

Plumber™



PRE-SHOW ISSUE
FEBRUARY 22-25
INDIANAPOLIS, IN

Making It **50 YEARS**

Ability to change with the market has provided Superior Plumbing the foundation to succeed in an evolving industry

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STREAMLINES OPERATIONS
FOR FLORIDA PLUMBER**

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▲ First Responders
**MISALIGNED PIPES LEAD
TO BACKED UP SEWER LINE**

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▼ A technician installs an X-Plus UV-C lamp in an air-handling unit. Applied in new systems, UV-C lamps prevent the buildup of organic material.



In the SHOP

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By Dan Jones



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Superior Plumbing technician Jim Crane installs medical gas piping at a dentist office near Wichita, Kansas.

Photography by Christopher Clark

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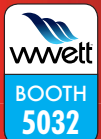
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Cory Dellenbach

Improving in the New Year

Look at simple ways to boost business and improve customer relations as 2017 begins



As we begin fresh with a new year, it's always a good time to sit down and evaluate your business. Determine where you want to go with it and how you can achieve the goals you have in 2017.

It's not always easy to just sit down and plan out the future for your business, but at some point you have to do it, otherwise your business will grow stale.

As you look ahead to 2017, consider what you can improve upon for your business as well as for your professional self. Do you need to strengthen your plumbing, marketing or accounting skills? Whatever it is, consider how improvements can help your business thrive in the new year. Here are a few ideas for you.

TAKING ADVANTAGE OF EDUCATIONAL OPPORTUNITIES

So, you've been a plumber for many years and think you know everything about the job you are handling. Chances are you do know quite a bit, but there is always room to learn more.

Make it a priority to participate in various learning opportunities in 2017. There are plenty of conferences and shows you can attend that have educational components. This issue previews a show coming up at the end of January — the AHR Expo in Las Vegas from Jan. 30 to Feb. 1.

While at the AHR Expo, attendees can take part in free seminars by associations and other industry groups, new product and technology presentations by exhibitors, or one of the paid programs with certification opportunities.

Not only will you find many educational opportunities there, but you can also head to the show floor and check

out the new and improved equipment available for your plumbing business.

WORKING ON YOUR SHOWROOM

Superior Plumbing, featured in this issue, has a 5,000-square-foot showroom where customers can browse and also talk to the professionals doing the installations.

It's not always easy to just sit down and plan out the future for your business, but at some point you have to do it, otherwise your business will grow stale.

If you've been looking for a way to expand your business, adding a showroom or expanding your current one might be the way to go. This can help your business in several ways — making you an expert for homeowners to turn to, providing better products than those at big-box stores, and creating more work for your plumbing crews as customers select fixtures they'll want in their home or business.

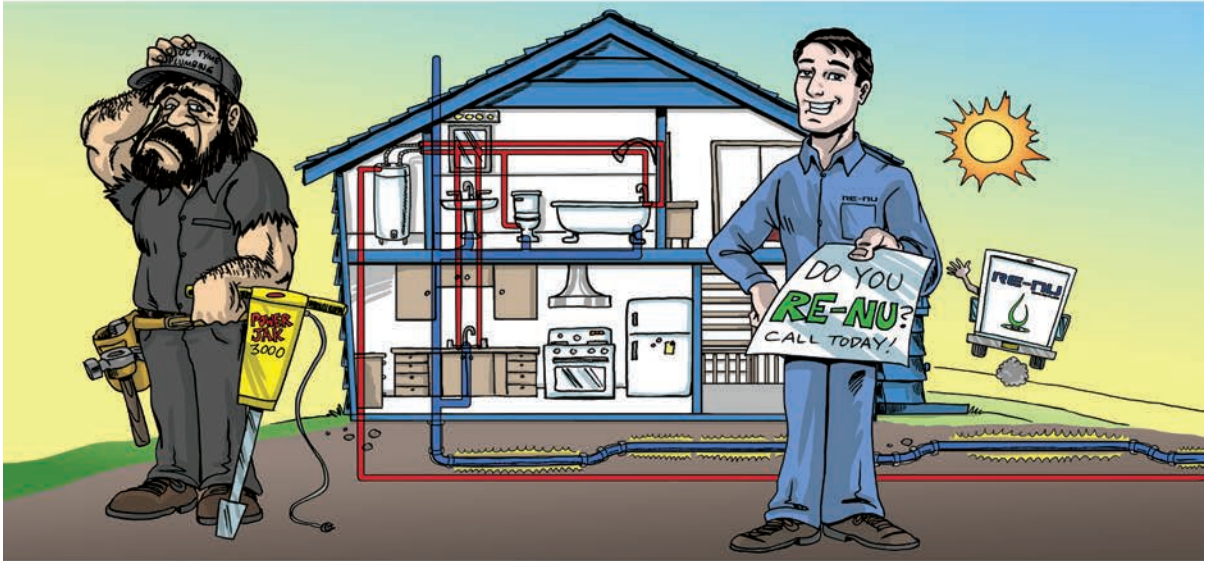
If you are looking at adding a showroom, take a page out of Superior Plumbing's handbook and pair up with a manufacturer. Early on, Superior paired up with Kohler to display a majority of their products and customers have come in looking specifically for those items.

Continued ▶

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BECOMING A FACE IN THE COMMUNITY

Another way to boost your business in 2017 is becoming a recognizable face in the community — join community groups and sponsor events.

Just imagine how many parents will see a sign reading “Sponsored by Your Plumbing Company” at a Little League tournament. Then, when they have a plumbing emergency, they’ll think of you because you were a face in the community.

You could talk to the local chamber of commerce about holding learning sessions and invite the community. You could teach them how to handle basic plumbing situations or give them tips on what to look for when looking for hot-water heaters, furnaces or something similar.

Become that plumber who isn’t afraid to help. Being out in the community will be a good thing for your business.

YOUR IDEAS

I’d like to hear your ideas for improving plumbing businesses. What has worked for your company and what hasn’t? Email me at editor@plumbermag.com or call me at 800/257-7222.

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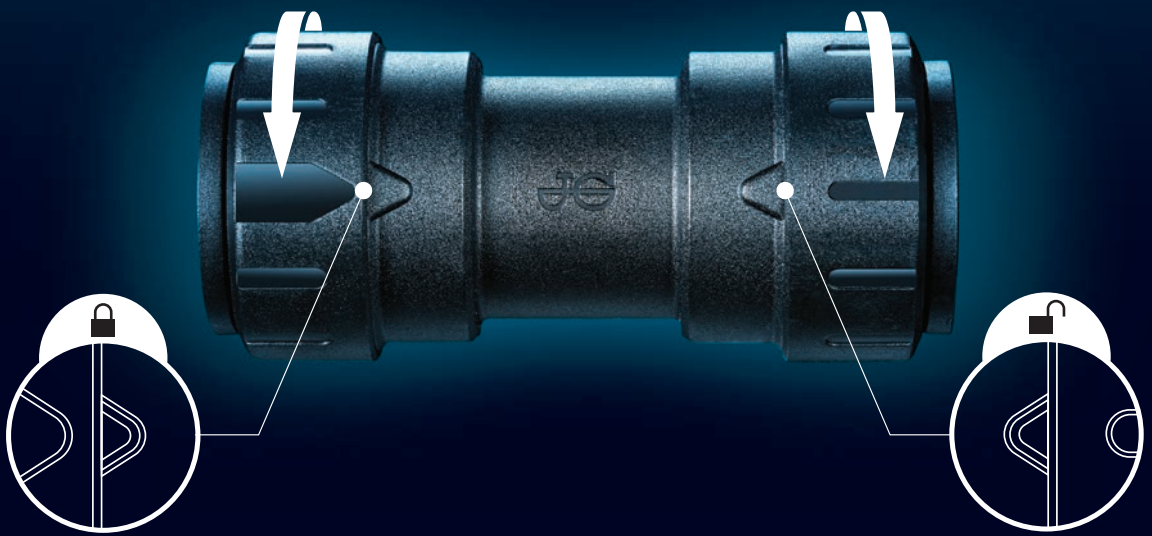
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OVERHEARD ONLINE

"New guys get hurt all the time, but the other big group is those who have 15 or 20 years of experience and have a momentary lapse in judgment ... You want to keep reinforcing to make sure it's in people's minds when they go to work."

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GROWTH TOOLS

Mr. Rooter Franchisee Benefits from Free Camera Inspections

In less than a decade, Brad and Amanda Sims, owners of Mr. Rooter of Mid-Michigan featured in the November cover story, have turned a one-truck operation into one serving an 11-county area with eight vans on the road daily. A key has been the free camera inspections they provide customers. This online story explains how the free service offering helps the Sims grow their business. ▶ plumbermag.com/featured



SINK ADD-ONS

Stay on the Forefront of Fixture Upgrades to Boost Profits

No matter the style or material of a new kitchen sink, many manufacturers offer lots of accessories and options. Forward-thinking plumbers should pay attention to this trend and be ready to offer customers upgrades and add-ons. As regular *Plumber* contributor Ed Del Grande puts it in this breakdown of those various upgrades and add-ons, it will better serve the customer and ultimately help you generate more profit. ▶ plumbermag.com/featured



DON'T LOSE TIME

Tips to Turn Wasted Hours into Productive Hours

When you greet a child by asking what he or she did during the school day, often the response is, "Nothing." Sometimes it's also easy to feel that way at the end of a workday. You can be busy all day, yet still feel like you accomplished "nothing." Those types of days can add up and months pass. However, there are some methods you can use to reverse the trend. ▶ plumbermag.com/featured



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ATTENDEE REGISTRATION OPENS NOV. 1ST, 2016

▼ The staff at Superior Plumbing includes (from left) co-owner Steve Conduff, apprentice Brian Conduff, co-owner Greg Lee, treasurer Pat Conduff, President Archie Conduff and accountant Teresa Lee.



Making It 50 YEARS

Ability to change with the market has provided Superior Plumbing the foundation to succeed in an evolving industry

By Marian Bond | Photography by Christopher Clark



Superior Plumbing, Wichita, Kansas

OWNERS	Archie Conduff, Steve Conduff, Greg Lee
ESTABLISHED	1966
EMPLOYEES	12
SERVICES	Plumbing, heating, air conditioning and medical gas piping
CUSTOMER BASE	Primarily residential, some commercial
WEBSITE	superiorplumbingict.com



▲ Apprentice Brian Conduff installs a sink in the company's showroom.

