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BUSINESS IN THE CITY OF BROTHERLY LOVE,  
ALSO TAKING THE LESSONS HE LEARNED FROM  
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NEXT GENERATION OF WORKERS / 26

### CAREER BUILDER

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**ON THE COVER** // Daniel Gallagher has run a successful business in Philadelphia for 17 years, but he also looks beyond his own interests and tries to give back toward the larger plumbing and drain cleaning industry. He currently sits on the state board for the Plumbing-Heating-Cooling Contractors Association. He has also held various positions in Philadelphia's Master Plumbers Association, including a three-year term as president. That organization is re-opening its apprenticeship school, with a goal of attracting at-risk youth. "Our objective is to get these inner-city kids and put a tool in their hands instead of a gun," Gallagher says. "These aren't kids in a single-parent home — their grandmothers are raising them. I would like to help them. Too many people don't want to give them a chance." (Photography by Hannah Beier)



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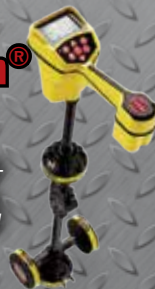
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## GROWING A SUSTAINABLE WORKFORCE

Proactive efforts to reach members of the younger generation are needed to make them better aware of trades career opportunities



Email me with comments, questions or opinions at [editor@cleaner.com](mailto:editor@cleaner.com)

**WHEN I WAS IN HIGH SCHOOL**, there was no doubt that I'd be attending a four-year college after graduation. That was the pathway being heavily pushed.

It worked out for me. I had a good experience and earned a bachelor's degree on time. I had some financial aid loans to pay off once I entered the working world but not an overwhelmingly ridiculous amount. For many people, though, four-year college can be a poor fit for various reasons. Yet it remains a sort of ideal, one-size-fits-all aspiration. I certainly don't recall other options being presented to me in high school.

Even though four-year college ended up being a perfectly fine pursuit for me and I'm satisfied with my choices, since I started working at COLE Publishing, I occasionally think about an alternate version of myself. This alternate version became a plumber and drain cleaner. It never crossed my mind as a possibility during that time of life I was thinking about careers, but today having covered the industry for several years, I see the benefits and how it can be a rewarding job. I honestly think I would've enjoyed it had that been the route I took.

Promoting a trade like plumbing and drain cleaning to the younger generation seems to be getting better traction these days. Take, for example, the efforts of the two companies profiled in this month's issue, Daniels Plumbing and Heating of Philadelphia and Pat the Plumber in Topeka, Kansas. Or maybe in my role as *Cleaner* magazine editor, I'm just particularly aware of such instances. But there are undoubtedly still plenty of graduating high schoolers out there, 100% focused on four-year college options, completely oblivious to the potential of a trades career.

Familial connections are a common way people are exposed to a trades career. Your dad or uncle is a plumber and you grow up around the industry. Eventually you join the family business. Or maybe you set off on your own or work for a different company. It's still through family that you become aware of plumbing and drain cleaning as a career option. But that alone can't sustain a pipeline of younger workers. Some people who grew up around the industry will of course go after different lines of work. Trades career pathways and options need better visibility to a general public.

I never had any family members involved in something like plumbing and drain cleaning while I was growing up. That probably played a role in it not being on my radar when thinking about post-high school plans. Maybe it would've been something I would've seriously considered had it been made more easily visible to me, on the same level as the four-year college options.

Are you doing anything in your local service area to help improve awareness about trades careers to the younger, incoming generation of workers? Feel free to contact me at 715-350-8442 or [editor@cleaner.com](mailto:editor@cleaner.com) to tell me about it, and maybe I can share some of those ideas with other readers in a future issue.

Enjoy this month's issue. **c**



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# CAREER BUILDER

KANSAS PLUMBER WORKS WITH TECH SCHOOL  
TO HELP BUILD A TECHNICIAN PIPELINE AND  
CREATES A ROBUST COMPANY CULTURE

// By Ken Wysocky

Photography by Denny Medley



It's easy for plumbers and drain cleaners to complain about the national shortage of qualified technicians, a byproduct of retiring baby boomers and younger people that have shunned the professional trades for decades. Doing something about it, on the other hand, is a lot harder.

That hasn't stopped Pat Grogan from making a stand in Topeka, Kansas.

A couple years ago, Grogan — the owner of Pat the Plumber, Plumbing, Heating and Air Conditioning — reached a tipping point in terms of frustration with the labor shortage. So he decided to become part of the solution and contacted officials at a local technical school, the Washburn Institute of Technology, a branch of Washburn University.

"We were getting qualified HVAC technicians from other programs in town," says Grogan, 51, who established his company in 2005. "But there weren't any programs for plumbing. So I reached out to Alan Beam (director of instruction) and Mike Strohschein (now the school's dean and an associate dean at the time) and they thought starting a program was a good idea."



« Pat Grogan started his company in typical fashion, as a solo operation, and now employs 16 people and runs a dozen service vehicles.

The program launched in fall 2022 with 22 enrolled students. Grogan helped develop the curriculum and also put his money where his mouth is, donating \$25,000 to kick-start the program. And Explore the Trades, a program that builds awareness of career opportunities in the plumbing, HVAC and electrical trades, matched that with an in-kind donation of \$25,000. (The program is part of the Nexstar Network.)

“Washburn Tech has been awesome,” Grogan says. “Mike and his team are go-getters. They jumped over hurdles and ran through walls to make this happen.”

Grogan estimates he and his team devoted about 100 hours of time to help develop the program, no small commitment. But he says it was time well spent.

“People know we have an issue,” he says. “And if we don’t do something about it, it’s not going to change. We want high schoolers to want to be plumbers when they grow up. Unfortunately, there are too many negative stereotypes. But once they see it’s an honorable profession that can provide a great life for them and their families, the sky’s the limit.

“We need to change the stereotypes. High schoolers need to see plumbers as guys who wear uniforms with nice button-down shirts, can carry on a great conversation with customers and earn a great salary — more than six figures in some cases.”



## Pat the Plumber, Plumbing, Heating and Air Conditioning

TOPEKA, KANSAS

<b>OWNERS</b>	Pat and Jennifer Grogan
<b>FOUNDED</b>	2005
<b>EMPLOYEES</b>	16
<b>SERVICES</b>	Residential plumbing service and repair, drain cleaning, HVAC
<b>SERVICE AREA</b>	About a 20-mile radius around Topeka
<b>WEBSITE</b>	<a href="http://www.callpat.com">www.callpat.com</a>

### SUCCESS STORY

Grogan makes a good role model. When he started out, the company had only one employee — himself — and a truck. Now the business employs 16 people (including 10 technicians) and runs about a dozen service vehicles.

