

# Plumber<sup>TM</sup>



## Love at **FIRST PIPE**

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# Speedrooter XL<sup>®</sup>



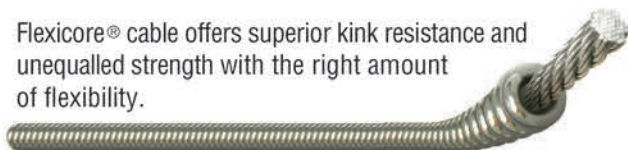
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on the ROAD

## Getting a Lift

Electric hoists raise productivity and efficiency, lower injury risks for St. Louis contractor.

By Ken Wysocky



## On the Cover

Perry Plumbing's John Perry uses marks on the crew's camera to accurately position a small section of Nu Flow trenchless liner for a pipe repair in Del Mar, California.

Photography by Collin Chappelle

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# Plumber

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Cory Dellenbach



## Looking Back and Ahead

We're wrapping up one year of print and ready to provide more in the second year

A

s we wrap up the year on *Plumber* magazine, we want to take a look back at our first year in print.

We officially launched *Plumber* as an online-only publication in January 2015, but after receiving a lot of positive feedback and continually being asked if we were going to launch a print edition, we did just that in January.

*Plumber*, like everything we do at COLE Publishing, is about people. It's about plumbers — not pipes and fixtures. Yes, we feature the latest tools and equipment, but we give them context and explain how plumbers are using those tools to build their businesses and solve customers' problems.

We've profiled 12 plumbing contractors, counting this issue, and highlighted several others in the First Responders and On the Road features. We'll continue to spotlight plumbing professionals heading into our second year of the print edition.

### BRING IN NEW FACES

You've seen changes throughout the year with this publication. Most notably who's been handling the editor duties.

Luke Laggis started off as editor with the online-only edition and then ushered the magazine into print. In June, Luke handed the reins over to Ed Wodalski. Ed continued to grow the publication and highlighted some great companies. Sadly, Ed passed away in September at the age of 64 due to a heart attack.


I am now taking on the editor duties of *Plumber*. I know I have some big shoes to fill, but I'm looking forward to what is ahead for this magazine. There are some great First Responder stories already in the works and some unique company profiles coming up the next few months.

A little bit of background on me: I started at COLE Publishing in 2013 as copy editor for all of our publications. I soon moved on to editor duties for our sister publications *Gas, Oil & Mining Contractor* magazine and then eventually *Dig Different*. I'm looking forward to this new challenge and helping *Plumber* grow and mature.

Also new to this title is our digital editor. Taking over for Wodalski in that role will be Kyle Rogers. Kyle also serves as digital editor for our *Municipal Sewer & Water* and *Cleaner* websites. He will keep our online readers updated daily on what is happening in the plumbing industry.

### HERE FOR YOU

Both Kyle and I would enjoy hearing from you, our readers, about what drives you in this industry. What do you want to see in the pages of this magazine and online? Email us at [editor@plumbermag.com](mailto:editor@plumbermag.com) or call us at 800/257-7222 to share your thoughts or story ideas.

Enjoy this issue! 

I'm looking forward to this new challenge and helping *Plumber* grow and mature.

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## WATER QUALITY

### Under-Sink Filters Gaining a Foothold in Growing Marketplace

In 2014, U.S. sales of residential water-filtration products totaled more than \$830 million. That number is expected to grow in the coming years as more homeowners look to improve their tap water quality. Among the wide range of products available are under-sink filters, which are quickly gaining in popularity since they strike a balance among effective filtration, simplicity and affordability. Here's what you need to know to educate your customers about this option. [plumbermag.com/featured](#)

## BY THE JOB OR HOUR?

### Plumbers' Opinions Vary on Billing Methods

Want to see a fight among plumbers? Start a rhetorical cage match that pits flat-rate billing against charging by the hour. Some contractors swear by flat-rate pricing: It's predictable, it lets you tell the customer up front what the job will cost, and it gives you and your crews an incentive to work efficiently. Others insist that by the hour, or a different time increment, is the only way to bill. It fairly recoups your real costs and ensures consistent profits. Here plumbers weigh in on what's the better method.

[plumbermag.com/featured](#)



## OVERHEARD ONLINE

*"Do you have a training period for your new employees and then 'graduate' them out of your training program to become regular employees? Stop doing that. Instead, build a robust, ongoing program that trains employees every single week – even if only for an hour or two."*

– 5 RECRUITING AND TRAINING STRATEGIES FOR YOUR PLUMBING BUSINESS [plumbermag.com/featured](#)



## PREVENTIVE MEASURES

### Regular Maintenance Contracts Provide a Revenue Boost

People often only think of hiring a plumber in emergency situations. But as those in the industry know, proper preventive maintenance can prolong the life of plumbing systems and help reduce costly emergency repairs. Enter the maintenance contract and services such as drain cleaning, sewer jetting, and camera inspections, which can not only help customers avoid serious plumbing issues but also improve plumbers' bottom lines. However, there are a few things to keep in mind when setting up maintenance contracts with customers. [plumbermag.com/featured](#)



Join the Discussion

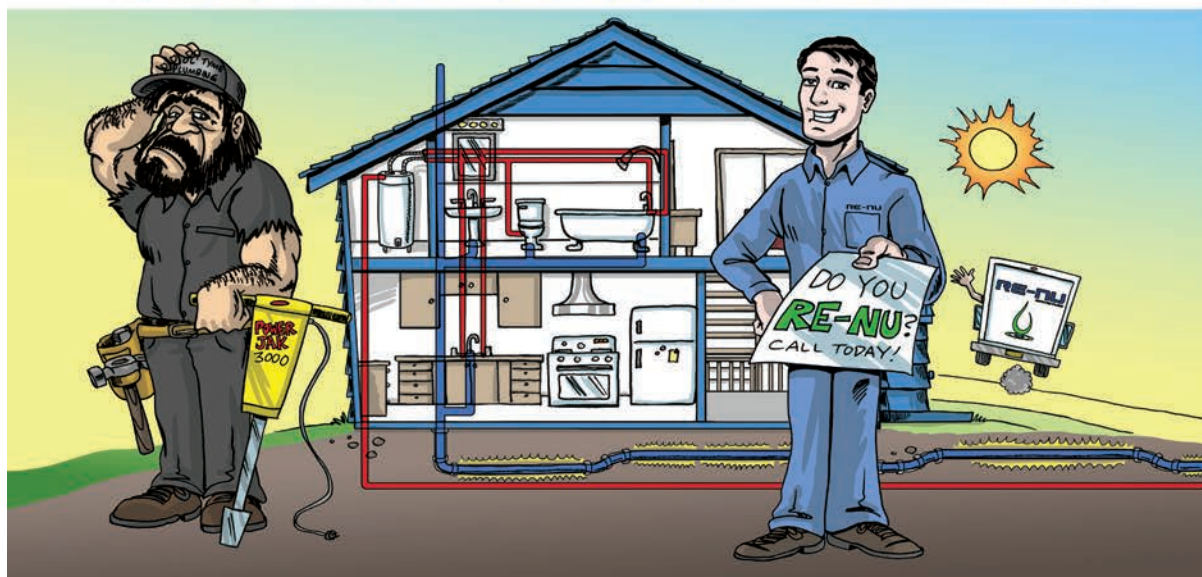
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# Love at FIRST PIPE

Perry Plumbing learns the ups and downs of adding HVAC to a business built upon family values and a passion for plumbing

By Paul Nicolaus | Photos by Collin Chappelle



**Perry Plumbing Heating & Air, National City, California**

OWNER	Harley Perry
FOUNDED	1977 (incorporated in 1983)
EMPLOYEES	19
SERVICES	Commercial and residential plumbing services & repairs and HVAC
SERVICE AREA	San Diego
WEBSITE	<a href="http://www.perryplumbing.com">www.perryplumbing.com</a>



▶ Perry Plumbing technicians Rae Samara and Fernando Martinez (foreground) put the finishing touches on a cutout that was part of a comprehensive HVAC system upgrade for an older home in Chula Vista, California.

**A**

fter nearly 40 years of serving customers throughout San Diego County, Perry Plumbing Heating & Air has ventured into HVAC territory — a move driven by customer requests.

“After being in business for quite a while, I’ve developed a large customer base,” says owner Harley Perry. “Through the years they kept asking me to add that service.”

Now less than two years in, it’s adding to the bottom line, he says, while also adding benefits to his customers — a mix of roughly 60 percent commercial and 40 percent residential clients that includes homeowner associations, apartment buildings and restaurants.

Although Perry estimates the HVAC segment represents just 1 or 2 percent of his overall business, which also includes plumbing service and repairs, underground pipe replacement and pipe lining, it is a figure he expects to grow over time.

## Added challenges

In order to foster that growth, Perry continues to address a variety of challenges. Even though customer requests led to the addition of HVAC services, one of the challenges has been developing a sense of comfort with those customers. “They don’t all trust the fact that you just jump from plumbing into HVAC and know what you’re doing, so it’s a long process to get them to trust that,” he explains.



▶ Perry Plumbing service technician Nathan Glibbery turns off the gas at the meter before making a repair at a seaside condominium complex in Del Mar, California.