When Archie Conduff founded his plumbing company 50 years ago, he knew he wanted to focus on new home construction. In 1966, homes were springing up everywhere, and Archie saw an opportunity for Superior Plumbing.

Now, with more family involved in the company, market changes have forced the company to move into more of the service and repair areas of the industry. "I'm not sure how willing we were to change the direction of the company, but as the market changed we were loosely forced to go in the new direction," says Steve Conduff, Archie's son and vice president of the company based in Wichita, Kansas.

In the 1970s and 1980s, the company's business was composed of about 80 percent new home construction and 20 percent service

and repair. The 20 percent was largely from former new home construction clients. The owners had Superior Plumbing's contact information and called when they needed some service work.

"Now we are seeing our residential service and repair representing 80 percent of what we do and 20 percent in the direction of new commercial projects such as restaurants or convenience stores," says Steve.

A CHANGING COMPANY

Archie, 77, remains Superior Plumbing's president and CEO, but he has had to bring on additional help in the last 20 years. His son, Steve, came aboard in 1981 after graduating from high school. Archie's son-in-law, Greg Lee, was hired in the mid-1990s as project manager.

Steve worked for his dad as a youngster pushing a broom in the shop, but after completing high school he started his duties as an apprentice. He then advanced to a journeyman and now has his master plumber license and master mechanical contractor license. He was named vice president in the 1990s.

It was around the mid-2000s when Steve noticed the shift in the market and the need to go from new constructions to service and repair. “Most plumbing contractors realize there are almost two different types of operations,” he says. “It’s rare when you have a company doing both new construction and service and repair successfully.”

As Superior made the shift, Steve saw the need to add staffing, mainly on the inside office side of the business.

“We had to ramp up, we needed at least one person inside for every three service techs on the outside,” Steve says. “We had more scheduled calls and we needed communication with the customer. We had more ordering of materials and supplies, and then we had to process the invoices. It was a big switch for us.”

Back in the days of just doing new construction, the company would have one foreman on site with a half-dozen plumbers and one person at the office handling the billing for that job. Now, the company processes as many as 15 to 20 invoices a day.

“I’m not sure how willing we were to change the direction of the company, but as the market changed we were loosely forced to go in the new direction.”

Steve Conduff

“We devote a lot of time and resources on the service side now,” Steve says.

FULL SLATE OF SERVICES

Beyond the typical service and repair work the company takes on, Superior also offers services related to HVAC. Steve says the company fields more service calls for air-conditioning units than heaters because those units sit outdoors.

“We have a lot of cottonwood trees and that cottonwood will get sucked into the condenser coils and cause problems,” Steve says. “There are also more components running that can have a problem as opposed to a heating system.”

Many of the components to HVAC systems are available on each of the company’s eight service vans, but Superior Plumbing also has a supply house they turn to. “It is impossible to have every part for every need on one truck,” says Steve. “We try to maintain inventory and keep it fresh and organized and restocked. Computers have helped a lot. We’ve been automated since the mid-’90s.”



Co-owner Greg Lee works with a customer on selecting plumbing fixtures. The company’s showroom is over 5,000 square feet and features many manufacturer’s products, including Kohler.

► Brian Conduff loads his work van before heading to a job. The company uses a computerized inventory system to ensure the vans are fully stocked with items that are likely to be used on jobs.

Steve takes advantage of manufacturer training when it comes to HVAC systems and his employees.

“The HVAC manufacturers have helped by offering training for their equipment,” Steve says. “Their sales people are trained to sell and instruct how to operate the units.”



STOREFRONT SERVICE

For those homeowners who want to pick out their own fixtures, Superior Plumbing has offered a storefront showroom since the company opened. “In 1985, we remodeled our warehouse and expanded our offices and showroom to better serve our custom home builder clients,” Steve says. “We expanded our showroom again in the mid-’90s.”

The showroom now sits at 5,000 square feet. The company partners with Kohler in its Registered Showroom

program. The showroom also features products from Delta, Moen, GROHE, The Onyx Collection and Gerber, as well as heating and air conditioning units from Rheem and American Standard. The company sells water heaters from State Water Heaters (A. O. Smith), along with tankless water heaters from Noritz.

Along with the showroom is the company’s parts department, with over \$300,000 worth of inventory.

◀ A family atmosphere

For a company to last 50 years or more, it takes hard work and the ability to treat customers fairly and with integrity.

Steve Conduff, one of the three owners of Superior Plumbing, says his father, Archie, is a big part of why the Wichita, Kansas,-based company has survived 50 years. “He has basic honest business practices,” Steve says.

Archie founded the company in 1966, and it remains family-owned today with Steve, and Archie’s son-in-law, Greg Lee, coming on as owners. Steve’s 19-year-old son, Brian, has also joined the team as an apprentice. Steve’s mother, Pat, and sister, Teresa Lee, also work in the business.

“Making this a successful business comes down to open communication, fairness and meshing the different personalities,” Steve says. “It’s also about finding the right position for the right person. Uncle Bob might be a great plumber, but if you put him in the office that could be a big mistake. You have to identify their strengths, even in your own family.”

The company celebrated 50 years with a reception last fall. Steve expects a bright future ahead for Superior Plumbing.

“My dream for the company is to carry on my father’s business values and integrity,” Steve says. “Living up to my father’s reputation will be my greatest challenge.”



▶ Brian Conduff finishes installing a shower unit.

Steve admits that showroom sales aren't what they used to be when the company was just doing new home construction, but he does see DIY homeowners coming into the showroom to look at quality products or get expert advice. On occasion, the customer will also have Superior Plumbing perform the installation.

"We also have customers coming into the showroom and asking for help with a fixture purchased from a big-box store, but we have no way of fixing it because the products aren't the same that we sell," Steve says. "We have Kohler parts, but Kohler sells a different product to the big-box stores. We can provide for Kohler products we sell or have sold."

Steve says everyone helps with the showroom. Four of the main offices face the showroom and have glass doors to see when customers enter.

CONTINUING TO CHANGE

Steve expects continued changes for the industry and sees it heading toward operating like other construction trades — selling mainly labor and supplies. "In our shop, we have always tried being good merchandisers over the years, providing our customers with a full-service plumbing shop," Steve says. "Willingness to diversify has contributed to our success."

Steve says while the company will change with the

market, it won't change in other ways: "We have provided a positive workplace and fostered personal growth with our employees while providing our customers with value-driven service and quality products." **P**

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Ending the Paper Chase

Customized business-management software streamlines operations at Florida plumbing outfit *By Ken Wysocky*

Paperwork is the bane of many plumbing companies. From technicians who have to stop at an office to pick up work orders or drop off time cards to project managers who create estimates manually, to office staffers who process invoices, this blizzard of forms and documents creates a time suck that crimps productivity and prevents technicians from posting more billable hours.

Tired of the paper chase, GreenTeam Service Corp. in Fort Lauderdale, Florida, developed its own business-management software that has created a virtually paperless operation. The results? Higher levels of productivity, both in the office and out in the field. Rapid sales growth (from \$600,000 in gross revenue in 2010, when the system kicked into gear, to just shy of \$5 million in 2015), better profit margins, and happier technicians, says James Terry, president of the company, which he established in 2009.



Fort Lauderdale, FL

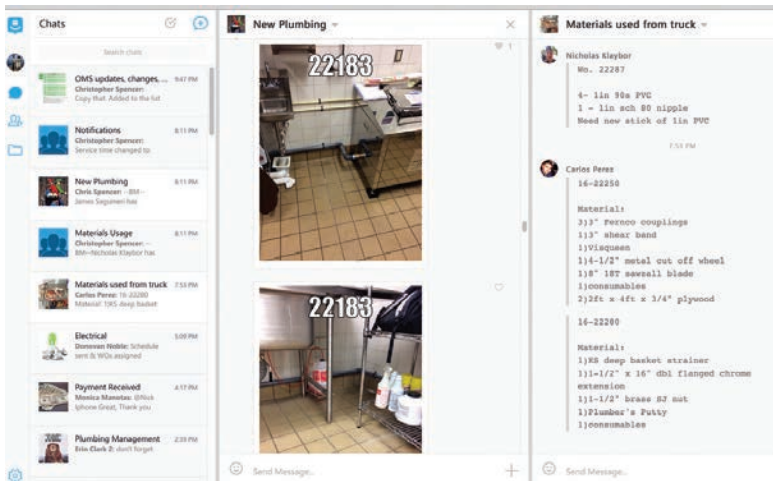
COMPANY	GreenTeam Service Corp.
LOCATION	Fort Lauderdale, Florida
OWNER	James Terry
TOOL	Business-management software, developed in-house
FEATURES	Streamlined dispatching, more efficient processing and/or development of time cards, work orders, project bids and invoices
COST	About \$50,000 over five years to develop software



Workorder 21793

Mark As Assigned	Add Picture
Mark En Route	
Mark On Site	
Materials	
Time & Notes	
Mark As Finished	
Collect COD	
RT First hour	: 150
RT Additional hour	: 125
OT First hour	: 125
OT Additional hour	: 125
DT First hour	: 125
DT Additional hour	: 125
Estimated Labor Amount: 712.5	

▲ Here's what the technicians at GreenTeam Service Corp. see on their cellphones when they pull up a work order. It's called the tech mobile dashboard. Technicians can review jobs in their queue by hitting the refresh button. When the office assigns a job to the tech, the work orders show up in their mobile list. The tech then opens a work order, views the scope and address, selects the hyperlink address, and is routed to the job. Once on site, the tech selects "on site," which in turn changes the status, and the office can see it in real time. Once the work is done, the technician selects his materials used, time spent on the job, and submits.



◀ This is the site where all the employees communicate with office staff in the program. Pictures and statuses are submitted by the technicians, and office staff gives a plan of action.