Grogan’s journey began when he dropped out of high school and joined the U.S. Army at age 17. He then worked in construction for a while and became a full-time plumber in 1995, when he was 23 years old. His entry into the field was influenced by working during summers for his father, Charles Grogan, who was a plumber in Binghamton, New York.

» Clayton Bevitt, plumbing lead installer for Pat the Plumber, prepares to load up his service truck.





“WE NEED TO CHANGE THE STEREOTYPES. HIGH SCHOOLERS NEED TO SEE PLUMBERS AS GUYS WHO WEAR UNIFORMS WITH NICE BUTTON-DOWN SHIRTS, CAN CARRY ON A GREAT CONVERSATION WITH CUSTOMERS AND EARN A GREAT SALARY — MORE THAN SIX FIGURES IN SOME CASES.”

**PAT GROGAN**

Grogan worked for a couple of plumbing companies for about 15 years and even became a junior partner at one of the firms.

“But deep down inside, I wanted to do my own thing,” he recalls.

So he left the last company in April 2005 and established Pat the Plumber, a name he trademarked, the following month.

“That’s what people called me,” he says, explaining the genesis of the name. “Plus it had nice alliteration, which is good for brand recognition.”

Grogan modified the name of the company in 2015 to reflect the addition of HVAC services.

As the company grew, so did its inventory of machines and equipment. For service vehicles, technicians rely on Ford Transits, some equipped with Hackney box bodies, and an Isuzu NPR-HD, also equipped with a Hackney box body.

The company also has invested in three RIDGID SeeSnake

⚡ HVAC maintenance tech Trey Schwilling and installer helper Jon Rakestraw load a truck in the company yard.

👉 Pat Grogan says he strives to maintain a quality employee culture at his company. “Culture trumps process any day,” he says. “You can have the best plans and processes in place, but if you don’t develop the best culture, it doesn’t matter.”



Mini pipeline-inspection cameras, a RIDGID NaviTrack Scout pipe locator, a RIDGID SeekTech locator, Spartan 100 and 300 drain machines, RIDGID K-50 sectional drain machines, Super-Vee handheld drain machines by General Pipe Cleaners and an Undertaker pipe-bursting system from Spartan Tool.

Technicians use RIDGID and Milwaukee power tools.

## EMPLOYEES DRIVE GROWTH

When asked about the most important factor in the company's success, Grogan answers without any hesitation.

"Our people — hands down," he says. "They work so incredibly hard and they've bent over backward for me and our customers. This is all built because of them. They treat every customer as if it's their last one. They know every single relationship is important, whether it's a fellow employee, a customer or a vendor. We care deeply about our customers and develop lifelong relationships. Do we screw up sometimes? Yes, we're not perfect — it's not all rainbows and unicorns. But we make it right and fix it."

To attract and retain employees, the company offers medical, dental and vision insurance and pays half of the annual premiums; paid maternity and paternity leave; life insurance; a savings incentive match plan for employees' IRA, with a dollar-for-dollar match up to 3% of salaries; and paid vacations and holidays. Employees even get a paid day off on their birthdays.

To find quality employees, the company pays referral bonuses to employees who recruit workers who get hired and stick with the company for a set period of time; that includes a \$5,000 bonus for finding a qualified licensed technician, Grogan says.

## CULTURE IS CRITICAL

Grogan says he also strives to build a company culture that makes employees want to stay.

"Culture trumps process any day," he says. "You can have the best plans and processes in place, but if you don't develop the best culture, it doesn't matter. With the best people and the best culture, you can move mountains together. They'll help you develop those processes and deliver them, too."

As an example, Grogan notes that employee input has been critical to revamping the company's customer-service processes — figuring out what works and what doesn't. The company has a culture development team that meets weekly to discuss ways to improve the company culture.

"CULTURE TRUMPS PROCESS ANY DAY. YOU CAN HAVE THE BEST PLANS AND PROCESSES IN PLACE, BUT IF YOU DON'T DEVELOP THE BEST CULTURE, IT DOESN'T MATTER."

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▲ Pat Grogan (center) talks with residential sales reps Julie Tomczek and Andre Banks.

**"I USED TO BE AFRAID TO GROW BECAUSE IT CAN CAUSE CHAOS AND YOU CAN LOSE CONTROL OVER QUALITY AND CUSTOMER SERVICE. ... BUT ONCE I GOT RID OF THOSE FEARS, I LEARNED YOU GET BETTER AS YOU GROW."**

**PAT GROGAN**

Grogan also brought in a facilitator to develop programs to help employees grow personally and professionally and take ownership of their careers.

Intertwined with all this is a continual emphasis on four core values: fanatical attention to consistency and detail; compassion for the families the company serves, both internally and externally; employees striving to be the best version of themselves personally and professionally through a commitment to continuous self-improvement; and a sense of urgency — moving fast with precision, Grogan says.

### GOING FOR GROWTH

Looking ahead, Grogan has an ambitious goal in mind: become one of the largest plumbing and HVAC companies in northeast Kansas.

"I used to be afraid to grow because it can cause chaos and you can lose control over quality and customer service," he says.

## LIVING UP TO A GUARANTEE

**P**at the Plumber, Plumbing, Heating and Air Conditioning in Topeka, Kansas, offers customers a unique guarantee: If technicians don't have the necessary part on their trucks, customers won't pay for the time needed to visit a supply house.

"It's not fair for customers to pay for that time," says owner Pat Grogan.

To help ensure the guarantee doesn't come into play, Grogan invested in Stock 360, a web-based inventory-management platform developed by MarginPoint in conjunction with national wholesale-parts distributor Winsupply.

For a small upfront fee, Grogan says the program has improved the company's efficiency, productivity and customer service.

"Keeping track of vehicles' inventory was a big pain point," he says. "We needed to ensure we were keeping our trucks stocked with the parts technicians need, when they need them."

The company started using the system in 2017.

Prior to that, technicians waded through more than a dozen pages of spreadsheets to mark off which parts they used. Then they'd hand in the spreadsheets to an office employee, who compiled an order and faxed it to a supplier.

"It was a pretty effective and repeatable system," Grogan notes. "But then paper copies and fax machines went by the wayside. So now our technicians do it all through an app on their phones."

Here's how it works: When technicians pull a part, they scan a barcode located on either a parts bag or a parts bin. Or they can scan a QR code from a Winsupply catalog or search for the part within the app, then select it. The system automatically destocks the parts from trucks' inventory and tells Winsupply to add them to a weekly replenishment order that's delivered to the company.

It took technicians a few months to get used to using the new system, Grogan says.