And while he gets to enjoy the beautiful weather the San Diego area is known for, the mild temperatures make it difficult to thrive on HVAC-related work. It's seasonal to begin with, he explains, and in an area like San Diego there's little heating to do in the winter and little cooling to handle during the summertime.

Finding the right employee was an added challenge, too, he says. It took him roughly a year to find someone he thought was appropriately qualified. After working with that new hire for about two months, it became apparent that it just wasn't the right fit.

"I went through about four people before I finally found the right guy," he adds. "I've only got one HVAC tech right now, and he's a very good one. He's been with me for about five months now, and he's been getting a lot of requests from a lot of people."

## Tooling up

Finding the right technicians to hitch his wagon to was just the first challenge. Before he even put his first HVAC hire in the field, he spent three months finding the right truck, obtaining the right tools, and marketing the new service to customers.

"I had to first purchase a vehicle and then completely tool it — from pumps to gauges to hand tools to temperature gauges to evac pumps and compressors," he says. "I had to completely start from ground zero and tool up."

During this process, Perry says he relied on his son, John, who had recently gone through two years of HVAC training at the PHCC Academy of San Diego — a federally certified school Perry launched in 2009 that offers two- and four-year programs for apprentices and journeymen.

Less than two years into their new endeavor, the company is continuing to explore what equipment best serves their needs. Perry has discovered that the company's Chevy standard van isn't large enough for much of their commercial work, for example. For now, they ship equipment when it won't all fit, but Perry intends to eventually move up to a larger van.



Although they've chosen tools from a variety of manufacturers, including the company's "go-to" laser temperature gauge and pressure gauges that are used on most jobs, Perry's team has turned to one brand in particular when installing furnaces and air conditioners for customers.

"Right now we're using Ruud (Rheem Mfg.)," he says. "It seems to be a pretty popular name. People know it, and my HVAC tech likes that equipment."

One big reason they've remained devoted to Ruud products is because company representatives reached out and spent several hours with Perry, and a full day with the company's HVAC specialist. An added convenience is the ability to purchase Ruud equipment through Ferguson, an HVAC contractor supplier located right by the Perry Plumbing shop.

"I've got two different outlets right next door to my office where I can get different types of equipment. It's easy access, face to face," he says. "I don't have to store it here in my warehouse. They store it in their own warehouse right next door."

**"I never gave plumbing a second thought before I met Dave Brown. I kind of wanted to be a general contractor, but I wasn't exactly sure which direction I was going to go."**

**Harley Perry**



- ▶ John Perry (left) and service technician Nathan Gibbery prepare the epoxy mix for a section of Nu Flow sewer liner before using it to repair a section of pipe in an oceanside condominium complex.
- ▶ Perry Plumbing's John Perry and Nathan Gibbery use rollers to smooth and remove air bubbles from a section of Nu Flow sewer liner.



## Passion for plumbing

While Perry's entrance into the HVAC market was calculated, it was actually a series of chance encounters that initially brought him and his wife, Veronica (better known as Ronny), into the plumbing profession.

Ronny worked in a beauty shop back in 1975, and one of her co-workers was married to a plumber who needed a hand. Although Perry didn't have plumbing experience, he had a construction background and was willing to step in and fill the void. At the time, he had no intentions of developing a career out of it.

"I never gave plumbing a second thought before I met Dave Brown," he says. "I kind of wanted to

- ▶ Perry Plumbing's John Perry lowers a small section of Nu Flow sewer liner using a winch located at the manhole to pull the section to the correct part of the pipe.







The field crew and office staff of Perry Plumbing pose for a group photo before tackling the day's jobs throughout the San Diego area.

## Back to school

Even though his HVAC tech, Fernando Martinez, has 15 years of experience in the field, Perry Plumbing Heating & Air owner Harley Perry says continuing education remains a top priority. "I'm sending him back to our school to make sure he gets trained the way I want him trained," he says.

That school is the PHCC Academy of San Diego, which Perry launched back in 2009. The federally certified school offers two- and four-year programs for apprentices and journeymen along with the opportunity to "earn while you learn."

The plumbing apprenticeship program gives trainees knowledge in all aspects of the trade, including drafting and blueprint reading, math, safety and regulations, while the HVAC training program provides a knowledge of the latest tools, equipment and technologies along with the hands-on learning needed to maintain and troubleshoot heating, air conditioning and refrigeration systems.

The program employs industry professionals as instructors, and students attend a four-hour class one evening per week for a total of 39 weeks.

be a general contractor, but I wasn't exactly sure which direction I was going to go."

He realized he needed to learn a trade, however, so when Brown offered to teach him plumbing he jumped at the opportunity. What was initially a job to earn some extra cash quickly turned into a true passion.

"The more I learned and the better I got, it was more like, 'I get to do this and get paid?'" he recalls. "I really like the work. I enjoyed plumbing a lot, and I still do."

While his boss was a talented craftsman, Perry soon noticed that his business skills were lacking. He worked as an apprentice for two years, sometimes without compensation because of the business' financial woes.

Over time, he was made part owner and oversaw the business and financial elements of the company. Eventually, he became sole owner after buying out his partner for a mere dollar. In 1977, he founded Perry Plumbing and hasn't looked back since.

Continued ►

# Triple+

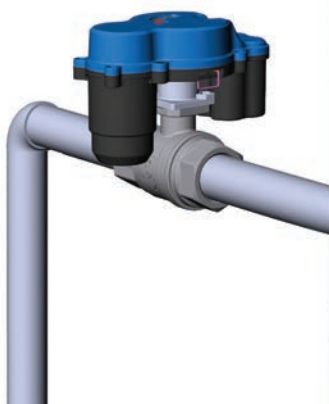
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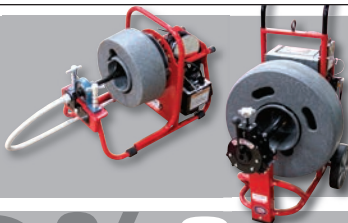
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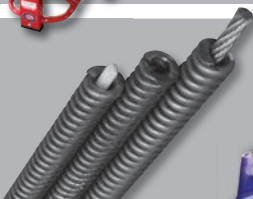
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▶ Perry Plumbing technicians Rae Samala (left) and Fernando Martinez put the finishing touches on a comprehensive HVAC system upgrade.

“The more I learned and the better I got, it was more like, ‘I get to do this and get paid?’ I really like the work. I enjoyed plumbing a lot, and I still do.”

*Harley Perry*


## Helping hand

In addition to leading the way within his own company, Perry has discovered a number of ways to give back through volunteer efforts with the Bonita Optimist Club and the South County Economic Development Council.

Another volunteer endeavor near and dear to his heart is Challenge Air San Diego, a nonprofit created to change the perception of children with special needs through flight. It was founded by Perry’s best friend who crashed a jet during a landing attempt on a naval aircraft carrier and became paralyzed before discovering ways to move beyond his disability.

“My first contact was with a kid in a wheelchair about 16 years old,” Perry says. “He wouldn’t talk to me, and he wouldn’t talk to the pilot. He was barely speaking, and you couldn’t understand what he did say when he did speak.”

When he returned from the flight, however, he was laughing and talking. “When they come back, they’ve got a completely different outlook. You can see there’s a difference in the kids immediately,” he says. “That was what hooked me.”

Now that Perry is in the midst of pulling back and passing the torch (read more online), the variety of honors and awards pouring in are a sweet reward that seem to point toward a bright future for Perry Plumbing Heating & Air. 

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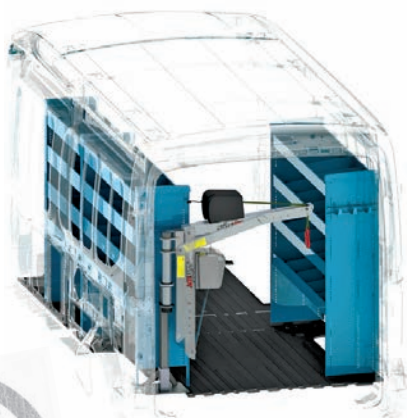
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## Getting a Lift

Electric hoists raise productivity and efficiency, lower injury risks for St. Louis contractor

By Ken Wysocky

**A**t Tope Plumbing, a plumbing and drain cleaning company in St. Louis, Missouri, management opted to literally give technicians a lift by installing SpitzLift electric cranes in about a dozen service vehicles.

SpitzLift cranes come in a variety of models for different applications. With a maximum lifting capacity of 900 pounds, the SpitzLift models Tope purchased tick off a lot of boxes in terms of efficiency and cost reductions. Minimizes back strains and other injuries? Check. Improves productivity? Got it. More effective deployment of manpower and increased profitability? You bet.

“When we’re lifting a large drain cleaning machine, for example, which can weigh anywhere from 200 to 275 pounds, you need two guys on the truck — there’s no way around it,” says Kerry Gale, a cable/camera supervisor at Tope Plumbing, a division of Tope Inc. The company primarily performs residential service work and drain cleaning in suburban St. Louis.

“But with the SpitzLifts, we don’t have to pay two guys to be on one truck all day,” he says. “We can separate them and put them on two trucks instead of one.”