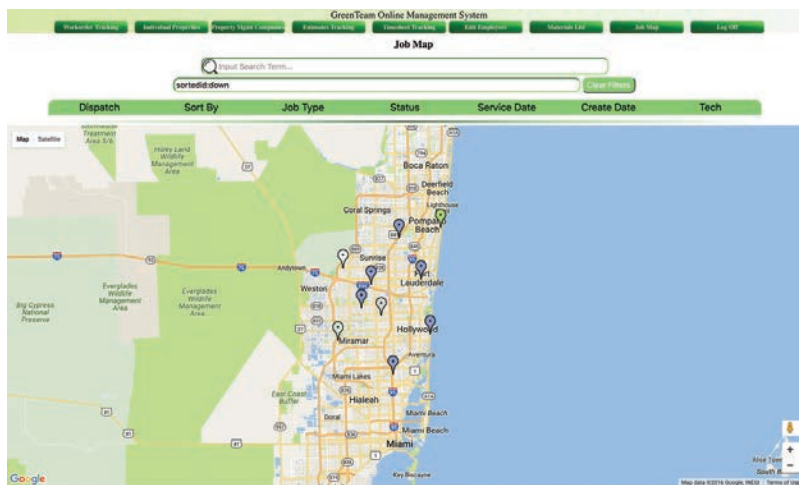
▶ The map gives the dispatch team a bird's-eye view of the job locations, which they then compare with vehicle locations to make routing easier. The pins on the map represent jobs, with colors corresponding to the status of each job.

"We built the software from the ground up," says Terry, whose company primarily does commercial plumbing and drain cleaning work throughout southern Florida. It employs 30 people and owns 13 service vehicles, either GMC 3500s or Transit Connect 2500s. "It started out as a work order dispatch system but over the years, I've added things to it and taken things away.

"You can buy contractor software that does the same things," he continues. "But it's built by engineers and it's overly complicated to use — it can take months to train people on it. Our software, on the other hand, does things in, say, three steps as opposed to 10 steps. And it also saves and stores all of our client data, too."

In the field, the system helps technicians work more efficiently by eliminating time-consuming phone calls with dispatchers and eliminating daily trips to the office to pick up work orders (technicians take their service vehicles home at night). By 7 a.m., the office has emailed individual work schedules to each technician's smartphone. Then they use a mobile web app to open work orders. The order contains the name of the customer, contact information and a description of the work required. It also automatically provides a GPS-generated map. If the technician has to call the customer, all they need to do is press on the phone number listed in the work order, Terry says.

"When a job is finished, the technician goes back into the work order and enters the time and materials, as well as a quick description of what they did," Terry explains. "After that, it's all live — someone in the office can open the work order, process it and invoice the client. The average



time savings? About 30 minutes per invoice, which at roughly 20 invoices a day comes out to 10 hours.

That, in turn, has allowed the company to more efficiently allocate staff, redirecting the duties of a full-time employee from drafting invoices all day to working on accounts receivable. "As a municipal- and commercial-service contractor, most of our clients are on net-30 or -60 day (payment cycle), so we have to stay on top of all those receivables," Terry notes. "Cash flow benefits the most from this process and essentially is what drove me to improve our processes when it comes to invoices."

The software also enables project managers to create job estimates faster. In essence, they pull up an estimate form on a computer in a web-based format, enter the labor hours and material required, then hit another button that emails the estimate to the customer. Once a customer receives the estimate, they can easily click on an "approve estimate" link that notifies the office that the bid was accepted.

“Overall, the system creates a lot of extra time for our technicians to work versus spending time at the office.”

James Terry


The system also performs a myriad of other efficiency-enhancing functions. For example, technicians used to fill out time cards manually, then waste time and fuel on trips to the office to drop them off for processing. But the management system automatically “builds” a weekly time card for employees. It also features a group-chat function that provides more efficient communication with technicians, who can also use it to post digital photos of unfamiliar repair situations. That allows other technicians and managers to weigh in with suggestions for solving the problem. All photos are saved in an online gallery, he says.

In addition, technicians can take a digital photo of a sink, for example, or some other item needed for a job. Then the project managers can access the photo at any time and

order the sink and any other required parts — even use the photo to prepare a bid. “That saves us a lot of time because no one ever has to drive back to the job to take another look at the problem,” Terry notes.

“Overall, the system creates a lot of extra time for our technicians to work versus spending time at the office,” he adds. “And our management team can see all the data being entered live, so there’s no need to call technicians with questions and interrupt their work.”

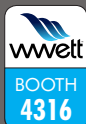
How does the software impact the company’s bottom line? That’s difficult to quantify, Terry says. But he notes that it plays an important role in “scaling up” his business to where it is today (it’s posting triple-digit growth annually). “I can tell you that if you compare things now to how it was when we were making 25 phone calls per technician per day, we’re communicating a lot more with customers instead of the technicians,” he says. “And if you’re doing that, you’re spending a lot more time playing offense instead of playing defense.

“In addition, we’re 100 percent paperless,” he adds. “We don’t print pictures, reports, work orders or time cards. Everything is basically processed through the internet. So there are savings from that, too.” 



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Dan Jones

Offer a Better Fix

Maximize HVAC system performance with UV-C lamps designed to kill and prevent the growth of microorganisms *By Dan Jones*

Ensuring HVAC systems maintain optimal performance is a constant challenge. Over time, they inevitably become less energy-efficient as mold, biofilm and other organic compounds accumulate on cooling coils, restricting airflow and shortening equipment life. Evidence shows that up to a 25 percent drop in capacity can occur within five years or less of startup.

As coil performance degrades, the ability to maintain temperature setpoints can be compromised, due to a decrease of heat transfer and restricted airflow brought about by increased coil pressure drop. In an attempt to clean coils, facility managers often resort to manual pressure washing or chemical treatments — these methods are costly, labor-intensive and, worst of all, temporary. The

coils will foul again and require further attention.

A much more efficient and permanent solution to coil fouling and the inefficiencies it brings is ultraviolet-C (UV-C) technology, which uses light in the UV-C spectrum to kill and prevent the growth of virtually all known microorganisms.

Installed downstream of the cooling coil in the direction of airflow, UV-C lamps can return HVAC systems to their original design performance standards, or as-built conditions, in as little as 90 days. Improving heat transfer efficiency and reducing coil pressure drop slashes energy use by 10 to 25 percent on average.

Applied in new systems, UV-C lamps prevent the buildup of organic material, thus maintaining the original heat transfer capacity, design pressure drop and the amount of energy needed to provide the necessary amount of cooling and ventilation.

UV-C lamps can return HVAC systems to their original design performance standards, or as-built conditions, in as little as 90 days.



◀ A technician installs an X-Plus UV-C lamp in an air-handling unit. Applied in new systems, UV-C lamps prevent the buildup of organic material.

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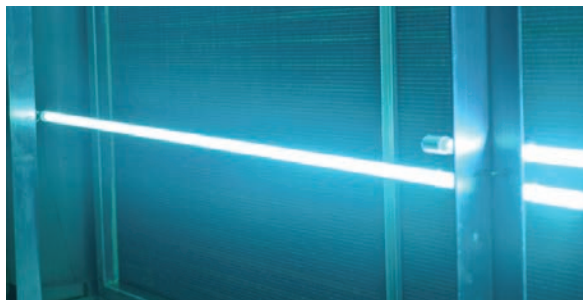
Installing UV-C lamps in HVAC systems can, therefore, achieve the following benefits:

Level 1 — HVAC system efficiency: Removing/preventing the buildup of organic material on the surfaces of cooling coils, drain pans and interior duct surfaces to improve airflow, return and maintain the heat transfer levels of cooling coils to as-built conditions and reduce maintenance.

Level 2 — Indoor air quality: UV-C improves airflow levels and eliminates organic material on surfaces, which helps improve indoor air quality by reducing airborne pathogens and odors. This improves occupant productivity, boosts comfort levels and reduces sick time.

Level 3 — Economic impact: The impact UV-C has on mechanical systems and occupants translates into substantial economic benefits. These savings include reductions in energy consumption cost and related carbon emissions, reductions in hot/cold complaints and maintenance actions associated with occupant comfort, reductions in system downtime and staff time needed for chemical or mechanical cleaning, and increased occupant satisfaction and productivity.

Costing as little as 8 cents per cfm, UV-C's expense is more than compensated for by the improved energy



▲ UV-C lamps can return HVAC systems to their original design performance standards, or as-built conditions.

efficiencies and reduced labor and maintenance it makes possible. For example, an installed price for adding UV-C technology to a 10,000 cfm system could be as low as \$800. The systems are also simple to install and maintain. In fact, product designs are emerging that allow installation of UV-C in air-handling units in under an hour.

Overall, UV-C improves efficiency and lowers operating expenses, and it's more effective than pressure washing and chemical treatments. As HVAC specialists, it's technology you should be familiar with, and it's a solution your customers should know about. ■

Dan Jones is the president of UV Resources, based in Santa Clarita, California. For more information, go to www.uvresources.com.



Judy Kneiszel

Give Your Tired Old Office a Facelift

Sprucing up the décor of company headquarters during the slow season can usher employees into spring with renewed energy

By Judy Kneiszel

Whether your plumbing operation employs five or 50, its home base — the office — says as much about your business as your trucks. Time and money spent renovating could be a valuable investment.

Like it or not, first impressions stick. An out-of-date facility gives visitors the impression a company doesn't care about appearances. If potential customers see your office is looking worn, they may assume you don't care how your business looks and jump to the conclusion that you don't pay attention to cleanliness and condition of your work either. This is not the image you want to project.

IS IT TIME TO REMODEL?

Updated office space can impress customers who visit occasionally as well as potential employees who are more likely to want to work for a company with clean, contemporary facilities. An office facelift can be a morale boost for longtime employees too.

After spending at least five days a week in the same office, month after month, year after year, you and your co-workers may take the space for granted, but it's possible your office isn't working as well as it could. Try to see it with fresh eyes and consider:

- Is there a lack of storage? Is every surface covered and every closet and cabinet cluttered?
- Is there a shortage of workspace? Are workers practically on top of each other? Is it easy to get around or could traffic flow use some improvement?
- Does the office give visitors a negative impression of your business? Is the décor dated? Is the furniture mismatched and worn? Does the color scheme scream 1990? Or are you screaming, "what color scheme?"
- Is your office too hot in summer, too cold in winter, or frequently too hot and too cold on the same day?

Does it sometimes feel damp?

- Is the lighting too dim or too harsh? Is there little natural light coming in?
- Are there places for employees to collaborate as well as have privacy when necessary?
- Are your office energy bills too high?
- Overall, could the people who work in your office space be more comfortable, happy and productive on the job?