"There's always a learning curve when you use new technology," he notes. "The system had a few inherent sticking points that we worked through. Some people are more comfortable with changes than others, so sometimes you have to sit down with them and find out what scares them, then take it from there."

"You also have to monitor the system," he adds. "You can't just say, 'Use it,' and then walk away from it. You have to keep checking with the technicians and the supplier to make sure parts keep getting recorded in the system."

As a bonus benefit, Grogan points out that if technicians don't have a part available, they can check the inventory of colleagues' trucks. If another truck has the required part and is closer than a parts supplier, it can save a technician an unnecessary trip.

That function also comes in handy if a technician is working after normal business hours and a supplier is closed, he says.

"Of course, the inventory has to be accurate," Grogan says. "And if it's an after-hours situation, they have to be sure the other technician is available to let them into the other truck."

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📍 Pat Grogan with his team, including (left to right) Cody Janek, Dalton Sparling, Seth Smallback, Trey Schwilling, Gary Crawford, Clayton Bevitt, Wyatt Miller, Daniel Black, Scott Fletcher, Jon Rakestraw, Rachel Watson, Julie Tomczek, Jason Stowe, and Andre Banks.

➤ Pat the Plumber technicians prepare service trucks for the day's jobs. The company offers customers a unique guarantee that if technicians don't have the necessary part on their trucks, customers won't pay for the time needed to visit a supply house.



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Furthermore, more growth provides more avenues for employees to grow their careers, which is key to retaining quality workers.

“We’re all growth-oriented here,” he says. “We all want something better and want to be challenged in our lives. So I feel like I owe it to our employees to give them opportunities to move up.” **c**

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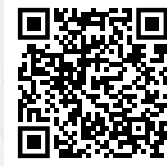
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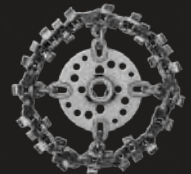
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# LEADING BY EXAMPLE

DANIEL GALLAGHER RUNS A SUCCESSFUL BUSINESS IN THE CITY OF BROTHERLY LOVE, ALSO TAKING THE LESSONS HE LEARNED FROM MENTORS AND HELPING TEACH THEM TO THE NEXT GENERATION OF WORKERS

// By Giles Lambertson

**D**aniel Gallagher is a Philly guy through and through. He was born in Philadelphia and has lived in the city by choice all of his 42 years. An old-school fella, he's loyal to the city and its people. He's a no-nonsense businessman with an unapologetic humanitarian streak.

"If I hadn't grown up in this city, I don't know where I would be today," says Gallagher, owner of Daniels Plumbing and Heating. "I didn't have to stay in the city, but I did. Some of my friends here I've known since I was 7 years old. I still see guys all the time who I grew up with — except for those who died from drugs."

That last offhand remark is telling. Among those fatally victimized by drug addiction were Gallagher's father, as well as a 24-year-old brother and a master plumber who taught and inspired Gallagher. He does not look back through rose-colored glasses though.

"I'm still standing," Gallagher says.

Besides God, Gallagher credits two people with keeping his feet planted on a path to successful living. One is his mother, Theresa Gallagher, whom he describes as "a tough Italian lady. We'd come in Saturday night and Mom would smell our hands for any evidence of drugs or alcohol."

Another major influence on a young Gallagher was one of the master plumbers he worked with as an apprentice.

"The first night I went to their organization meeting, that guy and others were up there in three-piece suits," Gallagher recalls. "They held themselves in a certain way, as if to say, 'This is how you do it when you're a plumbing professional.'"

Two decades later, that still makes an impression on Gallagher.

"I handle myself the exact same way," he says. "I'm usually either in my work clothes or in a suit. I'm really fortunate to have run into those guys."

It helped Gallagher acquire the skills that have made him successful running his own company for 17 years now. And he is also working hard at being a mentor for the next generation of Philly plumbers and drain cleaners.

### FAMILY EFFORT

A large majority of the Daniels Plumbing and Heating work is in the city. The company's 7,000-square-foot shop is there too, on Torresdale Avenue not far from the Delaware River separating Pennsylvania from New Jersey. A second location — Gallagher calls it a cousin shop — opened in an old turnpike building on Second Street Pike in Bucks County outside the city.

Daniels Plumbing and Heating also has a new office where Gallagher's mother works, handling all the internals such as contracts, workers' compensation and other paperwork.

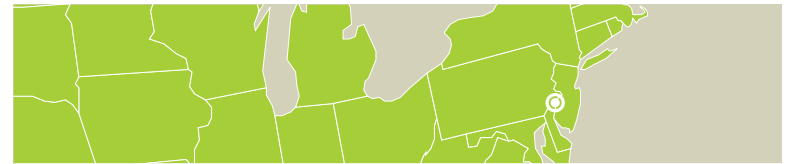
"Mom was always involved in business, running a catering business and others. She also operates a drug addiction recovery program that helps people get clean," Gallagher says.

In fact, two Daniels Plumbing and Heating employees came from the program.

"Some people might look down on that, but we're a second-chance company," Gallagher says.

Also helping run the business is Gallagher's sister, Caitlyn, who handles payments and other office duties. Gallagher's wife Judy is not on the payroll, but she is also indispensable, Gallagher says.

"She allows me to devote all the hours, blood and sweat that I put into the business," he says. "She handles all day-to-day operations in our home. She's an old-school neighborhood mother. At any time there might be a dozen of the neighborhood kids there, grabbing something to eat, shooting some basketball out back or watching a Phillies or Eagles game."



## Daniels Plumbing and Heating

PHILADELPHIA, PENNSYLVANIA

**OWNER** Daniel Gallagher

**FOUNDED** 2006

**EMPLOYEES** 15

**SERVICES** Residential and commercial plumbing and drain cleaning, sewer lateral camera inspections, water pipe and drain pipe repair and replacement, plumbing fixture installation and repair, water heater installation, backflow prevention, HVAC maintenance

**SERVICE AREA** Philadelphia metro area

**WEBSITE** <https://daniels-plumbing.com>



» Juan Roman, lead drain cleaning technician at Daniels Plumbing, jets through a clean-out as owner Daniel Gallagher looks on during a job in Bensalem, Pennsylvania.

## A NATURAL TEACHER

When Daniel Gallagher graduated from high school about 25 years ago, he gravitated toward plumbing because his friend's father practiced the trade. But there's an alternate reality where Gallagher became a history teacher.

Most of his peers in the neighborhood either enlisted in a military branch or started working a trade, but Gallagher actually visited a couple of colleges with the thought of getting a teaching degree and teaching history.

"I still read a lot of history. There's a lot of history in Philadelphia, including the country's first trade school opening here," he says, a fact probably little known to most people.