Granted, that also means purchasing another service vehicle, but Gale says the additional annual revenue generated by having another technician in the field more than pays for the additional cost.

“Since we’re a union shop, wages are pretty high,” he says. “So the additional cash flow we can generate from having one guy out in a truck instead of two is phenomenal.”

Tope runs five sewer cleaning trucks (Dodge ProMaster 3500 vans and Ford box trucks with bodies made by Knapheide Manufacturing Co.) and four of them carry SpitzLifts. The company also owns five plumbing service trucks (also a mix of ProMaster vans and Ford trucks with Knapheide bodies) and four of them include SpitzLifts. Two more landscaping trucks also carry the cranes.



▲ The 40-pound aluminum hoist can lift up to 900 pounds.

**St. Louis, MO**

<b>COMPANY</b>	Tope Plumbing
<b>LOCATION</b>	St. Louis, Missouri
<b>OWNER</b>	Glenn Tope
<b>VEHICLES</b>	Ford trucks with Knapheide box bodies, Dodge ProMaster 3500 vans
<b>EQUIPMENT</b>	SpitzLift electric cranes
<b>FEATURES</b>	900-pound maximum lifting capacity, electric power (DC) with quick-connect harness, aircraft-grade aluminum construction, foldable and removable, nearly 4-foot-long swiveling boom, weighs less than 40 pounds
<b>COST</b>	Starts at \$1,300 (base model)

The plumbing and drain cleaning service vehicles use shelving and storage systems made by American Van Equipment. The sewer trucks carry Stallion drum drain cleaning machines, made by Trojan Worldwide, for larger pipe diameters; RIDGID K3800 drum machines for smaller-diameter pipes; and RIDGID SeeSnake pipeline inspection cameras. Tope plumbers also use Milwaukee Tool and RIDGID power tools.

Designed for payload efficiency, the SpitzLift hoists — which are OSHA- and ASME-compliant — are made of aircraft-grade aluminum. The hoist itself weighs less than 40 pounds; with the floor-mounting bracket included, the unit adds less than 100 pounds of payload. The hoists are easy to install, Gale says, and require no additional structural reinforcement. The boom swivels and its maximum reach is nearly 4 feet.

A 10- by 12-inch surface-mounted bracket, bolted to the floor of a vehicle, holds the hoist, which is powered by a vehicle's battery. A quick-connect, DC-power wiring harness allows for easy hookup. For extra flexibility, the crane folds down and can be removed from its mounting bracket and temporarily stowed in the vehicle — or even moved to another vehicle.

"It only takes a few minutes to unhook the wires and remove the hoist if it happens to be in the way of loading larger objects," Gale says. "It's awfully convenient."

Gale first saw a SpitzLift on a competitor's truck and the company subsequently added them as a preinstalled option when it ordered the Knapheide bodies. Later, employees at Tope began installing the cranes to save money, as well as allow technicians to decide which side of the truck they wanted the crane mounted.


"We used to buy custom-made welded lifts, but they were more expensive," Gale says. "Plus we usually had to go without a van for a couple of weeks to get them installed by outfitters, who often have a backlog of work and can't get to your job immediately. So it's definitely an advantage to be able to install them ourselves. It takes anywhere from several hours to a day to put them in. ... They're basically plug-and-play units. As soon as they're hooked up, they're ready to go."

Tope technicians used to get sidelined occasionally by pulled muscles or tight backs, so the SpitzLifts are invaluable in reducing lost work time and

minimizing the chances of serious accidents — and subsequent workers' compensation claims.

"It's invaluable to be able to prevent those injuries," Gale says.

The hoists can also save five or 10 minutes per job, which might not seem like much until you add it up over the course of a year, he adds.

"The SpitzLifts definitely improve efficiency and help us get jobs done in a more timely manner," Gale says. "Without a doubt, they're huge profitability and productivity generators." 



**“It only takes a few minutes to unhook the wires and remove the hoist if it happens to be in the way of loading larger objects.”**

**Kerry Gale**

▲ Kerry Gale, cable/camera supervisor at Tope Plumbing, says SpitzLift electric cranes improve efficiency and reduce the risk of back injuries.



# Emergency Leads to a Boost in Efficiency

Plumbing shop restores hot water, prevents further damage and preserves customer's memories *By Paul Nicolaus*

**I**t's not uncommon for memories to be tucked away in closets or basements, seemingly safe and sound within their storage environment. Sometimes all it takes is one surprise to put them at risk, though, and that's what happened when a repeat customer called 128 Plumbing, Heating, Cooling & Electric regarding a leaking hot-water heater.

"Cardboard boxes on the floor and memories that were made 40 years ago were down there," says Ryan Williams, general manager. The inconvenience of being without hot water and the need to deal with the mess left behind only add to the headaches. "Our office is pretty well trained to know what to put into the emergency category, and they know that hot water definitely falls into that category."


## Quick arrival

Williams was already familiar with this residential townhome community and knew the heating equipment was also located within the utility closet right next to the hot-water heater. Making sure that this equipment wouldn't be compromised by the leak was yet another reason to hustle.

"To get over there in under an hour's time was pretty key for us," he says.

Once on the scene, the service technician made sure the hot-water heater was shut down in order to mitigate any additional damage, and fortunately the water that had already leaked did not impact the heating system.

Upon inspection, it was determined that the issue was due to age and typical wear and tear. Any sort of system that is internally combusting water with minerals in it is going to extract those minerals when heating, Williams explained, and over time that corrosion eventually leads to this sort of leak.



**Wakefield, MA**

<b>COMPANY</b>	128 Plumbing, Heating, Cooling & Electric
<b>LOCATION</b>	Wakefield, Massachusetts
<b>SERVICE AREA</b>	Greater Boston area
<b>FOUNDED</b>	1992
<b>SPECIALTY</b>	High-efficiency heating, cooling, hot-water & cooling systems
<b>WEBSITE</b>	<a href="http://www.128plumbing.com">www.128plumbing.com</a>



**BEFORE**



**AFTER**



▲ Family is the foundation of 128 Plumbing, led by President David Williams (center) and his kids, Operations Manager Kathryn Williams Dowsett and General Manager Ryan Williams.

The old-school mentality was to pull out the old unit and slide in a replacement, but approaches have shifted as the National Appliance Energy Conservation Act's new efficiency standards have amended energy codes for appliances, including hot-water heaters. According to Williams, this has become a true game-changer in terms of the solutions offered to customers.

### Enhancing efficiency

That same day, the existing 80-gallon electric hot-water heater was cut out, but the customer didn't want that same type installed because of the high cost of running it, so an electric 30-gallon hot-water heater was offered as a temporary solution.

It allowed her access to hot water right away and also provided the time needed to make an educated decision about her next unit. Once that decision was made, a lead installer and apprentice handled the installation of the new wall-mounted system — a Navien NPE-240 with an on-demand, tankless unit — that saves on water, fuel and space.

This particular unit has set itself apart from the competition for a number of reasons, according to Williams: It is 96 percent efficient, it does not superheat the water, and the gas pressure is forgiving.

Beyond that, one common complaint about on-demand hot-water heaters is the so-called cold-water sandwich, but this particular system has a buffer tank that allows for the recirculation of hot water and helps avoid that unpleasant chilly blast.

### Facebook feedback

The customer's gratitude for a job well done was apparent based on her five-star Facebook review. In it, she wrote that the technicians were "polite, accommodating and neat."

And she appreciated the long day of hard work that went into the installation of her new unit, noting that "(They) were here at 8 a.m. and still had a smile on their faces when they finally finished the job 12 hours later." 📱



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# Know What's Below

Understanding how high-tech utility locators work is the first step in making them work for you *By Ken Wysocky*

**Y**ou're a plumber. You don't spend your days marking utility lines and digging trenches, but you work on water, gas and sewer service lines, so sooner or later you'll have to dig. And if you have to dig, you first have to locate.

To the uninitiated, understanding and using high-tech locating equipment can seem daunting. Transmitters, receivers, grounding stakes, milliamps, and hertz (Hz) and kilohertz (kHz) frequencies — how does it all work?

## The basics

As confusing as it may appear, it all boils down to one simple thing: magnetic fields. If you think back to middle school science, you'll no doubt remember that electricity produces magnetic fields, and that forms the basis for utility locating.

▶ Jim Davis, field operations vice president for Davis Underground, uses the Subsite TKQ guidance system. (Photo by Kaylinn Gilstrap)



"It all works off magnetics," says Matt Lumbers, product manager for Subsite Electronics, a division of The Charles Machine Works Inc. "Anytime electric current flows, it produces a magnetic field."

To understand how locators work in concert with these magnetic fields, let's start from the beginning. The most commonly used locating systems utilize two basic components: a transmitter and a receiver (a hand-held wand). Both are battery-powered. The transmitter sends current through a line, and the receiver detects the resulting electromagnetic waves, or frequencies, produced by that current. The receiver is capable of picking up a wide range of frequencies, typically ranging from a low end of 256 Hz to a high end of 83 kHz (or 8,300 Hz), Lumbers says.

There are two different kinds of locating methods, active and passive. In active detection, you create current by connecting a transmitter directly to a cable or pipe. With passive detection, you're tapping into pipelines (typically metallic power lines) that create their own magnetic fields/currents. Other types of pipes, such as plastic gas lines, are installed with jacketed lines called tracer wires that conduct electric current.