Answering yes to any or all of these questions means your office could do with some sprucing up. Whether that means a thorough cleaning, some rearranging and a fresh coat of paint, or a complete remodel with all new furniture, fixtures and floor coverings depends on your needs and budget.

WHAT DOES YOUR OFFICE NEED?

Begin by looking at your office with a critical eye and then by getting input from all employees and customers. It's a waste of money to remodel without input from those who actually use the space daily, because you may miss opportunities to fix problems. There may be issues you're not even aware of.

Once you've gotten input, divide suggestions into "must have" items, "would be nice" items and "no way" items. This will help you with budgeting. For example, if an employee notes that loose carpet in an area of the office is becoming a tripping hazard, new flooring is a "must have." If an employee would like a \$5,000 massaging desk chair, scale back on this "no way" item with a compromise "would be nice" item.

This is also the optimum time to contact your utility and schedule an energy audit. Including energy-efficient lighting, efficient heating and cooling, increased insulation, ENERGY STAR appliances, and insulated windows in a remodel can have a return on investment that makes

An out-of-date facility gives visitors the impression a company doesn't care about appearances.

them wise investments. Also, a utility representative can tell you if there are rebates available when purchasing energy-efficient equipment.

Improving insulation and updating your heating and cooling systems may not be glamorous improvements, but the ability to maintain a consistent, comfortable temperature year-round will be greatly appreciated by employees, and could save on utility costs.

Once you know what you want in a remodel, it's time to find out what you can afford. Talk to several contractors and get their design and construction ideas, input and estimates.

MODERN OFFICE TRENDS

As you think about remodeling, you may want to consider some of the current trends in office design that experts say will help you get the most out of your space and your workers. While it might just seem like simple paint and lightbulbs to you, there are lots of people analyzing office design in order to determine which paint, lightbulbs and other design factors increase worker happiness and productivity.

Wide-open spaces. Knocking down walls will make your space look and feel larger. Gone are the days of floor-to-ceiling walls dividing desks. Individual cubicles have given way to corrals or clusters of desks. The private corner office for top brass that few workers ever enter has given way to managers being out amongst the people.

New types of seating. Office desk options have increased in recent years. Alternatives to the standard office desk and chair include high tables, standing desks, treadmill desks and adjustable-height desks. If you've been on a college campus lately, you've seen that students are provided a wide range of places to work both independently and collaboratively in student centers and college libraries. As those students enter the workforce, they may want to continue that style of working where they take their laptop from their traditional workstation to a sunny window one day, or to a comfy couch in a secluded corner the next.

Collaborative spaces. Having one large windowless conference room is out. Having multiple smaller meeting rooms is in. Community tables out in the open where a number of employees can sit and confer, or one or two have ample room to spread out and work collaboratively on a project are also becoming popular.

Include areas for privacy. Office space designers understand that everyone needs to make a private call or just be undisturbed with their own thoughts occasionally, so as popular as open-concept office spaces are, it's still necessary to have a few places with doors where employees can shut themselves off.

Go au natural. To help relieve stress in the workplace, designers go back to nature. Natural surfaces like wood and stone are popular, and the calming colors found in nature are frequently used in decorating.

Let there be light. Just as the colors of nature are soothing, so is looking at nature itself. Adding skylights, increasing window size, and getting rid of heavy, darkening window treatments lets the light shine in, which can cut down on utility costs too.

Writing on the wall. In collaborative seating areas, covering walls with chalkboard paint or dry-erase paint encourages impromptu brainstorming.


Hide the cords. Offices designed and built before technology took over the workplace often have tangles of cables and cords everywhere. Wireless technology as well as innovative solutions for hiding wires and cords will cut the cluttered look.

Make it easy to be green. Incorporate green technologies in your remodel, from energy-efficient lighting to low-flow toilets and water-efficient faucets. In the kitchen area, include bins for sorting recyclables.

Flexible spaces. Be sure your office design isn't so stringent that there's no room to add more employees or rearrange things if staffing decreases.

GETTING IT DONE

Remodeling is stressful. You probably don't have the luxury of shutting down for a couple weeks to do a big office renovation all at once. To decrease business interruption as much as possible, plan any remodel for your least busy time of the year. Encourage employees to take the vacation time they've got coming during the remodel or allow people to work at home if possible. Then work with your contractor to find ways to keep the business running smoothly through the renovation. Maybe this means moving everyone to half the facility while the other half is being worked on and then moving to the finished half while the project is completed.

Remodeling will be a bit of a hassle while the work is being done. But once it's completed you'll have a company headquarters you can be proud to invite potential clients to visit and a happier, more productive staff. 

Judy Kneiszel has operated her own small business for about 20 years and is familiar with the many rewards and challenges of ownership. Write to her with questions, comments or topic suggestions at thewordhouse@ameritech.net.

Rapid Response Halts Flood Damage

California plumber finds misaligned pipes due to ground settlement and guides family throughout the repair process *By Paul Nicolaus*

When Boris MacDonald, drain technician with Arrow Pipeline Repair, dba Pacific Drain & Plumbing, was dispatched to handle a late-night emergency call, he arrived at a residential setting to deal with a backed up sewer line and the related fallout.

And that fallout was already severe.

When water was used without an awareness of the existing blockage, it created significant flooding damage. An entire section of the house is positioned about a foot lower than the rest, and this lower section — including the master bedroom — was filled with sewage.

The family was in a panic, recalled field specialist Ryan Colgan, because this was happening late at night, they didn't understand why it was happening, and it was frightening to see just how quickly the problem impacted their home.

FAST FIX

"We were able to open up the drain, so we were able to fix the immediate problem and allow the water to drain down," Colgan says, noting that this quick solution using a Spartan 300 sewer machine helped prevent any additional damage. "They were really happy that we were able to get on it right away that night and not put them off."

In situations where remediation work is needed, it is the company's practice to leave customers with three approved vendor referrals. From there, the customer chose one and that company was called to begin the process of drying out the portion of the home impacted by the sewage spill and flooding damage.

The following day, Colgan arrived on site once again to ensure that the problem had been contained and that the remediation work was underway.



▲ Drain technician Boris MacDonald (left) and field specialist Ryan Colgan stand in the warehouse at Pacific Drain & Plumbing in Escondido, California.



COMPANY Arrow Pipeline Repair Inc., dba Pacific Drain & Plumbing

OWNERS Lane Post, Kevin Post and Casey Post

LOCATION Vista, California

SERVICE AREA San Diego County

FOUNDED 1975

SPECIALTY Plumbing, drain cleaning, sewer line repair and sewer line rehabilitation



▲ Pacific Drain & Plumbing President Kevin Post in the company shop.

DIGGING DEEPER

After helping restore a sense of normalcy for the customers, Colgan set out to identify the source of the problem as well. Using a RIDGID sewer camera with a CS10 color monitor, he searched for possible causes at the root of the emergency call.

“With my sewer camera I was able to identify in the front yard a severe misalignment in the sewer pipe,” he says. The issue was more than likely caused by natural settling, which is common where the plumbing changes from plastic to metal. Plumbing code dictates the use of rubber couplings in these scenarios, he explained, but it doesn’t take much to offset.

“With an offset, we can’t use any lining or any of the newer technologies,” Colgan says. “We just have to dig it up and repair it.” Following his inspection, he put together a proposal for the repair work that recommended digging down about five feet, cutting out a 3-foot section of pipe, and rebuilding it from there.

When handling this type of work, he noted the care that the company and its people put into securing repairs properly in order to prevent any future misalignments. “We usually put a rock base and some concrete along the repair section,” he says, and the compaction helps fend off future sags in the land.

It is important to hire the right company to handle emergency plumbing requests effectively, explains Kevin Post, president. And from his perspective, the ability to offer all forms of sewer line repair and rehabilitation — pipe lining, pipe bursting and the traditional dig and repair — is an advantage when it comes to providing a 24/7, one-stop shop for customers dealing with urgent issues. ■

“They were really happy that we were able to get on it right away that night and not put them off.”
Ryan Colgan



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Hybrid Grinding

Grinder from Ashland Pump combines two cutting technologies *By Craig Mandli*

The wipes problem has pump manufacturers playing catch-up. Most grinder pumps on the market have radial cutters, which grind waste into a fine slurry. Those are susceptible to clogging, though. Axial cutters, on the other hand, can chop refuse into pieces small enough to pass through a small-diameter discharge. Those axial cutters, however, still leave solids in the waste stream that can clog filters and downstream piping. Ashland Pump attempts to solve both problems with the AGP-HC200 Grinder Pump, which the company featured at the 2016 Water & Wastewater Equipment, Treatment & Transport Show.

The AGP-HC200 includes “double-edged sword” grinding technology, according to Jason Davis, Ashland Pumps director of engineering. Its cutter includes both radial and axial cutters that the company claims are designed to handle the “flushable” items that aren’t always so flushable.

“Most of the grinder pumps out there are radial, but with the new waste stream, you need the scissor-cutting action that axial cutters provide, especially for wipes,” says Davis. “We designed this pump to provide the best of what you can expect from radial and axial systems.”

The hybrid cutting system chops and cuts fibrous material, while turning soft solids into slurry. Not only are downstream solids minimized, preventing clogging, the radial cutters continue to make slurry that can be filtered through most septic and lift station filtration systems. The cutter system has serrations that grab fibers while maintaining strength and holding an edge, while a slinger system prevents the wrapping of shop rags and other fibrous material that can lead to clogging.

“We’ve been doing some pretty extensive testing on this unit in the field over the last year, and it’s passed all our tests with flying colors,” says Davis. “One issue you can see with axial pumps is clogging when the blades get dull. The radial portion of this pump helps stop that clogging, as the blades don’t dull as easily.”

The pump includes an ergonomic handle/lifting bail, quick-connect power and control cords, a choice of internal or external start components, Viton O-rings, an energy-efficient motor, a double-row angular-contact lower bearing, and the choice of either vertical or horizontal discharge. It’s a unit that Davis feels is a good fit across a variety of applications.