In the end, Gallagher completed a plumbing apprenticeship, started a company and is fully involved today running it and serving on trade association boards. His life unmistakably is that of a plumber, an entrepreneur and an active citizen of his community.

Yet he has also been able to achieve that alternative ambition in a way and is a teacher, too. His employees know that by working with him.

"I try to teach the guys when we're out on jobs, especially the young guys," Gallagher says. "We'll pull out a tool and I'll say, 'Why are we doing this?' or 'Why is it being installed like that?'"

Gallagher and his peers in the Philadelphia Master Plumbers Association are taking it a step further by re-opening an apprentice school that the association used to operate. Who will instruct the young men and women who enroll in the school? Gallagher, of course, will do some of the teaching alongside others.



➤ Juan Roman jets a line. Daniels Plumbing likes to use Spartan 738 skid-mounted jetters.

The family assistance is key to getting Gallagher out in the field.

"It gives me freedom," he says. "People come to the shop and think they're going to see me, but I'm 100% hands-on in the field, from jobbing to service to camera inspections. I'm either in the jetting truck or a service truck, or I'm overseeing stuff."

### WORK ROUTINE

Many of the company's calls are for drain cleaning, but each day brings a mix of work, according to Gallagher.

"We do one or two excavations a day, residential service calls, jetting lines, installing water heaters, some HVAC," he says.

About 85% of service calls are residential — that is, individual homes plus contractual work for the city's low-income housing units and emergency referrals from the Philadelphia Water Department.

Workdays at Daniels Plumbing and Heating start at 6 a.m. and the first person at the shop is usually the company owner himself. There's a philosophical reason for the early start, Gallagher says. "I like problems to happen before noon, not after."

Among his 15 employees are two plumbing apprentices. On Monday mornings, the team gathers to talk about

safety and new products, and to brush up on techniques. Each day they pile into six trucks and head for homes and other job sites. If excavation is in the offing, a truck will pull away with a trailer carrying either a Bobcat skid-steer or a JCB backhoe.

Two trucks each carry Spartan 738 skid-mounted jetters for cleaning lines, plus a 100-gallon water tank. General Pipe Cleaners and Spartan Tool belt-fed machines are Gallagher's preferred cabling brands. The company's battery-operated hand tools are mostly from RIDGID.

If a water heater is needed, Gallagher offers customers Bradford White units, most of the heaters fired up by natural gas.

"They're American-made and are made in our own backyard. Plus, I know the CEO, Bruce Carnevale," Gallagher says.

Gallagher himself does nearly all the company's camera inspection work. He completed a three-day course on it at Penn State University.

"I'm one of the best around," he says with Philly confidence. "We do a lot of inspections. Most of the time I have the property owner right there beside me when I'm doing it."

He relies on a Spartan Trapjumper pushrod camera and its Explorer control box to navigate tight bends in a pipe.

Gallagher and his crew do not do trenchless repair work. Not yet. This is Philadelphia, after all. City regulatory authorities don't allow methods like pipe bursting.

"We're looking into the technology, but we can't use it in Philly," Gallagher says. "There's a time and place for everything."

Philadelphia being an old East Coast city, some of the infrastructure is extremely dated.

"Waterlines are copper. In the last month, we serviced five homes with lead water pipes," Gallagher says. "Drainlines are all cast iron. Sewer lines are all cast iron or terra cotta. I like terra cotta underground because it ages well. Cast iron scales and rusts."

His crew runs into PVC only occasionally. Because copper waterlines are the rule, soldering and ProPress repair of leaking lines are necessary skills.

#### PAYING IT FORWARD

Because local non-union plumbing organizations positively impacted the younger Gallagher, the Daniels Plumbing and Heating owner is actively paying back his debt to the trade fraternity.

About a year after he finished his apprenticeship, Gallagher was elected sergeant



▲ Daniel Gallagher uses a chipping gun to remove a drain cover while Juan Roman looks on.

"[HELP FROM MY FAMILY] GIVES ME FREEDOM. PEOPLE COME TO THE SHOP AND THINK THEY'RE GOING TO SEE ME, BUT I'M 100% HANDS-ON IN THE FIELD."

DANIEL GALLAGHER

at arms for Philadelphia's Master Plumbers Association. He subsequently became the association's secretary, treasurer and vice president before being elected president five years ago, serving in that position for three years.

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DANIEL GALLAGHER

Was he successful? Well, membership doubled and camaraderie blossomed when he brought back the annual Christmas party so, yes, his presidency was deemed a success. Gallagher currently also sits on the state board for the Plumbing-Heating-Cooling Contractors Association.

And after years of planning, he and others in the Philadelphia Master Plumbers Association are on the verge of re-opening an apprenticeship school. The association is known for starting the first apprentice training school in the U.S. in 1883, but the school fell by the wayside during some changes with association leadership. They have signed a lease for a building and are aiming to host the first class of plumbing apprentices in October. After the plumbing program is established, the school will also offer HVAC and electrical programs.

While apprentices who sign up may come from different backgrounds, Gallagher says the goal is to focus on attracting at-risk youth.

“Our objective is to get these inner-city kids and put a tool in their hands instead of a gun,” Gallagher says. “These aren’t kids in a single-parent home — their grandmothers are raising them. I would like to help them. Too many people don’t want to give them a chance.”

If the organization successfully enrolls at-risk youth, the challenge then becomes inspiring them to stay the course.

“Having a good graduation rate, that’s the challenge,” Gallagher says. “The national rate for apprenticeship graduation is low.”

### CONSISTENCY IS KING

It’s a full plate of responsibilities that Gallagher has dished up for himself. Running a successful business. Helping oversee the trades in the city and state by serving on professional boards. Starting up a trade school program with the twin goals of increasing the number of tradespeople and decreasing the number of at-risk youths in Philadelphia.

Where in all that does the future of the company find a place?

“I look around and see some real big plumbing houses,” Gallagher says. “If that’s what God wants me to do, I’ll do it. I used to wonder if I was ever going to open up a second location and God gave me the opportunity. God has given me lots of things to work on, but he knows I can do it.”

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» Daniel Gallagher and Juan Roman prepare for a jetting job. Despite being owner, Gallagher still spends a lot of time in the field thanks to the help he says he gets from his family, including his mom, sister and wife.



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» Daniel Gallagher has become a main player in the plumbing and drain cleaning scene in Philadelphia, as he tries to help out the younger generation of workers in the same way he had guidance from mentors in his youth.

A handful of maxims guide his decision-making. One is consistency.

“That probably is my biggest attribute,” Gallagher says. “I do the same thing every single workday. I wake up at the same hour, eat at the same places, buy my trucks at the same place. My phone number has been the same since I was 19. A teacher once told me that 90% of life is just showing up. I do. It works.”