If tracer wires weren't installed, other options exist. For instance, a contractor could send a signal-generating device called a sonde through a pipeline via a cable. The wand detects the sonde's location. "If this is not possible, then you can use ground-penetrating radar, which can see nonmetallic objects underground," Lumbers says. "But this technology is very soil dependent and expensive, which is why it is not used very often."

## Getting connected

The most common form of utility locating — known as conductive mode — is done with direct-connect cables that resemble jumper cables, with a red lead and a black lead. To begin, plug the direct-connect cable into the transmitter, then connect the black lead to a ground stake and the red lead to the pipe you're trying to locate, or perhaps a meter

▶ Paul Stancic of Ulmer Contracting locates existing utilities using a Radiodetection TX-10 transmitter prior to starting a water services project for the city of Richmond, British Columbia. (Photo by Taehoon Kim)

▼ Jamie Velasquez of Mid-Atlantic Utility Locating uses Vivax-Metrotech equipment to transmit a signal along a utility line. (Photo by Laura Turner)

to which it's attached. In other instances, you might connect the red lead to a pedestal in a utility right-of-way, he says.

Proper grounding is very important; the better the ground, the stronger the signal. As such, it's best to locate the ground stake as far as possible from the expected trace path. Placing the ground stake at a 90-degree angle from the trace path is your best option.

Next, turn on the transmitter and choose a low frequency for starters, then set the wand to the same frequency. Look at the wand's milliamp reading to verify good continuity; the higher the milliamp reading, the better the connection. Why start at a low frequency? A lower frequency is not as prone to "bleeding off" onto other nearby lines, which is critical in an area congested with underground infrastructure. To locate gas pipes, for example, start around 815 or 870 Hz, Lumbers suggests.

After choosing a frequency, move about 25 feet away from the transmitter and walk in a circle. As you do so, look for a peak response on the wand, which is indicated both numerically and by a change in a tone emitted by the wand. The pitch goes higher when you're directly above the line you're seeking, he says. After you find a peak signal spot, follow the expected trace path. Every 5 feet or so, move the wand from side to side to ensure you're following the peak signal path. Do this for as long of a distance as needed. If the signal suddenly weakens, the pipeline probably changed direction. Arrows on the wand's display panel will guide you back, Lumbers says.

If no pipe is located at the initial frequency setting, work your way up the range of frequencies. "Think of the frequency range as a target where you're starting at the center ring, which is 256 Hz, and moving outward," Lumbers explains. "The next stage is midrange frequencies, which typically range from 8 kHz to 33 kHz. And if that doesn't work, try going up to 44 kHz."

Soil conditions can also affect utility detection. For example, drier soils make it more difficult to ground a detection system. The work-around: Pour a saline solution around the ground stake or moisten it with water, Lumbers advises. "Wetter soil is always better," he says.



## Common errors

Poor ground connections or bad ground placement are two of the most common rookie errors in utility locating. "If you're working in an area with multiple utility lines and place a ground stake over a telecom line, the wand may recognize both that line and the gas line you're looking for," Lumbers says. "That will result in bleeding off — you won't isolate the line you're trying to find."

Incorrect frequency selection — starting on the high end, for example — is another common mistake. "If I can successfully locate that utility using a lower frequency, then I don't have to change to a higher frequency that's more likely to bleed off," he says.

Contractors can expect to spend anywhere from around \$2,500 to \$8,000 for a utility locating system, depending on what features and accessories they order. To get a good return on investment, consider brands that offer features such as longer battery life, remote control operation for changing frequencies, and dual-output units that allow you to locate two lines simultaneously. All these features improve productivity and profitability, Lumbers notes.

Given the complexity of the technology, are these locator systems difficult to operate? Not with proper training, he says. "It's not difficult for me, and I'm not an engineer. If I can do it, anyone can."



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### Trust, but verify

When you use utility locators, you're typically verifying the work already performed by contracted utility locating services, but that doesn't mean you're unnecessarily duplicating services.

"Just because someone puts paint on or flags in the ground doesn't mean they're accurate," Lumbers says. "Plus, they have a margin of error that ranges from 18 to 24 inches on each side (of the markings/flags). Moreover, their markings don't tell you the exact depth of the lines.

"One issue we have in the field is that contract locators get paid by the ticket," he continues. "The more tickets they get done, the more they get paid, so it's all about speed. So if I'm a contractor and pull up on a job site, the first thing I want to do is verify the utility location and its depth." 



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# Nexstar Rescues Sinking HVAC Owner

Business-development organization helps small companies fill the information gap *By Ken Wysocky*

**B**y almost any measure, Anderson Plumbing, Heating and Air in San Diego, California, is a dynamic, successful business, as evidenced by its 170 employees and about \$28 million in annual revenue. But as Mary Jean Anderson will attest, it hasn't always been smooth sailing since assuming full ownership in 2006.

Facing a deep recession and an acquisition that didn't work out, Anderson was dangerously close to losing the company in 2009, when she was rescued by the Nexstar Network ([www.nexstarnetwork.com](http://www.nexstarnetwork.com)), a business-development organization that helps independent plumbing, heating, air-conditioning and electrical contractors get back on course. Based in Minneapolis, Minnesota, the organization was founded by plumbing industry pioneer Frank Blau, who popularized the concept of flat-rate pricing.



▲ Mary Jean Anderson

Anderson's problems began in 2007 when she decided to expand her plumbing business into heating and air-conditioning services.

"I thought it would be easy to add on, since I was so great at running a successful plumbing company," she says, tongue-in-cheek.

After doing what she thought was proper due diligence, she bought an HVAC business for \$500,000 in 2006. But the company wasn't as financially sound as it appeared.

"It turned out to be nothing but smoke and mirrors," she says.

By 2009, the HVAC business was \$1 million in debt.

"I was bleeding the plumbing company dry, as well as my own personal assets, to keep both of them going," she

says. "In desperation, I reached out in every direction I could for answers. Failure was not an option."

## Q: How did you discover Nexstar?

**A:** Through the internet. I think I Googled "heating and air consultants." I was very impressed with what I learned. I actually didn't have the money to sign up, but I felt very strongly that it was something I couldn't afford not to do. So I used a credit card to join.

## Q: What convinced you it would be a good idea?

**A:** Nexstar gave me some references, which I checked. I talked to a man named John Conway, who (at the time) owned Conway Home Services in Tennessee. John told me that he, too, had been \$1 million in debt and worked his way out of it with help from Nexstar. In fact, he eventually sold his business for millions of dollars and now works for Nexstar. His story was exactly the same as my story ... so I joined.

## Q: Was it a good investment?

**A:** Joining Nexstar was the best investment anyone could make. If you're willing to leave your ego at the door and do what they advise you to do, there's no better investment. But it would be a total waste of money for people who want to do things their way and don't want to make the suggested changes. (For information about membership fees, call Nexstar at 888/240-7827.)

## Q: How does the network work and what benefits does it provide?

**A:** Right away they assigned me a coach, Jodi Peters, who's still my coach today. I was very aggressive because I knew I needed help right away. I told her I was planning to increase the profitability of the plumbing division to pay off the debt and close the heating business. But she said, "Whoa,

whoa, whoa — first give me six months.” I said OK and she put me to work right away.

Jodi pointed out everything I was doing wrong — and it was a lot of things. One of the biggest errors was paying (HVAC) installers and technicians the same way I was paying plumbers; the profit margins in those two businesses are very different. I was overpaying the HVAC installers and HVAC maintenance technicians. I had to restructure our pay scale and also restructure our equipment purchases, because it turned out I also was paying too much for equipment.

#### **Q: How else did Nexstar help you?**

**A:** I don't think you have room to explain all the ways they've helped. But one great area of savings is the discounts that members receive on many business purchases, plus a 2 percent rebate from equipment manufacturers such as Lennox International and Goodman Manufacturing Co. (both companies are air-conditioning manufacturers). I was able to reduce expenses right away by switching to Nexstar-approved vendors.

The best part of it is I don't pay a dime anymore for my membership dues — it all comes out of my rebates. We get about \$18,000 a quarter in rebates because we spend millions of dollars a year on Nexstar partner vendors. The cool thing about this was that we already were using most of the vendors.

#### **Q: What other benefits do you receive?**

**A:** Twice a year they have a huge event where they introduce new business and networking opportunities. The value of networking with people from outside of your community is so valuable because they'll share information and tell the truth (because they're not local competitors). It was so valuable that I formed my own regional Nexstar networking group. We eventually got big enough that Nexstar said they would run it. Now it includes about 40 companies from all over California. We meet quarterly and share information and ideas specifically related to the state of California and about what's working for us and what's not.

#### **Q: What is the time commitment?**

**A:** Whatever you want to put into it. They have everything you need to run a successful business, including how to charge properly to cover your specific overhead costs, how to advertise and how to market your company. I did use their marketing ideas early on, but now we have such a strong brand that I don't need to use their precreated marketing pieces. But when I did, it was awesome.


Nexstar is awesome for small contractors because they just can't afford to hire all these people, like marketers and salesmen who do bids. They also offer a job-cost calculator; you just drop in your specific overhead numbers and it tells you exactly what to charge so that you never underbid your work.