▲ Jason Davis, left, director of engineering for Ashland Pump, points out some of the features of the new AGP-HC200 Grinder Pump, while holding a model of the pump’s hybrid axial/radial cutting system. The system is designed to chop fibrous materials into pieces small enough to pass through a small-diameter discharge, while also transforming soft solids into slurry. (Photo by Craig Mandli)

“We’re getting great results from our testing in the field. It’s an innovation that we’re feeling very positive about.”


Jason Davis

“It’s certainly a solid fit for residential and light commercial settings, and can be used with septic systems or low-pressure sewer discharge,” he says. “It’s also a technology that is scalable up to wastewater treatment plant units. The wipes issue is certainly one that we see across multiple areas, and this technology is our answer for that.”

While the AGP-HC200 was officially rolled out at the WWETT Show, Davis says Ashland Pump has had several units being beta tested in the field over the last year. The company also bounced the new technology idea off many longtime customers. The feedback was positive.

“Many of our customers came to the show this year just to see and learn about this pump,” says Davis. “I’ve spoken with many people who are pretty excited to give it a try. We’re getting great results from our testing in the field. It’s an innovation that we’re feeling very positive about.”

Ashland Pump is a longtime exhibitor at the WWETT Show, and Davis says the company makes a point of rolling out its new technology annually in Indianapolis. He says that while the AGP-HC200 wasn’t quite ready for release at show time, the goal was to have it available to the market by early summer at the latest.

“I feel that this technology will revolutionize the grinder pump market,” says Davis. 855/281-6830; www.ashlandpump.com. 




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Plumber

A Strong Family Business

Well-drilling company has stayed steady over 58 years, fighting off economy woes and drought *By Marian Bond*

Being a well driller in a state where there has been a drought for several years can be a tough task. While many well drillers throughout Nevada have shut their doors because of the economy woes and the drought, the owners of W.M. Blain Well Drill & Pump in Carson City, Nevada, have been going strong.

Founded in 1958 by William and Wanda Blain, the company is still at work today under the ownership of Wanda's son, Tom Benedict, and his wife, Susan.

"After working on and off here when I was younger and trying not to be involved with the company that my mom and stepfather owned, I finally came back in 1995," says Tom.

The company now serves most of Nevada and California.

Q: What do you see happening in the business now?

A: We are incredibly busy. We are booked up for many weeks in advance for drilling. It is a very good time right now, but when the economy was down because of the downturn in the stock market, business was slow. There was no new construction going on and it was a struggle. We did a lot of service work like cleaning out and pump work. We serviced a lot of existing wells.

Q: Who are your customers?

A: Primarily residential. The majority are here in Nevada and then some in California. New construction is booming right now, but we know that could be short-term because it goes in cycles. You get real busy and things catch up and slow way down. Our service work is very consistent. A lot of older wells are being replaced and some are being deepened now because of the drought our state has had. A large part of our business is drilling and there are only a couple of drilling companies left here.

Q: Do you recommend water testing?

A: I leave that up to the customer. On a new well people like to see what they have. With a new well it takes months to settle in. Our state does not have water requirements for domestic use when it comes to quality. California tests every well for water quality, but in Nevada we do not do that, it's all up to the customer. However, Nevada is much stricter than California as far as drilling and the sanitary seals and water rights. Some of the other companies in our area do more well testing than we do, but that is because we are so busy with other things.

Q: What kind of licensing is required in Nevada?

A: We have to do a minimum of eight hours continuing education every year. It is a state requirement to renew a driller's license. You have to also be a Nevada State Contractor to run the business. My licensed drillers renew every year. I don't care how many years you have done this, you will always learn something new.

Q: What about the Nevada Legislature's Subcommittee to Study Water and a bill coming up in 2017 regarding water wells?

A: I was getting lots of calls and emails about that in August. I called the State Division of Water Resources and it was explained that in two areas of southern Nevada they had some concerns regarding cutting back on water usage. They were trying to come up with a plan where they would have control over domestic wells. They don't have any control right now over domestic water. If they were to pass a



▲ Tom Benedict

rule like this it would be statewide, and that is what got people upset.

Q: What are the conditions in water that you see?

A: As to quality, generally water in Nevada is totally potable. There are some levels of arsenic, which is a concern in some areas. We see iron, hard water and manganese in the water here. When we do drilling we see all different kinds of conditions from hard rock to clays, sands and volcanic rock. We have just about every variety you can think of.

Q: Are there special tools that are essential?

A: You need a well rig and a pump setter. We work with a lot of pump manufacturers, both centrifugal and submersible pumps. We buy from Goulds, Grundfos, Franklin, to name a few.

Q: What are some typical problems with wells?

A: Electrical problems with the pumps or something causing the pump not to work. Most are fixable problems. We see a lot of wells with depleted resources. We find wells that need to be deepened and a lot need to be replaced. That is ongoing and makes for a busy time.

Q: Is your company open 24/7 to handle emergencies?

A: We are not. With five employees we don't have a crew for that. We basically are six days a week. If I get a call on our off hours, I will tell the caller when we can get to them or I will try to help over the phone if I can talk them through a scenario where they can fix it themselves. I will also refer them to someone else. The well contractors here all work together; we're a pretty tight bunch.

Q: Do you do anything special to promote the company?

A: We have been here since 1958. We are established and the name has been here for a long time. We have a good reputation and I have a great crew. My well driller has been with me for over 15 years. We stay busy all the time.

Q: Your mother was a well driller also, what was her experience in the industry?

A: My mother was a bookkeeper until she married Bill Blain. She was not about to let her husband be the only well driller in the family. She applied for her own license in 1978. Even a disappointing rejection from the Contractor's Board did not stop her. Although the board did not feel confident in her skills, Nevada Gov. Mike O'Callaghan did, and made

The well contractors here all work together; we're a pretty tight bunch.

her the first licensed woman well driller in the state. She loved being a woman in a man's world, and loved the challenges, although she never spent a day out there drilling a well. She ran the company.

Q: What do you see for the future of the industry?

A: I think we will see steady growth. I don't think the boom we are in now is going to last as far as new construction goes. It could stop next year.

Q: Do you expect to see many new homes being built where there is not city water?

A: I do, but city water is expanding. They are constantly expanding municipal water systems. That trend will continue.



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I.S.T. creating value

Well Water Service/Water Conditioning

By Craig Mandli

Controls

Franklin Electric SubDrive 50 Connect

The 5 hp SubDrive 50 Connect variable-frequency drive from Franklin Electric provides constant water pressure throughout the chosen location. It will run a 3 hp, single-phase motor, and includes a standard Enhanced Features software package with an analog pressure transducer with user-selectable setpoint, moisture (or wet floor) sensor, and system run and fault relays. Using the FE Connect Wi-Fi app, contractors can benefit from the advantages of drawdown, an auxiliary control input, and the built-in duplex alternator. The drive platform optimizes system performance, delivers more precise pressure and system diagnostics onscreen, simplifies lead-lag installation, and provides contractors peace of mind. **260/824-2900; www.franklinwater.com.**



Goulds Water Technology, a Xylem brand, Aquavar SOLO 2

The Aquavar SOLO 2 from Goulds Water Technology, a Xylem brand, is a constant-pressure controller that automatically monitors household water demand, delivering constant pressure when multiple water sources are in use. The controller is compatible with any manufacturer's motor and can be retrofit to all conventional systems. It is designed with a user-friendly information center that includes a fade-resistant LED display showing system pressure, speed and current, as well as an error log. It includes a dual setpoint and a programmable output relay that can control another device such as a pump or send a status signal to a monitoring device. An integrated output motor filter protects the motor from voltage spikes and limits electrical interference with devices like telephones, televisions and garage door openers. It contains a soft-start motor that requires less energy at startup and extends the pump and motor life. **866/325-4210; www.goulds.com.**

See Water WS Series

WS Series simplex control panels from See Water are ideal for sewage pump chambers, grinder pumps, sump pump basins and lift stations. The system has a clear-front NEMA-4X heavy-duty polycarbonate enclosure, an IEC contactor, a motor-protective switch, individual float status indicator, and dry contacts for high liquid, pump run and pump fault. They are UL listed. **888/733-9283; www.seewaterinc.com.**



SJE-Rhombus VARIOspeed

VARIOspeed constant-pressure controls from SJE-Rhombus offer an economical, pre-engineered solution for variable-speed pumping applications, including submersible deep well, booster and irrigation pumps. They have a factory-programmed variable-frequency drive in a NEMA 1 or NEMA 3R enclosure with a user-friendly keypad and backlit display for easy installation and setup. Both styles are available in 1.5 through 20 hp, and include the LCD display. They automatically control the pump speed to maintain a constant discharge pressure. The visualization and configuration of the system is simplified using pump terminology to allow non-VFD experts a greater comfort level with the drive. The system offers PID control, adjustable electronic overload, auto-start on pressure drop (adjustable) and auto-stop on low Hz (no-flow/sleep mode). They include a 0 to 200 psi pressure transducer, and are UL/cUL listed. **888/342-5753; www.sjrhombus.com.**



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Lighting Up Vegas

AHR Expo set to highlight the newest products and educational opportunities in the industry *By Cory Dellenbach*

More than 2,000 exhibiting companies showing off the newest products in the HVAC and plumbing industry will greet attendees of the 2017 International Air Conditioning, Heating, Refrigerating Exposition (AHR Expo) in late January in Las Vegas.

The show, running from Monday, Jan. 30, to Wednesday, Feb. 1, at the Las Vegas Convention Center, is expected to draw crowds of 60,000 industry professionals from every state and 150 countries worldwide.

Last year, 60,374 people attended the AHR Expo in Orlando, Florida, with 2,063 companies exhibiting, covering 469,540 square feet.

SPECIAL FLOOR SECTIONS

There are three product sections within the show floor: the Building Automation and Control Showcase, the Software Center, and the Indoor Air Quality Association Pavilion. The sections allow attendees with specific interests to focus their time in that area with a range of similar products.

The Building Automation and Control Showcase is designated for energy and facility management systems, climate controls, monitoring systems, wireless and cloud-based systems, and other networked building systems. The Software Center is for products such as GPS tracking systems, system design, remote-based and cloud-based software, and other HVAC-related software.

Within the Indoor Air Quality Association Pavilion, attendees will find products such as air-quality monitors, exhaust fans, environmental testing systems and dehumidifiers.

Exhibitors will display more than 760 different types of products at this year's show.