Another characteristic of Gallagher and of his company is the willingness to take on challenges. He cites companies that will dig up a pipe after only working 20 minutes to unclog it.

“I don’t pressure my guys in those situations. If we go out there and persist till the drain is clear, you have a customer for life,” he says.

Gallagher says he derives great satisfaction from succeeding where others have failed.



of their father. God afforded me the opportunity to help people and that’s what I try to do. It’s better to go to bed with a full heart than a full stomach.” c

“WE ARE IN THE SERVICE BUSINESS. I’M NOT A SALESMAN. I’M A PLUMBER. PEOPLE ARE BUYING DANNY GALLAGHER AND I WANT THEM TO GET FULL VALUE. I TELL MY KIDS THAT NOT TOO MANY PEOPLE SPEAK ILL OF THEIR FATHER.”

DANIEL GALLAGHER

Another guiding characteristic is putting people first. Gallagher says he hires people who are personable so customers will be comfortable admitting them to their homes. The plumbers and apprentices are given the freedom to take as long as necessary to completely meet a customer’s needs. His crews don’t receive commissions as an incentive because that can lead to overselling.

“We are in the service business. I’m not a salesman. I’m a plumber. People are buying Danny Gallagher and I want them to get full value,” he says. “I tell my kids that not too many people speak ill

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## MAINLINE SEWER INSPECTION

// By Craig Mandli

### CAMERAS HELP LOCATE INFRASTRUCTURE PLANNING ERROR



**PROBLEM** / A contractor in Winnipeg, Canada, was on site and having a hard time determining why a customer's basement was flooding shortly after redoing the sewer lateral from the house to the mainline.

**SOLUTION** / The contractor ran an **ANACONDA HD** pan-and-tilt push camera from **Fiberscope.net** by **MEDIT** into a manhole and down the mainline pipe past the house cleanout to determine that the connection was dry. Using the pan-and-tilt head, they looked sideways and could tell that the line was not blocked. They ran a second smaller **VIPER HD** drain camera through the lateral from the house to the road but could not see the smaller drain camera enter the mainline. Using the sonde in the **ANACONDA HD** camera head, they made sure the cameras were at the right junction by tracing the camera head under the road to confirm that everything was lined up properly, but the two cameras were not intersecting. City plans had to be pulled, and it was determined that the city had an abandoned line that was deeper than the newer mainline, which was installed over it. The city plans had not been updated with the difference in the depth of these, so the new house lateral had been tied into the old, abandoned mainline, causing the backup.

**RESULT** / Because the cameras were used, the city was able to update its plans and dig out the road to properly connect the house line to the new mainline. **877-613-2210; www.fiberscope.net**

### PROGRAM HELPS UTILITY PINPOINT PIPES NEEDING SERVICE



**PROBLEM** / A leader in the Smart Growth movement, the Virginia city of Arlington sought to adhere to a set of principles that help make it the leader in sustainability and development for its 233,000 residents. With a whole county of sanitary sewers to inspect, and three to four crews performing CCTV inspection every day, Arlington knew it had to maximize productivity where it could while minimizing disruption to residents.

**SOLUTION** / Utilizing **ITpipes**, Esri and Cartegraph, Arlington was able to streamline its workflow and maximize productivity. The chief engineer selects an area of the county from the Esri ArcGIS map within Cartegraph, issuing work orders for the assets within that selected area. These work orders are automatically pushed to the CCTV inspection vehicle's **ITpipes Mobile**. There, operators can see what pipes they are being assigned to inspect. All the asset information is already populated, and once the inspection is completed, the inspection is uploaded from the trucks. The inspection is now available to all Arlington stakeholders on **ITpipes Web**, and the Cartegraph work order is automatically addressed. **ITpipes Web**'s SmartTabs dynamically filters any pipe inspection that meets Arlington's predetermined criteria for follow-up cleaning or service, placing it into a separate list for review.

**RESULT** / "We are very focused on maintaining our buried assets in Arlington," says Jeremy Hassan, P.E. "The new workflow has almost eliminated duplicate efforts and allowed us to track pipes that need follow-up, holding a work order until it's complete. Now, once the data is collected, it is spread across the county for all to see, so it is hard to ignore issues with the pipes and forces them to be addressed." **877-487-4737; www.itpipes.com c**

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# IT'S HIP TO LINE SQUARE

PVC alloy liner's ability to conform to any shape host pipe allows Missouri city to rehab thousands of feet of 1930s era stormwater box culverts // By Kyle Rogers

## THE WORKS PROGRESS

**T**HE Administration under the terms of the New Deal built thousands of feet of stormwater box culverts in the late 1930s throughout Kennett, Missouri.

Fast-forward nearly a century and the deteriorating culverts were a problem city officials needed to address, particularly a portion running under residential properties posing a sinkhole risk to homes. But what was the best method for tackling that problem? The culverts were rectangular and, being hand-built, were roughly 18 by 30 inches though those specs weren't exact.

Thermoform liner from Warrior Trenchless Solutions ended up being the ideal solution. The PVC alloy liner has the ability to expand into whatever the shape of the host pipe is, making it well suited for non-round or irregularly shaped structures like Kennett's 1930s era box culverts. Over three weeks in late February and early March, Pipeline and Drainage Consultants out of Fort Mitchell, Kentucky, successfully used the Thermoform product to line almost 1,200 feet of Kennett's aging box culverts.

"With lining in general, until you get the camera in there and look at everything to make sure it's OK, it's always a little nerve-wracking," says Doug Brossart, co-owner of Pipeline and Drainage Consultants. "You just hope everything works out and everything did work out pretty well actually."

## STORMWATER SOLUTIONS

Pipeline and Drainage Consultants was started in 2015 by Brossart and his brother Don. They're also affiliated with Spartan Construction, a Kentucky utility and highway construction company in operation since 1982 and owned by their mother. Pipeline and Drainage Consultants focuses on stormwater inspection and rehab and does work throughout the Southeast U.S.

The company discovered Thermoform while looking for a product to compete in the cured-in-place pipe market.

"We had been doing a lot of sliplining and spin casting, but we really didn't have a product to compete with CIPP lining," Brossart says. "We went to WWETT a few years in a row trying to figure out what product we were going to get into and ended up teaming up with Warrior."

The WWETT Show is also where Kennett officials talked to Warrior and learned about Thermoform liner, ultimately getting paired up with Pipeline and Drainage Consultants for installation.

## CLEANING CHALLENGES

Pipeline and Drainage Consultants started the beginning of the work last year, initially visiting Kennett to do some preliminary condition assessment and cleaning of the box culverts.