#### **Q: How long did it take to turn around your business?**

**A:** I joined in 2008 and by 2011, I was debt free. I now run both divisions with double-digit profitability. And I'm able to pay generous employee wages and benefits. I can afford to do everything I couldn't do before, which helps us keep the best employees. Nexstar literally saved me.

#### **Q: Generally speaking, do you think there are a lot of contractors who could benefit from Nexstar and if so, why?**

**A:** I think there's a huge need. People with mechanical minds decide to go into business for themselves ... but they don't always have the business mind that's necessary to make it work. It's just not how their minds work. And before they know it, they have to put a financial statement together and they don't know how to do that. And pretty soon you have to be a marketer — but you're not a marketer, you're a plumber. Nexstar helps you fill that gap — helps you do the things you're not good at doing.

I think that as contractors, we need to champion what we're good at and give the other work to someone else. And with Nexstar, you just pay the monthly fee and you get all that knowledge at your fingertips. You can stick to what you're good at and let other people do the rest. Why force a square peg into a round hole? Think of how much further we all could go in life if we just do what we're good at, rather than trying to be something we're not. 







Erik Gunn

# The Strategy of Deals and Discounts

Ensuring a profit is job one for a small business, but can you offer sale prices without crippling cash flow? **By Erik Gunn**

**T**ake a look at the advertising circulars that come with your Sunday newspaper and it's not hard to find yourself asking this question — does anything sell for “full price” anymore?

Retailers bombarded us with Black Friday bargains last month. Online booksellers tout prices for best-sellers 40 percent below what is posted on the inside jacket flap. Brick-and-mortar stores slash prices to try to keep up with the deep discounts offered by web-based merchants like Amazon.

And it's not just in retail. In a world where consumers seem to feel entitled to a deep discount everywhere they turn, the pressure is mounting on service businesses like yours.

Competition and a fundamental change in consumer psychology are posing challenges to the old model, when the price structure was supposed to adequately cover the cost of operation and ensure a reasonable return for the work delivered.

This change can be especially vexing, because if you're not careful, you could wind up in a no-win situation: Refuse to offer any discounts or deals at all, and you risk falling by the wayside to aggressively priced competitors. Slash prices indiscriminately, and you're in danger of training your customers to devalue your work — and cutting your own throat in the marketplace.

## Tap into emotions

I posed questions about this issue to a cross section of marketing experts. My correspondents came from outside the industry, yet their niche businesses have some things in common with your plumbing operations, and their insights are easily translatable.

Wendy Kenney, who advises auto repair shops and other businesses, explains how deals can serve as a positive force in generating sales.

“The tactic of offering deals is a psychological inducement to encourage customers to take action,” says Kenney, who operates the consulting firm 23 Kazoos based in Sitka, Alaska. “It taps into the person's emotions and may incite them to action because of their fear of missing out on a great deal.”

The way these practices can train customers is demonstrated in the recent turbulent history of retailer J.C. Penney. A few years ago, J.C. Penney tried to shift away from a model of frequent sales in favor of “everyday low prices” — and wound up driving away customers in the process, Kenney notes. J.C. Penney is recovering from that misstep, but the power of the promotional sale is evident today on any Saturday morning at the department store, “when they offer their ‘Door Buster Deals’ to a store full of ‘hungry shoppers,’” she observes.

## Bundle it

Kenney — who in addition to her consulting work is the author of *How to Build Buzz for Your Biz: Tap into the Power of Social Media, Publicity, and Relationship Marketing to Grow Your Business* — suggests many more circumspect approaches that can tap into the customer's instinct to grab a deal and won't send your business in a race to the bottom.

“Offer a package deal,” says Kenney. “Instead of just discounting one common service, bundle together a package of services with one price.”

You can see that at your local auto repair shop, which may offer deals such as an oil change, an air filter replacement and an alignment at a bundled rate lower than the individual services would cost on their own.

“Because it's two or more services bundled together, the customer is less likely and less able to associate a certain price with a certain service, therefore not locking that price in their mind and devaluing your service,” Kenney points out.

If you take that tactic, she adds, “Make sure you always let customers know how much they are saving, or what the value is.” For example, let’s say the individual services combined in the bundle would normally add up to \$100, while your bundled price is \$59.95. “Don’t just say the bundled service is \$59.95,” Kenney says. “Say that service is \$59.95 — a \$100 value. Give them context about just how great a deal it is.”

### Partners, referrals, seasonality

Perhaps you can team up with other vendors whose product niches don’t compete with yours, yet still complement the sort of work you do. For instance, if you offer annual furnace and water heater checkups each fall but don’t offer CCTV inspection, partner with a contractor who inspects laterals.

“Offer a package deal together so that there is added value and reach,” says Margo Schlossberg, marketing manager for JumpIt Pass, a subscription-based service that helps families find classes for their children in activities ranging from the arts to sports in the Washington, D.C., area.

Schlossberg also suggests offering customers incentives to refer other potential customers.

The medical spa business might not seem to have much in common with what you do, but Julia Avalon, who runs Avalon Medical Spa in Miami, Florida, offers some sensible ideas that aren’t limited to laser removal or Botox injections.

If you find your business has ups and downs that follow the calendar, Avalon says, it might be worthwhile to tie deals to certain days of the week or months of the year — discounting routine procedures during slow seasons.

### Add service

Service contracts can be another way to offer limited discounts without devaluing your main business. One approach would be to provide a contract for continuing service with a low introductory price for the first visit, while the regular maintenance visits that follow would reflect the service’s standard price.

Like Kenney, Avalon also suggests package deals “with add-ons a client may not have thought of but do not require a lot of time.”

A variation on that approach would be “complimentary add-ons that would bring value to the client and set you apart from the competition,” Avalon adds. “This can be done even without lowering the initial price.”


Kenney, too, is a fan of throwing in a small — but not meaningless — “added value” bonus. When the customer

buys a certain service, give them an extra freebie, not just a token trinket, Kenney says.

“The key is to give something of tangible value. The dollar value of the freebie item doesn’t matter, it’s the perceived value to the customer,” says Kenney. “Basically, give them something they want.”

### Make it work

So are deals and discounts a good strategy? In the current environment, they might be unavoidable. The bottom line is, don’t just hand them out like Monopoly money. Be strategic about them and find ways to make them help your business, not just for short-term revenue but long-term sustainability.

If your deals live up to that standard instead of being a no-win burden, they truly can be a win-win opportunity — for your customer and for you. 

*Erik Gunn is a magazine writer and editor in Racine, Wisconsin.*



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# Handling the Wipes

Grinder pump makes quick work of 'flushable' wipes and other system-clogging solids *By Jennifer West*

**F**lushable wipes are one of those products you love to hate. Sure, they've made cleaning easier and taken the hassle out of so many daily household chores, but they cause a myriad of problems in both private and public wastewater systems.

Several manufacturers showed up at the 2016 Water & Wastewater Equipment, Treatment & Transport Show with products designed specifically to combat the flushable wipes problem. At the Liberty Pumps booth, the ProVore grinder pump took center stage, showing off its ability to completely shred even the most difficult solids.

"I don't think anyone had the intention that (flushable wipes) were going to cause this problem," says Adam Flint, Liberty Pumps corporate trainer, as he stood over the demonstration unit. Flint grabbed a dowel and stuffed a large maroon rag into the bucket. He turned on the pump, and in seconds, the fabric spit out the other end in a fine pulp, now capable of moving through any pipeline without creating obstructions.

Although flushable wipes dominate the discussion about bad consumer habits, they aren't the only problem the ProVore can handle. The grinder pump is also designed to shred feminine products, rags, towels and anything else that can jam a solids-handling pump. It's a useful addition to homes connected to a municipal system as well as those with septic systems.

With its V-Slice cutter technology, the ProVore is engineered for use in residential applications where the addition of a bathroom or other fixtures below the grade of existing sewer lines requires pumping. The cutter technology means that a greater surface space is used with each rotation, allowing for a sharper cut and more efficient shredding.

◀ The Liberty Pumps ProVore grinder pump.



▶ Adam Flint, Liberty Pumps corporate trainer, shows off a rag that the ProVore grinder pump turned into fine pulp during a demonstration at the 2016 WWETT Show.

▶ Close-up of the pump material after grinding. Rags and non-flushables are ground into material that can pass through most septic and sewer systems.



"It's slicing with small V-shapes," Flint says, as he runs the pulp through his fingers. "This pump is typically installed in areas where they've had trouble with flushable wipes or rags. But now, (contractors) are being proactive."

Flint explains that contractors have installed the grinder pumps in new construction as a preemptive strike against flushable wipes. It is, after all, a massive problem that's costing municipalities millions of dollars each year.

Homeowners with private wastewater treatment systems aren't immune to the wipes problem, either. Flushable wipes

Continued ▶





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and other materials can clog pipes and filters, and cause septic backups in bathrooms, showers and basements. It's a problem costing many people a lot of money.

"Depending on what you have on the other end, (flushables) cause problems," Flint says.