Exhibitors will be displaying more than 760 different types of products at this year's show.

EDUCATIONAL OPPORTUNITIES

If you're looking to learn more about a process or product, this is also the show for you. There are dozens of free seminars or "for credit" technical courses from ASHRAE. Attendees can also sit in on presentations of new products, or take exams designed by industry certification providers.


More than 50 free seminars on a range of topics will keep attendees busy. The seminars are conducted by experts representing top industry organizations and can last from one to two hours.

There are also over 80 new product and technology presentations scheduled, with each lasting about 20 minutes. Attendees will get an overview of the exhibitor's new product and then see it in action on the exhibit floor.

For more on the educational sessions, including the paid certificate programs, go to www.ahrexpo.com/education-overview.

REGISTRATION CONTINUES

Advanced online registration for the show is complimentary. On-site registration is \$30 per badge.

For more information on the show, go to www.ahrexpo.com. 



2017 AHREXPO Las Vegas

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Professionals will have the opportunity to see the top wastewater tools and equipment in the industry on the WWETT 2017 show floor

By Craig Mandli

The Water & Wastewater Equipment, Treatment & Transport Show will fill the Indiana Convention Center Feb. 22 to 25 with the best products and services the industry has to offer. To make sure you don't miss out on any of the new, innovative industry offerings in Indianapolis, be sure to check out the interactive floor plan on the WWETT website (www.wwettshow.com). All attendees are sure to bring home a new idea or product to assist them in the coming year.

Here's a look at some of the most exciting products and services that will be on the WWETT Show floor:

Amazing Machinery Viztrac Max

The **Viztrac Max** camera from **Amazing Machinery** has the same durability and super-slick push cable as previous Viztrac cameras, with a 22 percent larger 9-inch LCD color display, and a rechargeable lithium-ion battery pack capable of up to eight hours of field use before recharge. The unit includes an AC/DC adapter for direct power supply, a 512 Hz sonde transmitter, and a DVR recorder that records to standard SD cards. A 4GB card is included. **800/504-7435; www.amazingmachinery.com; Booth #3022.**



Anua PuraSys SBR

The **PuraSys** sequencing batch reactor from **Anua** batches treatment in cycles, including aerobic and anaerobic steps, to clean water and reduce total nitrogen. It allows nitrification and denitrification to occur in the same chamber, saving space. The smart controls adjust aeration for varying flows, eliminating excessive air that can lead to system failure through sludge bulking. Flexible tank configurations include the retrofit of existing tanks. The system can reduce BOD5 and TSS to less than 10 mg/L and provide greater than 50 percent total nitrogen reduction, according to the manufacturer. It can be scaled up for commercial applications. **336/547-9338; www.anuainternational.com; Booth #4200.**



Aries Anaconda UV Curing System

The **Anaconda UV Curing System** from **Aries Industries** provides consistent lining installation. CCTV inspection before and during the cure allows any sags and wrinkles in the lining to be corrected. UV curing requires less equipment, less setup and smaller crews that reduce service disruptions. No hot-water usage eliminates the steam truck for less fuel consumption. Lingering odor and downstream contamination are prevented. **800/234-7205; www.ariesindustries.com; Booth #6201.**



Bio-Microbics Recover

The **Recover** greywater treatment and recycling system from **Bio-Microbics** helps reduce water usage by up to 30 percent. It is listed with IAPMO (International Association of Plumbing and Mechanical Officials) Research & Testing Inc. – Reclaimed Water Conservation System for Flushing Toilets (Standards CSA B128.1-2006; CSA B128.2-2006). The built-in safety features not only protect public health, but go beyond the product standard requirements. The smart controller further improves the system efficiency and detects toilet leaks, potentially saving another 13 percent. It includes auto away mode, a self-cleaning filter procedure, auto toilet size detection, and maintenance reminders. **800/753-3278; www.biomicrobics.com; Booth #5231.**



Brenlin Company Seal-r

Seal-r septic tank lids from **Brenlin Company** create a strong seal between the septic tank and the riser, eliminating water infiltration between the riser and the tank. They are made of durable materials, range from 12 to 42 inches, and can be personalized with a service provider's company information. The 42-inch lid meets growing demand for bigger risers to accommodate new technology equipment. **888/606-1998; www.seal-r.com; Booth #5112.**





Cam Spray Model TT4025HZ-350

The **Model TT4025HZ-350** sewer jet from **Cam Spray** is rated to 25 gpm at 4,000 psi with a Hatz H50 liquid-cooled, turbocharged diesel engine producing 74 hp. It is EPA Tier 4 Final compliant and comes with a wireless remote to control engine functions and water flow. It has a hydraulic-powered swivel reel, over-center clutch, 500 feet of 5/8-inch hose and a 350-gallon tank. The remote control/valve package was engineered from the ground up. **800/648-5011; www.camspray.com; Booth #2501.**

Chempace bioForce

The **bioForce** biological line from **Chempace** can be used on septic, grease trap and municipal lines. From liquids to private labeled packets, solutions are biodegradable and environmentally friendly. New bioForce Maxx drainfield treatment is now available. **800/423-5350; www.chempace.com; Booth #3012.**



Ecological Laboratories PRO-PUMP/HC

PRO-PUMP/HC liquid live bacteria from **Ecological Laboratories** is a blend of over 30 microorganisms selected for broad-spectrum application in industrial and wastewater treatment. Its performance results in the rapid breakdown and removal of fats, oils and greases that build up in septic tanks and absorption fields. It is a consortium of vegetative nonspore-forming bacteria that exhibit performance in low-oxygen facultative anaerobic environments. Regular treatment eliminates surface solids, bottom solids and odor, satisfying customers and making pumpouts more cost effective. **800/326-7867; www.propump.com; Booth #5261.**



Eljen Corporation GSF

The **GSF (Geotextile Sand Filter)** from **Eljen Corporation** is a non-mechanical advanced wastewater treatment and dispersal technology. It provides treatment and dispersal in the same footprint, while keeping installations easy and maintenance minimal. It is NSF 40 certified. **800/444-1359; www.eljen.com; Booth #5211.**



Envirosight Quickview airHD

The **Quickview airHD** camera from **Envirosight** captures HD video from sewers, and transmits it wirelessly to a touch-screen tablet for live viewing. Its motorized tilt, in-manhole centering capability and hands-free stabilization enable easy setup, as both the operator's hands remain free to operate the tablet. It has an HD zoom camera with 30X optical zoom (plus 12X digital) tuned to deliver maximum detail from within pipes. Its Quad-Haloptic light engine combines four offset LED/reflector pairs to surround the camera with powerful, focused illumination aligned for maximum range and optimum viewing at any distance. **866/936-8476; www.envirosight.com; Booth #6024.**



Crust Busters

The **Crust Buster** hand-held power agitator from **Crust Busters** has an 80-inch shaft and two- or three-blade propeller that mixes a 1,000-gallon septic tank in five minutes. Options include 2-, 4-, 6- and 9-foot extensions, and a short three-blade shaft that adapts to the two-blade unit. **763/878-2296; www.crustbusters.com; Booth #5005.**

Duracable DM140

The **Duracable DM140** is ideal for smaller jobs. With a 1/4 hp motor running at 200 rpm, it can handle smaller jobs easily. It is easy on the user, too, as there is no heavy machine to carry from the truck to the job. It can be operated horizontally or vertically, and uses 75 feet of 3/8-inch cable standard or, with the optional flat drum, 75 feet of 1/4-inch cable. The standard package comes with a revolving arm and a 14-inch enclosed polyethylene reel. Both reel options are lightweight and keep splatter contained. **877/244-0556; www.duracable.com; Booth #1560.**



Enz USA Cutting Ball

The water-driven **Cutting Ball** nozzle from **Enz USA** moves easily around curves in 4- to 6-inch PE, steel or concrete pipes while safely removing roots and mineral deposits, resulting in no damage to the pipe. It works without impact, but has the ability to switch to a vibrating nozzle. It has a hard metal front blade for pipes that are more than 50 percent clogged. The side blades are self-sharpening and maintain their sharpness over their entire service life. It operates with controlled rotation speed and is capable of running on recycled water. It is leakage free. 877/369-8721; www.enzusainc.com; **Booth #1062, 1068.**



Forbest Products 1-Inch Mini Self-Leveling Color Camera Head

The high-resolution **1-Inch Mini Self-Leveling Color Camera Head** from **Forbest Products** is available with a built-in 512 Hz sonde transmitter CHDT-C26, which comes with durable sapphire glass, stainless steel spring kit and 15 LED lights. The CHDT-C26 can work with Forbest portable 65-, 100- or 130-foot fiberglass cable and reel. With an adapter, it can also be used on 150-, 220-, 300- or 400-foot cable and reel. With the self-leveling function, users can always have upright pictures. 877/369-1199; www.forbestusa.net; **Booth #2271.**



General Pipe Cleaners JM-1000 Mini-Jet

The compact, lightweight **JM-1000 Mini-Jet** from **General Pipe Cleaners** offers an easy way to clear small lines, clogged sinks and laundry drains from 1 1/2 to 3 inches with 1,500 psi of cleaning power. The powerful little jetter hits the stoppage with a high-pressure, wall-to-wall water spray and flushes it away. Pulse helps slide the hose around tight bends and farther down lines. It resists job site abuse, too, as the pump and motor assembly are safely contained in a rugged diamond plate metal case. To protect the unit from damage, a sensor automatically stops the motor if water stops flowing through the pump. 800/245-6200; www.drainbrain.com; **Booth #4125.**



Hammelmann Corp. Pipemaster

The **Hammelmann Corp. Pipemaster** is a manually operated, high-pressure hose rotating system used to remove both soft and hard deposits from the insides of pipes and pipelines, including those with bends and vertical sections. A high-pressure supply hose line is fixed between the pump and the rotary joint on the hose rotating unit. A second hose is connected to the rotary joint and runs via the deployment unit into a protective hose to the positioning device at the work piece. The rotation of the second high-pressure hose around its longitudinal axis is effected by a chain drive from a pneumatic motor to the rotary joint. The rotation speed can be smoothly adjusted with throttle check valves. 800/783-4935; www.hammelmann.com; **Booth #3107.**