"We went out there in October to do some light cleaning and get our cameras in there to see how bad it was," Brossart says. "They were



⚡ Kennett, Missouri, officials worried that deteriorating 1930s era box culverts could cause problems.

⚡ A culvert after being rehabbed with Warrior Trenchless Solution's Thermoform liner product.



hand-built and just formed by what looked like 1x4's and 1x6's. I guess a lot were built before the city was even really established in the area, so some were running under houses and they were in really bad shape.

There were 3- or 4-foot sections missing where it was just rebar. We had to be really careful cleaning it to not make it any worse. After we got one clean and ran a camera back in there, we'd see all this debris. We realized we were causing the debris. We were eating the sides of the structure out."

Ahead of the scheduled February/March rehab work this year, Pipeline and Drainage Consultants was on the hunt for a better method for doing the pre-lining jetting of the culverts. In addition to the poor condition being a cleaning challenge, some of the culverts were not straight shots.

"That gave us another challenge because all the jetting equipment wants to rub one side



⚡ A twin jetter setup using OMG nozzle heads from KEG Technologies helped crews handle challenges with cleaning the box culverts.

**COMPANY** Pipeline and Drainage Consultants

**LOCATION** Kennett, Missouri

**PROJECT** Cleaning and lining 1,140 feet of 1930s era stormwater box culverts

**EQUIPMENT** KEG Technologies jetter and nozzles on a Vactor 2100 unit, Thermoform PVC alloy liner from Warrior Trenchless Solutions

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## TOUGH JOB

“WE WERE JUST BEING EXTRA CAREFUL, MAKING SURE THE LINER WOULD EXPAND IN THOSE CORNERS BEST IT COULD. WE DID EVERYTHING SLOWLY AND CAREFULLY BECAUSE IT WAS A LEARNING CURVE FOR ALL OF US.”

DOUG BROSSART

when the culvert is on a curve,” Brossart says. “The angles of the heads were eating the sides of the box out because the concrete was so rotten. We were getting them clean but also making the boxes worse. We were worried we were going to undermine the stability around these culverts.”

Pipeline and Drainage Consultants took the problem to KEG Technologies, which provided a twin jetter setup using OMG nozzle heads.

“All of their velocity is straight back from the head, instead of right or left of it or up and down,” Brossart says. “With most of the pressure from those heads going straight back, we weren’t eating up the sides of the box, which was one of the main problems we were having when we initially started jetting. Those OMG heads, all of their velocity is straight back and it really made a big difference in the way we were cleaning.”

KEG Technologies representative Danny Manning even came out to the job site for a few days to assist the jetting crew.

“After some trial and error we got the culverts pretty clean the best we could,” Brossart says. “It was kind of get them clean with as much power as possible without tearing up what’s already there. So there was a fine line.”

Pipeline and Drainage Consultants ran the twin jetters from its Vactor 2100, often at 80 gpm and 2,000 psi.

“We would sometimes take one of the heads off and run them single. We did a lot of experimenting with the amount of jets, playing around with it until we got the right recipe on everything,” Brossart says. “We would pull in and then follow with our camera. See if we were cleaning it or tearing it up. We had to keep an eye on it.”

### SLOW AND STEADY

Brossart says his company had never lined anything square-shaped before, so he relied on Warrior for the Thermoform liner specs.

“We worked with their plant to come up with the right size liner and wall thickness and create something that would blow up in the culverts properly,” Brossart says. “In talking to Kennett, they said nobody had seriously considered lining. They’ve done some CIPP on several occasions but this was their first attempt at lining those square culverts.”



▲ Pipeline and Drainage Consultants out of Kentucky took on the job, lining 1,140 feet of the 10,000 feet of old box culverts that run throughout Kennett.

The work focused on 1,140 feet of the approximate 10,000 feet total that runs throughout the city.

“They’re hoping to maybe do some more as they get money in their budget,” Brossart says. “These first ones were all the ones underneath houses where there was concern about a sinkhole showing up under someone’s home.”

Once the lining crew got started, it took about a week to finish the job. Six runs in total were done.

“We were basically doing a run a day,” Brossart says. “We would set everything up. The liner takes a couple hours to get heated up. We’d pull it in, cool it down and then go in to cut the ends off. It took the better part of a day to get that done.”

“We added some extra heat and extra processing time because the culverts were square and we wanted to make sure the liner was going to fill those corners up. That takes a little longer. We were just being extra careful, making sure the liner would expand in those corners best it could. We did everything slowly and carefully because it was a learning curve for all of us.”

### CONFORM TO ANY PIPE SHAPE

Thermoform is a PVC alloy or a copolymer product, which is what made it a good fit for lining the shape of Kennett’s box culverts.

CONTINUED >>

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“What sets it apart from the more traditional CIPP liners you see is that all those liners are, in simple terms, manufactured on site in the host pipe through the curing process whether that’s initiated through steam, hot water or a UV light,” says Robin Hershman, business development manager at Warrior Trenchless Solutions. “You’re initiating a chemical reaction inside your host pipe to cure that liner. The finished quality of that liner really depends upon the conditions on site and the quality of that chemical reaction. With our Thermoform product, all those factors that control the finished quality of the product are determined at the point of extrusion in the plant. Things that engineers look for like tensile strength and wall thickness — all of that is determined at the point of extrusion and it does not change throughout the course of the installation process. It has the unique ability to, even though it’s extruded round, expand into and conform into whatever shape the host pipe is once we get it warm and hit it with steam. That’s why we’re able to line things like the box culverts.”

Hershman also notes that Thermoform has benefits from an environmental standpoint. Given some of the recent media coverage and ongoing research concerning the lining process and potential VOC and styrene emissions, Thermoform is an attractive alternative to people with those concerns.

“The only byproduct of our installation process is pure water from the condensed stream,” Hershman says. “No styrenes or VOCs of any sort are released during the installation of the product. It’s really because we’re not initiating a chemical

reaction. All we’re doing is heating and changing the shape of an already extruded pipe.”

## SUCCESSFUL OUTCOME

The week of lining work in Kennett went fairly smoothly in the end, Brossart says.

“We had talked about it so much in advance that the lining went about how we expected it to go,” he says. “We had a lot of discussions with the Warrior plant people on what size the liner was going to be and then Warrior had their field installing guys there to help if there was something a little unforeseen. The biggest issue for us was more on the cleaning side. Just getting the culverts clean enough without tearing them up worse was our biggest challenge. But the lining, we maybe even overthought it. We were so concerned about whether it was going to work or not.