With higher flow rates, the unit allows use with 2-inch discharge lines. Its 1 hp motor operates on a standard 115- or 230-volt circuit requiring a 20-amp breaker. The residential pump can be used as a replacement pump in any 2-inch discharge system using LE40 and LE50 Series solids-handling pumps. The grinder's heavy cast iron construction and powder-coated exterior are designed for corrosive environments.

During the show, a steady stream of attendees mingled around the demonstration, watching as Liberty Pumps representatives shoved rag after rag into the watery bucket.

"The first day was really super steady, and we had great coverage," Flint says.

Liberty Pumps is a regular at the WWETT Show, and Flint says it's one of the company's most anticipated trade shows of the year.

"This is one of our biggest and best shows," he says. "That's why we bring so many guys here. Our engineering team is here so they get to listen and take notes. Plus, we all get to walk around and see what's new." **800/543-2550; www.libertypumps.com. P**

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# HVAC | By Craig Mandli

## Controls/Alarms

### ACT, Inc./D'MAND Controls S3-100

Designed to operate with tank or tankless water heaters, the **S3-100** from **ACT, Inc./D'MAND Controls** incorporates advanced on-demand technology into a home's hot-water distribution system to provide complete control over when hot water is needed. It includes a three-speed high-performance stainless steel pump fastened to an electronic control box, and can be located at the hot-water heater on a dedicated return line. **800/200-1956; www.gothotwater.com.**



### Grundfos Pumps UPZC Series

The expandable **UPZC Series** of zone controls from **Grundfos Pumps** is designed to manage circulator and boiler control in residential hydronic heating systems. The non-networked devices control up to six heating zones, and can be coupled together in various configurations to accommodate any application. The zone relay control connects to standard thermostats using either two or three wires. The optional third wire provides 24-volt AC to thermostats that require external power. The UPZC operates in a cold-start configuration with a call for heat from a thermostat. **800/921-7867; http://us.grundfos.com.**

### HBX Control Systems Wi-Fi Zoning System

The **Wi-Fi Zoning System** from **HBX Control Systems** allows the user to control up to 20 zones remotely to maximize comfort and energy savings. The system incorporates a zone control, two-wire thermostats, Wi-Fi module and mobile app for remote access. It can control four pumps or valves per module, as well as control damper zones for forced air delivery systems. The zone control also incorporates terminals for fan coil or furnace control. It uses wireless technology that allows zone modules to communicate to



each other, eliminating wiring. The two-wire PID thermostat incorporates multiple heating and cooling modes, DHW, and selectable priorities to accommodate small to larger systems. The Wi-Fi module connects directly to the network within minutes. The **HBX Zone App** is available for Apple and Android devices, and allows for full access for each zone in a home, including alarm notification, heat/cool demands, home/away targets, and zone priorities. **403/720-0029; www.hbxcontrols.com.**

### Liberty Pumps NightEye

The **NightEye** wireless-enabled product app from **Liberty Pumps** links alarm and performance information to a mobile device via text, email and push notifications. Up to four phone numbers can be connected to the account, and can be contacted worldwide. The app is free to use with compatible pumps and is available for iOS and Android. **800/543-2550; www.libertypumps.com.**



### See Water WS Series

**WS Series** duplex control panels from **See Water** are ideal for sewage pump chambers, grinder pumps, sump pump basins and lift stations. The duplex panels provide pump alternation, two-pump high demand and a high-liquid alarm. The system has a NEMA-4X heavy-duty polycarbonate enclosure that allows pump status to be viewed without accessing the inside of the control panel. They are UL listed. **888/733-9283; www.seewaterinc.com.**

### SJE-Rhombus MySpy Wi-Fi Messenger

The **MySpy Wi-Fi Messenger** indoor alarm from **SJE-Rhombus** monitors and reports any residential alarm condition (contact closure), including sump high water level or over/under temperature alarms. When the contact closes, the alarm notifies the user both locally (audible and visual alarms) and remotely via an existing Wi-Fi network or Ethernet. The alarm notifies up to four contacts. The alarm does not rely on cellular service, so there are no contracts to sign or monthly fees to pay. It has a NEMA 1-rated enclosure for indoor use, automatic alarm reset and 9-volt DC battery backup with low-battery



chirp. The touch pad includes test and silence buttons for the alarm horn and LED indicators for alarm (red), power on (green) and network status (blue). The Wi-Fi Protected Setup push-button simplifies network connection (Ethernet may be used, cable not included). **888/342-5753; [www.mywifialarm.com](http://www.mywifialarm.com).**



### ThermOmegaTech Circuit Solver

The enhanced **Circuit Solver** self-actuating temperature control from **ThermOmegaTech** has an integrated union and

optional built-in check valve, as well as a complete assembly. NSF 61 certified, the control continuously maintains the end of each domestic hot-water supply line in a recirculation system at the specified water temperature. This inline valve eliminates the need for manual balancing. It also minimizes flow through the system by only allowing small amounts of water to pass through once the setpoint is reached, reducing system wear and allowing for a smaller circulator that won't consume as much power. **877/379-8258; [www.thermomegatech.com](http://www.thermomegatech.com).**

### Triple+ CLM

**CLM** from **Triple+** is a cloud-based, mobile-device-managed, IoT-compatible system designed to prevent water and gas leak damage from wear and tear, frozen pipes, overflow and careless administration. The line of products allows for automated control of water and gas shut-off valves, and is designed to avert flooding and the subsequent damages, injury and financial losses. **844/729-8775; [www.tripleplus.io](http://www.tripleplus.io).**



## Ductwork/Piping

### Bell & Gossett, a Xylem brand, Suction Diffuser Plus

The **Suction Diffuser Plus** from **Bell & Gossett, a Xylem brand**, is a flow-straightening centrifugal pump accessory that helps maintain efficiency, improve flow conditions and eliminate recirculation zones, reducing energy waste. It was developed to provide ideal flow conditions to maintain increased efficiencies. Its compact footprint



is easily retrofitted into previous system designs. Its Flow Cone design addresses increasingly stringent ASHRAE and MEI efficiency guidelines by improving flow conditions and eliminating recirculation zones, which reduces energy waste. A mesh throwaway startup strainer ensures clean and trouble-free performance at installation. A large-diameter orifice cylinder prevents debris from entering the pump suction, resulting in reduced maintenance costs. Optional pressure/temperature ports allow operators to check system conditions and verify startup strainer presence without having to shut down the pump system, saving installers time and effort. **847/966-3700; [www.bellgossett.com](http://www.bellgossett.com).**



### GF Piping Systems Double-See

The **Double-See** pressure-rated double-containment vinyl piping system from **GF Piping Systems** offers an easy installation

method, a closure coupling design that allows conformance to the ASME B31.3 test inspection requirements, and 3-D thermal expansion compensation. Both primary and secondary pipes are cut to the same length and can be joined simultaneously, saving time and preventing potential mistakes caused by staggered pipe-cut measurement errors. It offers assembled and tested fittings and a pipe-cut length guidance system that simplifies installation. The system has pipe, fittings, leak detection and access tees, closure couplings and termination fittings. It is available in PVC and CPVC; either material may be primary or secondary, with clear PVC an option for the containment pipe. System size options range from 1/2- by 2-inch to 6-by 10-inch. **800/854-4090; [www.gfpiping.com](http://www.gfpiping.com).**

### Legend Valve HyperPure PE-RT Tubing

**HyperPure PE-RT (Polyethylene Raised Temperature) Tubing** from **Legend Valve** is strong, flexible



hot and cold potable water tubing that is 100 percent recyclable. It is made using a bimodal resin, a polyethylene that does not need to be cross-linked, while meeting and exceeding the rigorous potable water standards of the U.S. It is easy to use and compatible with most fitting systems. It is available in 1/4- to 2-inch sizes, in coils and 20-foot lengths. **800/752-2082; [www.legendvalve.com](http://www.legendvalve.com).**

Continued ►





## REHAU Construction RAUPEX SPEED

The RAUPEX SPEED radiant fastening system from REHAU Construction enables contractors to install

heating pipe in over-pour and concrete installations up to 30 percent faster. The 1/2-inch O2 barrier pipe with hook-and-loop wrap is walked onto the 3 mm thick RAUPEX SPEED mat without the use of specialized tools. The mat has an adhesive backer that attaches to thermal insulation, concrete and plywood materials without penetrating the surface, protecting thermal, vapor and sound insulation properties. The pipe can be detached and repositioned, saving time and reducing waste. The pipe is available in 300- and 1,000-foot coils and the mat is available in 3.1- by 52.9-foot rolls. 800/247-9445; [www.na.rehau.com](http://www.na.rehau.com).

## Furnaces/Furnace Accessories

### Armstrong Fluid Technology Astro 2

Astro 2 hot-water recirculation pumps from Armstrong Fluid Technology can help save a typical family over 12,000 gallons of water per year by eliminating waste that occurs when occupants open a hot-water faucet and have to wait for hot water to reach the fixture. They are suitable for use in a three-pipe installation with a dedicated return. The Astro Express 2 System includes the Astro Express LF Valve and is designed for use in a standard residential two-pipe installation. A large, easy-to-service electrical enclosure includes an integrated timer assembly. A timer accessory kit can be used to upgrade earlier versions. Easy field assembly reduces installation time.



