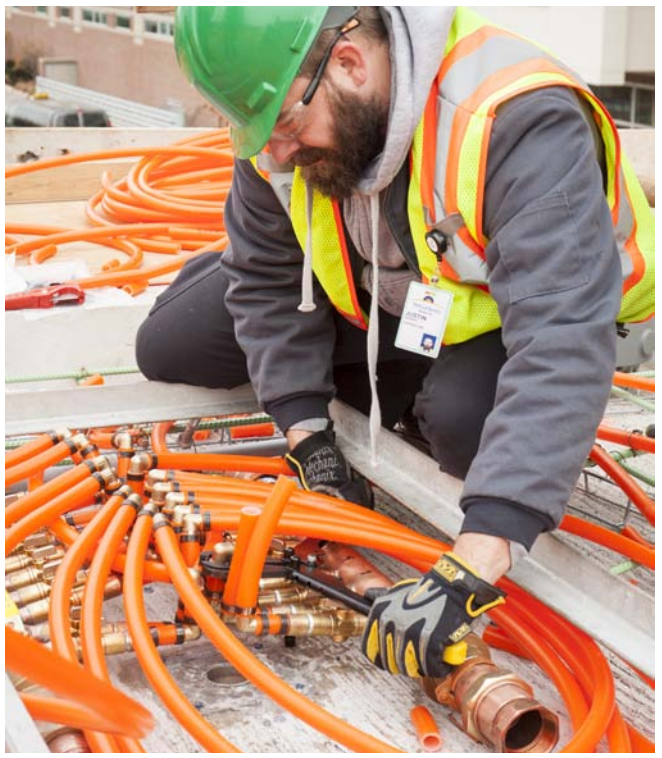
WellSpan York Hospital, located in south central Pennsylvania, is one of the only Level 1 regional resource trauma centers in the surrounding counties.

The hospital built a new, cutting-edge helipad as part of an ongoing $50 million modernization of its emergency department, improving the hospital's ability to administer advanced, life-saving specialty care to the region's sickest and most seriously injured patients.

The new helipad adds yet another measure of sophisticated technology to combat one of the last remaining obstacles to



Dave Yates and installer Justin Dedrick prepare another roll of tubing for the job.



Justin Dedrick and the rest of the crew members fought cold temperatures through much of the installation.

safe air transport of patients for medical care: winter weather. Ice and snow accumulations on flat helicopter pads can pose great risk to airborne patients and those flying the craft as well.

"There's an art to maintaining just the right degree of heat within a concrete helicopter pad to ensure that it's free of ice and snow, which can temporarily blind pilots at a time when they're most vulnerable," said Dave Yates, president of York, Pennsylvania-based F. W. Behler, Inc.

The hospital's elevated helicopter pad is 34 feet off the ground and measures 7,200-sq.ft. — more than 3,000-sq.ft. larger than the hospital's old helipad. The early pad required larger "birds" to land at an alternate location, over a half-mile away, where ambulances would meet them to complete the patient's transport to the hospital.

"In trauma care, every second counts, and this helipad will enable us to provide care even sooner to our most seriously injured patients," said Keith Noll, president of WellSpan York Hospital and senior vice president of WellSpan Health.

Three primary aeromedical systems provide helicopter transport to York Hospital. The hospital received 190 trauma patients by helicopter last year.

Snow & ice is no problem

Winters in Pennsylvania are a force to be reckoned with. Raw, wet and cold conditions, with wind chills that can drop temps into the double-digit negatives, make the perfect recipe for piles of snow and treacherous ice.

Maintaining York Hospital's new helipad in the winter months is now simple, thanks to its automatic snowmelt system with three miles of snowmelt tubing installed beneath the surface to keep snow and ice from accumulating.

One of the oldest mechanical contracting firms in the area, James Craft & Son, founded in 1900, is the lead mechanical contracting firm for the ongoing HVAC and plumbing renovations at York Hospital. The company installed the steam, condensate, heat exchangers, pumps and distribution piping to all manifolds.

Jeff Ream, the project manager, chose to subcontract the helipad project to Yates' firm, well-recognized regionally for their hydronic, radiant heat and snowmelt expertise.

F.W. Behler, Inc. is the other oldest mechanical contracting firm in the area (also founded in 1900), and under Yates' guidance, the firm has undertaken hundreds of radiant heat and snowmelt jobs

through the years.

At the hospital, the project called for radiant snowmelt not only under the helipad, but also for an access road that was built after the old helipad was demolished.

Cold weather project

"Operation Helipad" required Yates and his crew to get the new launch pad up and running in the coldest of winter months. In fact the winter of 2014/2015 — when they needed to carefully monitor post-install surface temperatures for the first time — was a record-breaking winter for low temps and snowfall.

"We'll never forget some of those high-stress days when no matter what we did, we couldn't stay warm," said Yates. "Big jugs of coffee, thermal socks, long underwear, down jackets and multi-layering were no match for those winter conditions.

"We knew from the outset, with work that began in the fall, that the first, most important part was to have a safe place for the helicopters to land as winter approached," said Yates.

More than 16,000 lineal feet of ¾-in.Watts Radiant RadiantPEX+ tubing was installed before the helipad's cement surface was poured. A glycol mix solution runs through the radiant tubing to provide hydronic snow melting.

The pad's design included several areas that would not have any tubing — as they were left open to the space below.

'The helipad's elevation means that it's exposed to wind and weather, which meant that snow and ice were sure to collect there if not for the warmth within the pad.'

This would ensure that in case of a crash landing or ruptured fuel tank, the fuel could drain away, avoiding an explosion.