“Once you pull the trigger on having the liner made, you have to put it in. It was a little nerve-wracking the first one, but once the first one blew up in there OK, it felt like the rest of it was going to go OK. Kennett was happy. I think they’re going to do a little more every year until all the box culverts are lined. We’d bid on the work again. It was a little bit of a learning curve, but I think we now have a good familiarity with making it work there.” **c**



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## STORM SEWER READY

Rugged and durable crawler camera system from Riezler helps Texas contractor handle any type of condition found in storm sewers // By Ken Wysocky

**S** COTT BOEHLER NEVER CEASES to be surprised at what he finds while inspecting storm sewers — everything from car tires and tree branches to even a tree stump and a section of a chain-link fence.

“Storm drains seem to catch everything,” says Boehler, owner of B2O Environmental in Arlington, Texas, which inspects storm and sanitary sewers for contractors and municipalities. “It’s amazing what you find down there.”

So when contractors asked him to consider inspecting storm sewers along with the sanitary sewers he already was televising for them, he needed a rugged and durable crawler camera that could tackle whatever mainline sewers dished out. That turned out to be a storm sewer inspection system from Germany-based Riezler. (Insight Vision is an American distributor for Riezler products.)

At a cost of approximately \$75,000, the package system represented a significant investment. But Boehler, whose late father Dick started the company in 1991, says he expects it to pay for itself relatively quickly. Furthermore, the inspection system opened up a new market for the company as well as boosted productivity through its versatility, durability and portability, Boehler says.

“The ability to enter a new market for inspecting storm sewers has helped our company grow big-time,” he says. “We’ve added a lot of business by adding storm sewer inspections to our other services — up to \$5,000 a month in additional revenue so far.”

### PRODUCTIVITY-ENHANCING TECHNOLOGY

The system is packed with features: an FWL-150, eight-wheeled crawler camera; an RSK-78 waterproof, wide-angle camera head with self-leveling and pan-and-tilt capability; a KTA motorized reel; a touchscreen control system; 18 dimmable LED lights; remote camera-elevation control; 1,000 feet of 3/8-inch Kevlar-reinforced cable; a KTA 300 motorized reel from Humbaur; and a daylight-readable, touchscreen control panel.

The crawler camera weighs about 41 pounds and measures approximately 4 1/2 inches tall, 5 inches wide and 21 inches long.

## B2O ENVIRONMENTAL

ARLINGTON, TEXAS

**OWNER** Scott Boehler

**MACHINE** FWL-150 crawler inspection system from Riezler

**FUNCTION** Inspecting mainline storm sewers from 6 to 80 inches in diameter

**FEATURES** A wide-angle, waterproof camera head with self-leveling, pan-and-tilt capability and 18 dimmable LED lights; remote camera-elevation control; 2 brushless DC motors; 8 powered wheels; zero-turn radius; 1,000 feet of 3/8-inch-diameter, Kevlar-reinforced cable; a motorized reel from Humbaur; daylight-readable touchscreen control panel; 41 pounds; 4 1/2 inches tall, 5 inches wide and 21 inches long

**COST** About \$75,000 for the entire system

The remote camera elevation control is a big efficiency booster because Boehler doesn’t have to remove the camera from a sewer line to adjust the camera head height for different-sized pipes. The feature is also particularly useful when he inspects storm sewer laterals, which typically are about 18 inches in diameter.

“I can lower the camera head and in seconds go from inspecting a mainline to inspecting a smaller lateral,” Boehler says. “Without that capability, I’d have to inspect each lateral from its curb inlet. That can be very time consuming. It’s the difference between doing one drop into a manhole instead of, say, dropping into 10 curb inlets.”

Moreover, the crawler’s zero-turn radius enables it to “turn on a dime,” Boehler says, which makes turns into laterals easy.

Inspecting larger sewer lines requires changing out the eight smaller wheels to four larger tires. The larger tires come in two different sizes and can be swapped out in minutes, Boehler says.

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RTD130-160	32.0	121.1	2300	160	50.5	36	42	3	128
RTD130-200H	34.5	115.0	2900	200	68.0	36	42	3	128
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RTX50	12.0	45.4	4350	300	35.8	25	23	3	72
RTX60	14.0	53.0	4350	300	41.8	25	28	1	72
RTX70	17.0	64.4	3000	200	33.8	30	23	3	72
RTX85	21.0	85.0	2200	200	31.7	30	28	1	72
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SCOTT BOEHLER

## POWER AND VERSATILITY

The unit offers plenty of power that helps it tackle difficult conditions. Boehler recalls one job in Frisco, Texas, where the camera had to tackle thick silt so deep it was up to the middle of the tires.

"I had to keep backing it up before going forward," he says. "It took about 15 minutes, but it made it through to finish the job."

The unit's portability also improves the company's business by being able to go places that camera trucks usually can't access, such as manholes in remote rural locations. Boehler typically carries the system in a Nissan Titan pickup truck, but the system



Scott Boehler, owner of B2O Environmental in Arlington, Texas, poses with the company's Riezler FWL-150 storm sewer inspection system.

is small enough that an ATV can easily carry it for jobs "out in the bush," he says.

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Boehler recalls one instance where a contractor with a van had to quit after two days on a job that involved inspecting 12,000 feet of sewer line because the vehicle was having trouble traversing the terrain.

"I put the system in a rented ATV and inspected about 4,000 feet on the first day, which was three times more than the other guy did in two days," Boehler says. "I get jobs just because of the system's portability."

**EASY TO OPERATE**

Boehler says about 70% of his business comes from inspecting new sewer lines for contractors, primarily in the greater metro area of Dallas and Fort Worth. The rest is generated by televising existing lines for municipalities. Either way, the system helps him and his six employees do more work in less time.

"I can inspect 4,000 feet of sewer lines a day as long as they're already clean," he says.

In addition, the system is very easy to operate, which makes

for a short learning curve.

"Even I can operate it," Boehler says. "Usually a sales rep has to come out and show me how to operate a new camera, and sometimes even after that, you still can't figure out how to use it and I've been televising lines for more than 30 years. But you don't need a degree to figure out how to work this system. It's easy to figure out."

It's also compatible with WinCan software, he notes.

**MONEY WELL-SPENT**

While the system is expensive, Boehler says he believes that contractors have to spend money to make money. And in this case, the money was well spent, he says.

"It's a big investment," Boehler says. "But I'm going to jobs where I'll charge \$3 a foot for cleaning and televising 40,000 feet of sewer line. So while it's a sizable investment, the return on investment is pretty good."