Hathorn Corporation Portable

The **Portable** camera system from **Hathorn Corporation** has a small, compact frame, is lightweight and easy to use. It includes a 7.4-inch daylight-readable monitor, Wi-Fi video transfer to any mobile device, 125 feet of pushrod, a text writer and footage counter, 512 Hz sonde transmitter, rechargeable battery pack, and adjustable lighting. Options include self-leveling camera heads, USB recording and adjustable sun shield/monitor cover. 905/604-7040; www.hathorncorp.com; **Booth #5053.**



I.S.T. Services Elastotec Coating System

Create a seamless and durable new surface inside any pipe material without damaging existing structures with the **Elastotec Coating System** from **I.S.T. Services**. It can increase the life span of pipes with high resistance to pressure and chemicals. The Elastotec machine is easy to use and transport, and repairs 1 1/2- to 8-inch pipes with no wasted material or reinstatements. The spray-and-brush dual-applications system applies an elastoflake coating material made up of a two-component polyurethane resin. It has a 90-second curing time, is ultra-durable and chemically resistant. High elasticity avoids the cracks and tension that can arise from thermal expansion or other mechanical stress. 858/997-0004; www.ist-web.com; **Booth #6038.**



Infiltrator Water Technologies IM-Series

IM-Series tanks for septic, pump, and potable water applications from **Infiltrator Water Technologies** are

lightweight, durable, watertight and engineered for performance. The two-piece design is available in a variety of sizes including the IM-540 pump tank, the large-capacity IM-1530 septic tank, and the IM-1760C potable water tank. This enables a wide range of installation options, including shallow, multiple and serial tank configurations. All IM-Series tanks have integral heavy-duty lids that interconnect with the TW Riser System. They have structurally reinforced access ports, ribbing and fiberglass support posts to provide additional strength. 800/221-4436; www.infiltratorwater.com; **Booth #5258.**

Jetstream RotoMag X22 2-D nozzle

In production for several years, the **Jetstream RotoMag X22 2-D** self-powered rotary nozzle for vessel cleaning and pipe cleaning applications has a stainless steel body and rotor, and a body shroud to protect the nozzle while cleaning. It is available as a single tool rated up to 22,000 psi. A magnetic braking system controls rotational speed for minimal wear and maximum impact without streaking. Spinning on a film of high-pressure water, it has no ball bearings to replace, making field service simple. 800/231-8192; www.waterblast.com; **Booth #5050.**



Lenzyme/Trap-Cleer Field and Line Cleaner

Field and Line Cleaner from **Lenzyme/Trap-Cleer** effectively helps restore clay fields. It can be used in jetting machines to clean lines and leave a biocoat in the line. It works on all septic systems, going to work immediately. The cleaning agents and strains of bacteria cleanse deeply into the field, helping to cause a disruption with crystalizing biomat or grease buildup. 800/223-3083; www.lenzyme.com; **Booth #3026.**



Liberty Pumps ProVore

The **ProVore** grinder pump from **Liberty Pumps** is designed for use in residential applications where the addition of a bathroom or other fixtures below sewer lines requires pumping. It features the same V-Slice cutter technology utilized in Omnivore Series 2 hp grinder pumps. Powered by a 1 hp motor, it is designed to operate on a standard 115- or 230-volt circuit requiring a 20-amp breaker. No special wiring is needed. Compact factory-assembled systems are available in both simplex and duplex versions. 800/543-2550; www.libertypumps.com; **Booth #2833.**



MaxLiner USA SuperFlex

SuperFlex single-layer CIPP liner from **MaxLiner USA** is PU laminate coated, stitched and bonded to polyester felt. Extremely flexible in bends, the versatile liner is offered in diameters of 2 to 8 inches, with a thickness of 4.5 mm. Using inversion installation, it is used with MaxPox resin and hardener from the MaxLiner system, and will go around bends with minimal wrinkling. 877/426-5948; www.maxlinerusa.com; **Booth #1049.**



Milwaukee Rubber Products Gas Alert Micro Clip

The **Gas Alert Micro Clip** from **Milwaukee Rubber Products** provides protection from atmospheric gas hazards. It offers visual compliance at a glance with the flashing green IntelliFlash. Easy one-button operation reduces training time and lets workers focus on the job at hand. For simple, cost-effective management of records, calibration and bump testing, it is compatible with the MicroDock II automatic test and calibration system and Fleet Manager II software. Its continuous LCD shows real-time gas concentrations while its compact and lightweight design makes it comfortable to wear. It is water-resistant with a built-in concussion-proof boot and multi-language support. It is powered by a rechargeable lithium polymer battery. 800/325-3730; www.milwaukeeerubber.com; **Booth #3030.**





MyTana MS11-NG2

The MS11-NG2 midsize inspection system from MyTana has a USB for recording and storage. The system is suitable for inspecting 3- to 6-inch lines with the choice of 150 or 200 feet of pushrod. The unit has a 64GB internal drive as well as two onboard USB ports, and a 32GB removable USB drive. The one-piece design is lightweight with a handy carrying handle. The camera head is color, self-leveling with a built in 512 Hz transmitter for locating trouble spots, even in cast iron pipes. The monitor provides a clear picture. **800/328-8170; www.mytana.com; Booth #2200.**

Norweco Phos-4-Fade Phosphorus Removal Filter

The **Phos-4-Fade Phosphorus Removal Filter** from Norweco can significantly reduce total phosphorus in wastewater effluent to levels that protect local waterways, while meeting or exceeding stringent regulations. It is a non-mechanical component that can be easily installed as part of any onsite wastewater treatment system. The filter is user friendly, easy to install and maintain, and provides effective total phosphorus removal for any onsite wastewater treatment system. **800/667-9326; www.norweco.com; Booth #2853.**



One Biotechnology Liquid BioOne

Liquid BioOne from One Biotechnology is a 100 percent natural drainline, septic and grease trap maintainer. Applied on a regular basis after a drain or septic treatment, it can help to maintain free-flowing drains, eliminate odors and reduce the number of backups between scheduled pumpings. It doesn't contain enzymes or caustic agents and is safe for people, pets and pipes, displaying the EPA's Safer Choice Program logo that "allows customers to quickly identify and choose products that can help protect the environment and are safer for families." Adding it to customers' lines and grease traps does not emulsify FOG and move it down the line. **800/951-4246; www.onebiotechnology.com; Booth #6152.**



Pipeline Renewal Technologies Quick-Lock

For stand-alone point repair, or for pre-lining under high infiltration, the **Quick-Lock** sleeve from Pipeline Renewal Technologies offers a rapid, easy-to-install and economical way to repair failing pipe. It restores the host pipe's strength with heavy-gauge 316L stainless steel, and seals out infiltration with a single-piece vulcanized EPDM rubber gasket. A sleeve installs in minutes with minimal equipment and overhead. It is positioned inside the host pipe on a wheeled flow-through packer pushed by any standard CCTV crawler. They are available in diameters ranging 6 to 28 inches, and in lengths of 16 and 20 inches. Multiple sleeves can be interleaved to perform longer repairs. **866/936-8476; www.pipeliner.com; Booth #6032.**

Presby Environmental EnviroFin

The **EnviroFin** passive onsite wastewater treatment and dispersal system from Presby Environmental is designed with the same principles as Enviro technology. It is designed to ship easily and fit into a smaller space than the other Presby technology while maintaining high treatment levels. **800/473-5298; www.presbyenvironmental.com; Booth #6002.**



RapidView IBAK GATOR Automatic Lateral Detector

The **Automatic Lateral Detector** sensor from RapidView IBAK mounts on the front armature of GATOR cutters, and allows the user to locate lateral connections through the pipe liner before reinstatement. Using a small microwave emitter and easy-to-use software, it locates the lateral behind the liner and automatically marks the center of the lateral for reinstatement. The system can be operated in a completely automatic mode, finding the laterals even if a pre-inspection was not completed prior to lining. The sensor allows rehabilitation companies to avoid costly and time-consuming mistakes when reinstating laterals. **800/656-4225; www.rapidview.com; Booth #2205.**

Reelcraft Series HD70000

Series HD70000 hose reels from **Reelcraft** are designed to accommodate up to 100 feet of 3/8-inch-I.D. hose or 75 feet of 1/2-inch-I.D. hose. The heavy-duty base design, all-steel construction and a baked-on powder-coat finish combine to produce a rugged, corrosion-resistant product. A newly redesigned latching mechanism provides longer service life of the latch components. The containerized drive spring offers safer and easier handling during maintenance. Two sealed ball bearings produce a smoother spool rotation and easier operation. The guide arm adjusts to seven positions for various mounting locations and applications. **800/444-3134; www.reelcraft.com; Booth #1572.**



Salcor 3G UV Wastewater Disinfection Unit

The **3G UV Wastewater Disinfection Unit** from **Salcor** is proven for residential, commercial and municipal uses, and is UL certified NEMA 6P Floodproof and NSF/Washington State Protocol 6-month tested (with 21 upstream treatment systems). It inactivates pathogens, including superbugs. Rated at 9,000 gpd gravity flow, it is a reliable building block for large water recovery/reuse systems. When installed in 12-unit parallel/series arrays with ABS pipe fittings, systems are disinfecting over 100,000 gpd. Gravity flow equalizes without distribution boxes. Each unit has a foul-resistant Teflon lamp covering, two-year long-life lamp, speedy installation, minimal annual maintenance, and energy efficiency of less than 30 watts. **760/731-0745; Booth #3000.**



RIDGID CS65x

The **RIDGID CS65x** enhanced digital reporting monitor allows users to provide immediate drainline inspection footage using Wi-Fi and Bluetooth capabilities to simplify footage viewing and transfer while improving workflow efficiency. The upgraded model has the same technology of the CS65, providing one-touch image recording for fast, efficient documentation of inspections, along with a new quad-core processor and solid-state hard drive. A companion app is available for download and is compatible with Android and iOS devices. **800/769-7743; www.ridgid.com; Booth #1354.**



Sealing Systems Infi-Shield Gator Wrap

Infi-Shield Gator Wrap from **Sealing Systems** prevents infiltration and erosion by providing a watertight seal around any man-



hole, catch basin or pipe joint. It resists harsh soil conditions and provides a root barrier for any crack or joint. It is made of a stretchable, self-shrinking, intra-curing halogenated-based rubber. The backside of each seal is coated with a cross-linked reinforced butyl adhesive. The seal is designed to stretch around the joint and then overlap, creating a cross-linked and fused bond between the rubber and butyl adhesive. It installs easily with no special tools and can be immediately backfilled. **800/478-2054; www.ssisealingsystems.com; Booth #4122.**