They are available in stainless steel and bronze versions, with either NPSM Union or sweat connections. 800/356-9845; [www.armstrongfluidtechnology.com](http://www.armstrongfluidtechnology.com).


### HotLine Internal Sewer Pipe Heater



HotLine Internal Sewer Pipe Heaters install inside the pipe through a Y-fitting clean-out above the floor. In-pipe installation eliminates the need for costly excavation, pipe wrapping, and rebuilding of basement floors and floor drains. The transformer operates on a 120-volt, 15-amp circuit, providing energy-efficient, NEC-compliant, low-voltage output to the

heating element. The heating element's low operating temperature makes it safe for PVC, copper, ductile iron, steel, cast iron, polypropylene and polyethylene pipe. They work for both water and sewer lines as well as commercial applications from animal waterers to pipelines to cooling towers, sump pumps, and refrigeration condensation lines. 877/881-2980; [www.hotlineinternalpipeheater.com](http://www.hotlineinternalpipeheater.com).

### U.S. Boiler Company - Burnham Brand Boilers X-C

The X-C high-efficiency boiler from U.S. Boiler Company - Burnham Brand Boilers is available in five sizes from 80 to 180 MBH, and provides up to 95 percent annual fuel utilization efficiency. A factory-preset Sage2.2 control system and LCD display offer straightforward setup and diagnostics, while a standard outdoor reset control saves fuel for the end user. It is system tested at the factory. 717/397-4701; [www.usboiler.net](http://www.usboiler.net). 



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# HVAC

*By Craig Mandli*

## Gas-condensing boilers replace aging system in commercial plaza



**Problem:** Climate-Tech, a third-generation family-owned business serving western Cuyahoga and parts of Ohio, managed the HVAC systems in five commercial buildings operated by Flair Management in Middleburg, Ohio. In fall 2015, two 30-year-old 650,000 Btuh flex-tube boilers in building No. 1 required replacement.

**Solution:** Climate-Tech recommended Buderus GB162 gas-fired condensing boilers from Bosch Thermotechnolgy in a four-unit cascade configuration with total input of 1,332 MBH. “We replaced two 650,000 Btuh flex-tube boilers and a 40-gallon hot-water tank with the Buderus GB162 TR-400 cascade package with a Buderus SST150-40 indirect tank,” says Josh Dubecky, field operations manager of Climate-Tech. The system is controlled by an open-source building control system that sends a low-voltage staging signal to the Buderus MCM-10, which rotates firing of the boilers to meet building heating and domestic hot-water demand to save fuel. In order to minimize disruption to building tenants, Climate-Tech prepped and protected the flooring, disassembled and removed the old boilers on a Saturday, and assembled piping on the roof before transporting it into the fourth-floor mechanical room.

**Result:** Overall, the installation required just one week. The building is comfortable and the two restrooms enjoy

adequate hot water provided from the single Buderus 40-gallon tank. There are hopes to upgrade another one of the buildings with the same system. “According to our January, February and April 2015 and 2016 results, the gas usage, on average, generated 46 percent savings at the baseline temperature of 55 degrees F when the boilers are activated. This 46 percent savings is based off cubic feet of natural gas per heating degree day,” says Dubecky. 800/283-3787; [www.boschheatingandcooling.com](http://www.boschheatingandcooling.com).

## System treats heating water in apartment building



**Problem:** Water used for heating purposes in an apartment building in Iceland was infested with bacteria, causing corrosion, fouling and slime, resulting in frequent maintenance and increased costs. Furthermore, the water needed to be treated with chemicals to reduce these problems.

**Solution:** Technicians from LubeCorp Manufacturing installed the Heating/Cooling System Water Treatment H/CS. It contains no toxic chemicals and completely eliminates microbial activity, scaling and fouling, prevents corrosion, is biodegradable and is environmentally safe to flush into municipal sewage systems. It is blended at a 25-1 ratio and extends water life up to 10 years with proper maintenance. Microbiological activity is eliminated by biodegradation of bacterial food supply, i.e. calcium, magnesium, phosphates, sulphates and iron oxides, hence requiring no biocides.

**Result:** Scaling and fouling was eliminated, as tests showed improved utilization of hot water, reducing energy costs. This is because heating/cooling transfer contact between water and the piping is optimized through reduced surface tension. Corrosion was eliminated with H/CS built-in inhibitors. 800/661-6100; [www.lubecorp.com](http://www.lubecorp.com).

## Control system simplifies LEED school HVAC



**Problem:** The extreme remoteness of Creede, Colorado, required an HVAC control system for the town's new LEED Gold K-12 school that could be monitored remotely by the installer. Also, the system needed to be capable of harnessing numerous heating and ventilation components without the need for a controls specialist or ongoing maintenance costs associated with the control platform.

**Solution:** Rogers & Sons Inc. traveled 260 miles from Denver to install miles of radiant tubing, multiple boilers, an HRV system and condensing duct furnaces at the new 37,000-square-foot school. All equipment is tied to a **Taco iWorX** control system. "There's no code to write," says Shawn Metzler, controls superintendent at Rogers & Sons. "You don't need special tools or software. Compared to a DDC system, you eliminate a lot of hours typically spent programing and commissioning." Preprogrammed modules are used on equipment, zone valves and dampers throughout the building. All components report back to a touch-screen local control interface in the boiler room. Each module self-identifies on the network when first turned on.

**Result:** While under construction, the project required Rogers technicians to find lodging in Creede, but now effortless operation and monitoring can be done on site or from Denver. There are no continuing fees associated with it and software upgrades are free. Proprietary systems, including LON, BACnet and Modbus, interface easily with iWorX. "The advantage of an iWorX system quickly hits home for the


building owner," says Metzler. "When they realize they don't need a separate controls contractor — at the time of installation or going forward — they see value." 401/942-8000; [www.taco-hvac.com](http://www.taco-hvac.com).

## Historic church saves money with high-efficiency condensing boilers



**Problem:** With failing boilers and an inefficient heating system, historic Zion Episcopal Church in Oconomowoc, Wisconsin, needed guidance and help. "Our heating system consisted of four nearly 12-year-old 199 MBH boilers," says Linda Georgeson, senior warden with Zion Episcopal Church. "Two of the four boilers were no longer functioning, and we were convinced the other two would fail because one was leaking."

**Solution:** Schulte Heating replaced the four failing boilers with two **Evergreen** boilers, a 299 MBH and a 399 MBH from **Weil-McLain**. They were installed as a multiple-boiler system using the Modbus communication feature. "Evergreen is the only boiler I proposed to Zion because I really like the technology of the fire tube heat exchanger in those boilers," says Rich Schulte Jr. "In addition, they are easy to set up through the setup wizard provided on initial startup and also easily maintained. The units don't require a separate, external control panel or boiler panel, which was ideal because the church did not currently have a separate interface to view the status of the systems." The installation took less than a week.

**Result:** The units are configured to handle the five separate church thermostats/zones. Each thermostat is programmed for usage depending on the day and whether the area is occupied. "We've noticed significant savings on our energy bills when comparing this year's monthly bills to last year," says Georgeson. 219/879-6561; [www.weil-mclain.com](http://www.weil-mclain.com). 



## Product Spotlight

Duct Cleaner's spinner attachment protects user from backsplash

By Craig Mandli

**P**lumbing is often a dirty job. While you're typically prepared for a mess, getting grimy, smelly backsplash on your clothes and skin while cleaning is never pleasant. That's why Water Cannon developed a spinner attachment for pressure washers designed to reach into small nooks and crannies without exposing the user to the mess of backsplash.

"It's a unit that is a fit for cleaning trash chutes, vents, portable restrooms and silos, but is great for cleaning ductwork anywhere from 6 to 24 inches in diameter," says Mark Williams, Water Cannon's national sales and product manager. "It is the perfect design to clean filthy restaurant exhaust ducts and hoods."

The duct cleaners are made of corrosion-resistant materials, and have stainless steel self-lubricated bearings. The spinner attachment can be universally attached to any pressure washer, and can be used with cold water, heat or chemicals, handling chemical ratings of pH 3 to pH 12, and withstanding temperatures up to 250 degrees. The unit is an updated version of a Water Cannon duct cleaner that's been on the market for years.

"The previous version of this product had fixed arms, but now with adjustable arms, it can be used to clean vents or ducts from the top down or the bottom up while



keeping debris pushed in front of it," says Williams. "It can even be used horizontally to clean HVAC ducts."

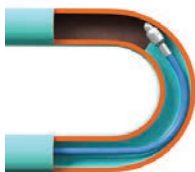
The Duct Cleaner has a 3/8-inch NPTF water inlet, and requires two 1/8-inch nozzles. It can be used with water temperatures up to 250 degrees F, with a pressure washer that produces a maximum pressure of 4,500 psi. According to Williams, minimum requirements enable it to be used with most any commercial pressure washer unit.

"You need a minimum of 3 gpm at 1,500 psi to make the spinner powerful enough for effective cleaning," he says. "As long as you nozzle it appropriately, it will work effectively."