"The helipad juts out from the side of the hospital," continued Yates. "It's nearly 40-foot elevation means that it's exposed to the wind and weather, which meant that snow and ice were sure to collect there if not for the warmth within the pad.

"The biggest challenge was wrestling with ¾-in. RadiantPEX+ in subzero weather," continued Yates.

Yates and his crew found the formula for getting the job done quickly was to wire the tubing to rebar. This required three people — one person to lay the tubing out, one to wire it to the rebar and one to stand on the cold-hardened tubing. They used a motorized wire tie tool to save time, which performed triple wrap twists and cutoffs in less than a second.

Candid camera

"One of the fun parts of installing the snowmelt was the audience we had," said Yates. "The Watts tubing is bright orange. We were installing it right outside of the hospital with air-

borne snow swirling all around us. We could glance up at any time and see lots of people from different windows and floors watching what we were doing. Some had binoculars, others took pictures."

"Another design challenge was created by the manifolds for the helipad, which needed to be installed inside of the loop area. Ordinarily manifolds are off to the side in snow melting systems and termination points come straight out," explained Yates.

Because of the bump-out areas for sidewalks around the pad and certain areas not getting snowmelt for emergency fuel drainage, the tubing had to be installed, and terminated, in different angles. At times, Yates only had five inches of space to work with.

Where the hospital's old off-site helipad used to be, a new entrance and access road are being built, completely heated with snowmelt.

The access road won't be complete until later, because it needs to be accessible at all times — it has to be built in two phases. Phase one of the new access road is complete, along with the completion of a new 12-rig ambulance bay, completely heated with snowmelt.

In all, eleven miles of ¾-in. Watts Radiant Radiant-PEX+ with the same 50% glycol mix will have been installed during both phases of the access road and the ambulance bay.

Construction of the new snow-melted pad, which is 34 feet off the ground and measures 7,200-sq.ft.

That's a lot of work, and PEX, and glycol solution. But the team was equally tough — just tough enough to battle the worst that Mother Nature could pitch at them, in a wintry tantrum.

"The hospital is now entering the system's second year of operation," said Yates.

"But this winter, as we complete the last, remaining few miles of PEX installation, we get satisfaction when we see a bird coming in for landing, knowing that the new helipad will provide a safe and swift landing and the patient on board is about to receive the best care possible," added Yates.

"The 'birds' come in swift and safe," said Yates. "With each, another patient has a much better chance of living a longer, healthier life. You can't ask for much more than that." C

Helping schools make the grade: ABM helps South Carolina schools upgrade facilities, save money

➤ *Continued from page 3*

eleven schools. The company estimates the improvements will save the school districts $6 million in energy and operating costs over the next 15 years.

Headquartered in New York, ABM helps clients throughout the country meet their infrastructure needs and achieve sustainability goals. "We go into any organization that owns or operates buildings, and we help those organizations make those buildings more energy efficient and more cost effective to operate," said Higginbotham, who operates out of ABM's office in Atlanta. "We help generate savings from funds they are already spending, usually with energy providers and with upkeep of aging equipment. We also do preventive maintenance."

A former school superintendent himself, Higginbotham knows many schools just cannot keep up with repairs on outdated equipment.

"Often they are just putting out fires and working on old A/C equipment, trying to keep it running," he said. "We go in and help them to upgrade or replace outdated equipment — HVAC, lighting, controls. We do water conservation. We work on the building envelope. We look for any type of energy conservation measure that can save them money."

According to Higginbotham, the goal is to help school administrators focus on educating students, not repairing HVAC or plumbing systems.

Higginbotham and Brian Ciepierski, ABM's project manager on the Anderson County projects, shared their insights on how the programs were implemented and how they could serve as models for other educational facilities.

ABM provides upgrades to outdated equipment at eleven schools.

Getting the ball rolling

Higginbotham worked as a teacher, assistant principal, principal and superintendent in Georgia before he joined ABM in 2013. He now taps into his experience to advise his school district clients. If the school district likes the concept, the first step is a preliminary study, which is conducted at no cost to the client. At this stage the developmental team benchmarks the school buildings and calculates the energy cost per square foot. Then an investment-grade audit is conducted.

"We look at every light, every motor, every pump, every compressor," Higginbotham said. "Everything in that school we can touch, we measure."

The project developer then designs a program that provides the most energy-efficient and cost-effective way to operate the buildings. At the same time, an energy engineer determines the exact amount of energy savings ABM can guarantee. Then the ABM team recommends the best systems and products to meet the client's needs. "Every program that we do is different," Higginbotham noted. "It's designed specifically for that exact situation."

The next step is to determine how much of the investment will be self-funding. ABM also works with clients to set up a lease and ensure they obtain federal and state subsidies and rebates, as well as any rebates from energy providers. Anderson 2 decided to adopt a $7.2 million program, which was designed to save $3.5 million over 15 years. Anderson 3 decided to do $5 million worth of work, with a guaranteed savings of $2.7 million over 15 years. The school districts funded the balance of their programs with 15-year municipal leases at low interest rates, and they will own all of the equipment after the lease is terminated.

Conserving water

Ciepierski, who has 25 years of experience in the HVAC field, the last eight years with ABM, oversaw the system upgrades for both school districts. He points to the detailed development phase as the key to success on ABM's Bundled Energy Solutions projects. "We spend so much time in development that by the time we get the green light on a project, everything is ready and I just go to town as the project manager," he said.

Within Anderson County School District 2, energy and facility im-

➤ *Turn to ABM, page 39*