Ritam Technologies Summit Rental System

The **Summit Rental System** from **Ritam Technologies** allows users to keep their familiar QuickBooks environment and take advantage of automated billing. Every transaction is instantly memorized, meaning the user only has to touch accounts when something changes. Billing is automatic, whether monthly, 28-day, or special event. It allows for automatic "from" and "to" billing dates, proration, damage waivers and delivery charges. Routes can be built from a single point of entry, and inventory assigned instantly. QuickBooks continues to capture revenue totals, balances the checkbook, and an accountant can continue using it for tax reporting. It enables route optimizing with the latest mapping software and mobile route management. **800/662-8471; www.ritam.com; Booth #4300.**

Sim/Tech Filter pleated filter

Pleated filters from **Sim/Tech Filter** are available for gravity effluent filtration in septic tanks and turbine pump filtration in pump tanks. Filtration size is 3/32 inch in two dimensions. Flow channels in the pleated material result in increased longevity. All filter types start at over 2,000 square inches of filtration area. The 45 percent open area (over 900 square inches) is equivalent to 800 linear feet of 3/32-inch slots. Various configurations and larger units are available. **888/999-3290; www.simtechfilter.com; Booth #2405.**





SJE-Rhombus MySpy

The MySpy Wi-Fi messenger system from SJE-Rhombus provides remote notification of potential alarm conditions, including sump high-water level or over/under temperature alarms, via text or email. Alarms notify the user both locally (audible and visual alarms) and remotely via an existing Wi-Fi network. The alarm will notify up to four

contacts for alerts. The system has a NEMA 1-rated enclosure for indoor use, automatic alarm reset and 9-volt DC battery backup. The touchpad includes test and silence buttons for the alarm horn and LED indicators for alarm (red), power on (green) and network status (blue). Optional float switch models and splice kit are available. **888/342-5753; www.sjrhombus.com; Booth #2504.**

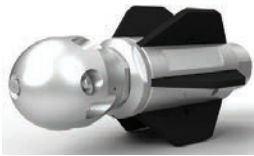
Spartan Tool Soldier

The midsize **Soldier** trailer hydro jetter from **Spartan Tool** delivers 3,000 psi at 12 gpm for pipe sizes 3 to 12 inches in diameter. With a standard antifreeze system, it can be used in any weather conditions. An optional Warthog nozzle lets the user make quick work of ice, grease and tough root blockages. It has a pivoting hose reel for full access to any drain location. With its compact form, fully enclosed and lockable engine cover, and 200-gallon water tank, it is ready to handle stubborn stoppages. A skid-mount version is also available. **800/435-3866; www.spartantool.com; Booth #5032.**



StoneAge Tools Switcher

Switcher cleaning heads from **StoneAge Tools** eliminate extra runs by switching between pulling and descaling jets. They allow technicians to use the same tool to quickly run down the line, engage full cutting force to clear obstructions or roots, then switch again to move debris. Every time the pump is idled down and brought back to pressure, the tool alternates function between two different sets of jets. Field use of Magnum tools with a Switcher head versus the traditional method of using two tools demonstrates marked water and time savings. **866/795-1586; www.sewernozzles.com; Booth #5144.**



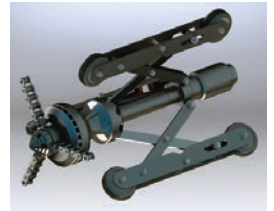
Superior Signal 5E Electric Smoker

The **5E Electric Smoker** from **Superior Signal** offers a cost-effective solution to find difficult leaks and odors in residential and commercial plumbing systems. Connect the blower to any plumbing clean-out or vent or to the septic tank, and use an appropriately sized smoke candle to force smoke through faults and cracks to identify the sources of odor and hard-to-find leaks. It handles all residential and commercial smoke testing applications using smoke candles from 30 seconds to three minutes. Smoke tests take just minutes to perform and see immediate results. The unit comes with an 8-foot industrial-grade flex-hose, weighs just 8 pounds, and requires no maintenance. **800/945-8378; www.superiorsignal.com; Booth #4110.**



USB-Sewer Equipment Corporation Turbo S600

The **Turbo S600** chain cutter from **USB-Sewer Equipment Corporation** is made of tempered stainless steel and has a continuously adjustable guide skid. The chain retainer is driven by a high-performance turbine on a robust body to remove concrete, calcium deposits, hardened grease and tuberculation from 12- to 24-inch sewer lines. Its optimized 3-D hydromechanics in conjunction with ceramic nozzle inserts allow the cutter to be used with recycled or clean water. **866/408-2814; www.usbsec.com; Booth #5055.**




Water Cannon 16T55

The **16T55** turnkey jetter package from **Water Cannon** is road-ready with an onboard 200-gallon water tank capacity and customizable jetter hose up to 500 feet. It includes a two-wheel road-ready commercial jetter trailer, electric-rewind high-capacity hose reel that can hold 500 feet of 3/8-inch or 350 feet of 1/2-inch hose, poly toolbox, lights, front jack with wheel, safety chains, and aluminum fenders. The jetter includes a Honda GX690 twin-cylinder electric-start engine, V-belt drive, trailer-mounted skid, and 15-gallon EPA- and CARB-approved poly fuel tank. Its TS-Series General triplex plunger pump supplies 8 gpm at 3,500 psi. It has a pump-mounted jetter pulse valve, foot valve with 8-foot jumper hose, and three jetter nozzles – the Penetrator, Flusher and De-Greaser/De-Icer. **800/333-9274; www.watercannon.com; Booth #5255.**



Westmoor Conde' ProVac Liquid Waste Pumping System

The preassembled industrial Conde' ProVac Liquid Waste Pumping System from Westmoor is designed to promote efficient grease trap pumping. The unit is quiet and lightweight and pumps at 120 gpm. Flip a switch to start the unit in vacuum mode for pumping. The built-in exhaust deodorizer keeps odor at a minimum. Flip the switch to pressure mode for off-loading. It can be used for servicing locations not suitable for large vacuum truck hoses, including indoor or remote difficult-to-access jobs. 800/367-0972; www.westmoorltd.com; **Booth #5134.** 



American Standard named 2016 WaterSense Award winner

American Standard has been honored by the U.S. EPA as a 2016 WaterSense Excellence in Innovation and Research Award winner. The WaterSense program recognizes organizations that excel in water-efficiency innovation and outreach.

PipeLogix adds location and expands staff

PipeLogix will open a new East Coast sales and support office. It will be located in Detroit, Michigan, and will be staffed by new hires.

Uponor names vice president of offerings and marketing 

Uponor named Dena Mayne vice president of offerings and marketing for Uponor North America. Mayne has 14 years of experience in marketing leadership roles and will be based at the company's North America headquarters in Apple Valley, Minnesota. 



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Product Spotlight

Taco ECM high-efficiency circulator installs without programming

By Ed Wodalski

The 007e ECM high-efficiency circulator from Taco Comfort Solutions, designed for hydronic systems zoned with circulators or zone valves in primarily residential applications, operates in one mode, eliminating the need for programming.

"We actually simplified our VR1816 in making the 007e," says Doug Bird, Taco's product manager for water circulation. "The installer doesn't have to set a dial or button. It's a single-function, variable-speed circulator."

Featuring ECM (electronically communicated motor) technology, the circulator uses up to 85 percent less energy than Taco's standard model.

"If you compare the standard 007, which draws about 80-85 watts, the 007e draws a maximum of 44 watts and can go down to 4-5 watts at its lowest speed," Bird says. "It really drops off the power consumption because it can respond to changing system conditions and lower its speed to match whatever the system demands, rather than run at one speed all the time."

"Say you have a three-zone system in a house, and three zones are open. The pump will operate at a speed to provide enough flow for the three zones, but if a thermostat is satisfied and a zone closes, the parameters in the system change and the pump detects a change in amperage because it's operating at a different point on its curve," Bird says. "In this case, it would slow down to make sure it doesn't over-pump the system."

A BIO Barrier protects the pump from contaminants and SureStart software self-purges and automatically frees a locked rotor.

"Many systems in the United States, and North America for that matter, are typically old and not well maintained,"



Bird says. "They'll have black iron oxide — metal fragments and oxide that forms off cast iron boiler casings or black iron pipe. The BIO Barrier is basically a filter that blocks the black iron oxide from entering into the rotor and bearing chamber."

If the rotor becomes stuck, SureStart software causes it to oscillate, freeing it from the metal particles. The software also purges air from the pump's volute, preventing the pump from running dry.

An orange LED light indicates when the circulator is in run mode while a flashing white light indicates when it's in SureStart mode.

"After trying to correct itself up to 100 times, the LED will turn red and the pump will stop so it doesn't destroy itself," Bird says. "An installer can then take it apart, clean it and start it up again."

Other easy installation features include dual electrical knockouts, a double-insulated motor that doesn't require a ground wire, and nut grabber flange that eliminates the need for a backup wrench when mounting the circulator. 401/942-8000; www.tacomfortsolutions.com.



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HammerHead Trenchless HydroGuide HG1200 winch

The HammerHead HydroGuide HG1200 winch is designed to be more efficient and easy to use in pipe bursting, sliplining and slitting applications. The unit has a hydraulic downrigger that automatically deploys the boom downhole and can fine-tune the depth up to 18 feet. It also has precision controls for line speed, from 0 to 111 feet per minute, and pressure from 0.5 to 12 tons. A Tier 4 Kubota D1105 four-cycle diesel engine provides power and a radial piston motor provides consistent pulling power. **800/331-6653; www.hammerheadtrenchless.com.**



John Guest USA fittings

John Guest USA added 3/8-inch elbow and union fittings to its White CTS Twist and Lock offerings. Designed for easier installation and disconnection, the fittings have a tool-free push-fit installation. Fittings form a leak-proof connection with CPVC, PEX and copper-tube-sized piping, and are suitable for hot- and cold-water plumbing and hydronic heating applications. **973/808-5600; www.johnguest.com.**

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