At a maximum of 2,000 rpm, the unit offers complete cleaning coverage without additional hassle. "At times, it's tough for a plumber to get the pressure washer wand deep enough to where it needs to go," Williams says. "This solves that problem. It basically works like a surface cleaner turned on its side, saving unnecessary labor." **800/333-9274; [www.watercannon.com](http://www.watercannon.com).**

### StoneAge small-pipe cleaning nozzle

The Beetle BT25 small-pipe cleaning nozzle from StoneAge pairs with a Navigator, ProDrive or Boiler Tube Cleaner for clearing process piping, drainlines, U-tube bundles and other small-I.D. pipe and tubes with bends. Designed to clean conduit down to 5/8-inch I.D., the nozzle features stainless steel construction and liquid bearing design that requires no replacement of bearings, seals or lubricants. **866/795-1566; [www.stoneagetools.com](http://www.stoneagetools.com).**



### Triangle Tube stainless steel water heater



The Prestige Excellence water heater from Triangle Tube features an inner and outer stainless steel tank for corrosion resistance. The water heater is 95 percent energy-efficient with up to 5.5-1 turndown ratio and the ability to maintain 3 gpm of hot water. The ACVMax control system offers a mixing-valve function for dual temperature heating as well as fully programmable circulator control with three available outputs. Additional features include 60-second setup, intelligent troubleshooting and integrated cascade. **856/228-8881; [www.triangletube.com](http://www.triangletube.com).**

## Milwaukee Tool close-quarters tubing cutters

Close-quarters tubing cutters from Milwaukee Tool are available in 1/2-, 3/4- and 1-inch sizes. The cutters are able to cut through Type M, L and K copper tubing. Features include direction indicators, directional grip, chrome rollers for rust protection, weep holes at the bottom of the housing that allow water to drain from the tool, and hard carry case with additional storage for replacement wheels and reaming pen. **800/729-3878; [www.milwaukeetool.com](http://www.milwaukeetool.com).**



## Caleffi Hydronic Systems air separators

The 551 Series of DISCAL air separators from Caleffi Hydronic Systems are designed to continuously remove air from hydronic heating and cooling systems. The air separators have a maximum working pressure of 150 psi and working temperature range of 32 to 250 degrees F. Features include brass body, glass-reinforced nylon internal element and stainless steel float guide pin and linkage. **414/238-2360; [www.caleffi.com](http://www.caleffi.com).**

## GROHE shower water temperature control

The Rainshower SmartControl shower system from GROHE is designed to control and store desired shower settings with the push and turn of a button. TurboStat technology delivers water at the desired temperature within a fraction of a second and keeps it constant for the duration of the shower. The CoolTouch chassis prevents scalding and features a removable safety glass tray for easy installation and service. **800/444-7643; [www.groheamerica.com](http://www.groheamerica.com).**



## Mansfield Plumbing one-piece toilets

The one-piece Aegean toilet from Mansfield Plumbing features a molded base and tank for easier cleaning and installation, elongated front bowl and color-match Smart-Close seat. Model 705NS offers 1.6 gpf while the ADA model 708 delivers 1.28 gpf and has a 16 5/8-inch SmartHeight bowl. Both models include high-performance MagnaFlush technology, 2-inch glazed trapway, 3-inch flush valve and pilot-operated anti-siphon fill valve. Colors include white, biscuit and bone. **877/850-3060; [www.mansfieldplumbing.com](http://www.mansfieldplumbing.com).**

## COXREELS Brawny hose reel option

The Brawny hose reel option from COXREELS, available for most 100 Series reels, adds drum strength, minimizing potential damage under increased or pulsating pressure. The 100 Series reel can be mounted to the floor, wall, ceiling, bench or truck. Made of steel for strength and durability, it has a U-shaped frame with two-point axle support for stability during operation. **800/269-7335; [www.coxreels.com](http://www.coxreels.com).**



## Vayyar cellphone 3-D imaging scanner

The Walabot hand-held 3-D imaging device from Vayyar Imaging plugs into Android phones running 5.0 and above. Using radio frequency technology, the imaging device penetrates up to 4 inches in concrete and drywall, enabling the user to see through walls, objects and materials, including moving objects. Features include multiple sensing modes of raw data and pipe, adjustable sensitivity for optimal calibrations and easy snapshot taking for offline analysis. **[www.walabot.com](http://www.walabot.com).**



## Flomatic mechanical joint plug valve

Model 54-4MJ Flo-E-Centric plug valves with mechanical joint connections from Flomatic Corporation are designed in compliance with ANSI/AWWA C517-09. The round-port eccentric valves are available in 5 through 24 inches with standard gearbox and 2-inch operating nut for buried service. The valve body, bonnet and plug (NBR encapsulated) are made of ASTM A536 grade 65-45-12 ductile iron. The mechanical joint valve-end connection meets the requirements of ANSI/AWWA C111/A21.11 (rubber-gasket joints for ductile iron pressure pipe and ductile iron and gray iron fittings, valves, hydrants and other appurtenances). All fasteners and washers are stainless steel. Valves are also available with flanged connections. **800/833-2040; [www.flomatic.com](http://www.flomatic.com).**

## The Dirty Bird visible septic vent



The visible septic vent from The Dirty Bird is EPA compliant and is available in different colors and styles, including a bird bath, sundial, garden globe or potted plant. The vents fit 4- and 6-inch Air-Vac systems and wellheads. The vent is 32 inches high, 23 inches wide at the base and has a 12.25-inch footprint. Each vent is made of UV-stabilized low-density polyethylene. **866/968-9668; [www.thedirtybird.com](http://www.thedirtybird.com).**



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## General Pipe gas jets with puncture-proof tires

Jet Set water jets with puncture-proof foam-core tires from General Pipe Cleaners are standard on models JM-2900, JM-3000, JM-3055 and JM-3080. The gas-powered jets are designed for clearing grease, sand, sludge and other soft stoppages in 4- through 8-inch drainlines. 800/245-6200; [www.drainbrain.com](http://www.drainbrain.com). **P**



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## American Standard 3-D faucets win design award



▲ Product designers Gabriela Ravassa and Greg Reinecker from DXV by American Standard accept the Silver Award for their company's 3-D printed metal residential faucet collection.

The DXV collection of 3-D printed residential faucets by American Standard was a Silver Award recipient at the 36th annual International Design Excellence Awards, presented by the Industrial Designers Society of America. The Vibrato, Trope and Shadowbrook faucets were printed using a computer-guided beam that fuses powdered metal into the desired shape using high heat and pressure before being hand finished.

The 3-D printed residential faucets were among 1,700 projects from 30-plus countries that competed in IDEA 2016.

## Noritz offers online training for combination boiler

Noritz America is offering a free, two-part online training course for the CB residential combination boiler. Plumbing, heating and HVAC contractors can register at [www.training.noritz.com](http://www.training.noritz.com).

## SkyBitz names VP of sales

SkyBitz, a commercial telematics company, named Carolyn Rehling vice president of sales for its Local Fleets division. She joins the company as SkyBitz completes the integration of three major acquisitions under one flagship brand.

## Dwyer Group ranked among Inc. 5000

The Dwyer Group was named to *Inc. Magazine's* 5,000 fastest-growing companies in the nation for 2016. The list ranks private businesses according to percentage of revenue growth over a four-year period. Dwyer ranks 4,742 on the 2016 list. "This is wonderful recognition for our entire franchise family," says Mike Bidwell, president and CEO of Dwyer Group. "Our continued growth and success is a credit to our strong network of franchisees and a dedicated corporate team."

## Insight Vision names business development manager

Insight Vision named Jim Sell business development manager. He will be responsible for managing, assisting and maintaining relationships with Insight Vision customers.

## Asahi/America names business development manager

Asahi/America named Jon Alanis business development manager for industrial products in the western region. Based in Arizona, he will promote the company's industrial single- and double-wall piping products.



## PMI advocates restoration of underground water infrastructure

In the first step of a committed advocacy effort for the safety and sustainability of America's drinking water, Plumbing Manufacturers International (PMI) introduced a position statement and infographic advocating for the restoration of U.S. underground water infrastructure. The water crises in Flint, Michigan, and thousands of other American communities — coupled with concerns about waterborne pathogens such as *Legionella*, water main breaks and leaks, drought, and their collective impact on water infrastructure — led PMI to begin an advocacy effort focused on water infrastructure issues.

## TRIC Tools provides training in Israel

Gennady Belous of Z-Techno, distributor for TRIC Tools in Russia, traveled to Tel Aviv, Israel, to provide training on TRIC's M50 pipe bursting system for Guy Meiri and Sons. Meiri wanted to make sure his team was following the correct procedures to create a safe operating environment. Z-Techno has been a TRIC distributor since 2008.

## Trenchless industry veteran Sam Gardiner passes away

Longtime wastewater and trenchless rehabilitation industry fixture Sam Gardiner passed away in Peru, Illinois, on Oct. 14, 2016. Sam spent his career in the industry, challenging the status quo and offering a unique perspective. Always an innovator, he took great pride in teaching his tips and tricks to others, often paired with witty commentary. Sam crossed paths with many in the industry at the annual WWETT show, and the family plans to hold a celebration of his life during the upcoming show. To stay in contact for additional information or to share stories, contact Matthew Gardiner at [mgardiner@aroldcompanies.com](mailto:mgardiner@aroldcompanies.com).







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