"I keep it working every day. I love this machine." c

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 <b>ARIES INDUSTRIES</b> 500 Elizabeth St. Waukesha, WI 53186 800-234-7205 • 262-278-1359 www.ariesindustries.com sales@ariesindustries.com See ad on page 19	Aries Industries	6" and up	1' to 1000'	Flash Drive/USB Thumb Drive, SD Card, WinCan Web, 3G or 4G Wi-Fi	✓	✓		✓	
<b>CENTRAL OKLAHOMA WINNELSON</b> 5037 NW 10th St., Oklahoma City, OK 73127 888-947-8761 • 405-947-8761 (f) 405-947-8761 www.centralwinnelson.com krjones@winnelson.com See ad on page 65	RIDGID	3/4" to 12"	3' to 325'	Flash Drive/USB Thumb Drive, Wi-Fi, SD Card, DVD, Bluetooth	✓	✓	✓	✓	✓
 <b>CPI PRODUCTS / CAVALLERO PLASTICS</b> 1250 North St., Pittsfield, MA 01201 413-443-0925 • (f) 413-443-9586 www.cplproducts.com • mtucker@cplas.com See ad on page 40	Roller Skids for All Brands of Push Cameras	3" to 18"				✓	✓	✓	
<b>CUA CLAWS FOR RESURFACING CAMERA WHEELS</b> 2376 Maize Rd., Twentynine Palms, CA 92277 714-697-8697 www.cuaclaws.com • jerry@cuaclaws.com See ad on page 67	Cua Claws						✓		
 <b>CUES, INC.</b> 3600 Rio Vista Ave., Orlando, FL 32805 800-327-7791 • (f) 407-425-1569 www.cuesinc.com • salesinfo@cuesinc.com See ad on page 23	CUES	2" to 200"	100' to 2000'	HDD, Flash Drive/USB Thumb Drive, Wi-Fi, SD Card, Compact Flash, DVR, CD, DVD, Cloud	✓	✓	✓	✓	✓ Pipe/Leak/Valve/Sewer
<b>DURACABLE MANUFACTURING</b> 300 Ashworth Rd., West Des Moines, IA 50265 800-247-4081 www.duracable.com • sales@duracable.com See ad on page 10	RIDGID, Milwaukee Tool, Drain Gear, Picote Solutions	Any	Any	HDD, Flash Drive/USB Thumb Drive, Wi-Fi, SD Card, Compact Flash		✓	✓		

DEALER OF	PIPE DIAMETER	REEL SIZES	RECORDING METHODS	SOFTWARE AVAILABLE	REPAIR FACILITY	REPAIR PARTS	ACCESSORIES	INSPECTION VEHICLES	LOCATION EQUIP.
<b>DYNAMIC REPAIR</b> 40 Arnot St., Unit 20, Lodi, NJ 07644 973-478-0893 • (f) 973-478-0895 www.dynamicrepairs.biz dynamicablerepairs@yahoo.com <b>See ad on page 67</b>					✓				✓
 <b>ENVIROSIGHT</b> 111 Canfield Ave., Unit B3, Randolph, NJ 07869 866-936-8476 • 973-252-6700 (f) 973-252-1176 www.envirosight.com • office@envirosight.com <b>See ad on page 5</b>	ROVVER X, Jetscan, Verisight, CleverScan, Quickview	2" to 120"	100' to 1640'	HDD, Flash Drive/USB Thumb Drive, Wi-Fi, SD Card, Compact Flash, DVR, CD, DVD, Cloud	✓	✓	✓	✓	✓
<b>EPL SOLUTIONS, INC.</b> 1330 W Collins Ave., Orange, CA 92867 714-453-9760 www.epls-usa.com • sales@epls-usa.com <b>See ad on page 57</b>	Gvision, Camtronics, Rycom, Vivax-Metrotech, Insight Vision	1-1/4" to 12"	67' to 400'	Flash Drive/USB Thumb Drive, Wi-Fi, SD Card, DVR	✓	✓	✓		✓ Electronic Smoke/Dye Pipe/Leak/Valve/Sewer
<b>FORBEST PRODUCTS CO.</b> 44130 Old Warm Springs Blvd., Fremont, CA 94538 877-369-1199 www.forbestusa.com sales@forbestcanada.com <b>See ad on page 61</b>	Forbest Products Co.	1" to 10"	65' to 400'	Flash Drive/USB Thumb Drive, SD Card, DVR		✓	✓	✓	✓ Pipe/Leak/Valve/Sewer
 <b>GENERAL PIPE CLEANERS/ GENERAL WIRE SPRING</b> 1101 Thompson Ave., McKees Rocks, PA 15136 800-245-6200 • 412-771-6300 www.drainbrain.com • info@drainbrain.com <b>See ad on page 2</b>	Gen-Eye	1-1/2" to 10"	100', 200', 300', 400'	Flash Drive/USB Thumb Drive, Wi-Fi, SD Card	✓	✓	✓		✓
 <b>HATHORN INSPECTION CAMERAS</b> 255 Shields Ct., Unit C, Markham, ON L3R 8V2 Canada 866-428-4676 • 905-604-7040 (f) 905-604-3400 www.hathorncorp.com sales@hathorncorp.com	HATHORN	1-1/2" to 12"	100' to 500'	Flash Drive/USB Thumb Drive, Wi-Fi			✓		✓ Pipe/Leak/Valve/Sewer
<b>ITC</b> <b>INSTRUMENT TECHNOLOGY CORPORATION</b> <b>INSTRUMENT TECHNOLOGY CORP</b> PO Box 1944, Sebastopol, CA 95473 800-519-1998 sales@instecorp.com <b>See ad on page 67</b>	Vivax-Metrotech	1" to 6" & 2" to 8"	17" & 24"	Flash Drive/USB Thumb Drive, Wi-Fi, SD Card		✓	✓	✓	✓ Electronic Pipe/Leak/Valve/Sewer
 <b>ITPIPES</b> 10412 Menaul Blvd., Albuquerque, NM 87107 877-ITPIPES www.itpipes.com • markg@itpipes.com	ITpipes Mobile, ITpipes Web, ITpipes Cloud, ITpipes Sync	All	All	HDD	✓				

DEALER OF	PIPE DIAMETER	REEL SIZES	RECORDING METHODS	SOFTWARE AVAILABLE	REPAIR FACILITY	REPAIR PARTS	ACCESSORIES	INSPECTION VEHICLES	LOCATION EQUIP.
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WinCan, iCloud

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saleswd@westerndrain.com  
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Drain Gear, Picote Solutions

Any

Any

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Compact Flash

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## MAXIMUM VALUE

A father and son recount how a team of qualified professionals helped guide them through a smooth ownership transfer of the family business // By David Steinkraus

**A**BOUT THREE YEARS AGO, father and son Andrew and Josh Gunia realized the time had come to do something with A Advanced Septic and Construction Inc.

Based in Auburn, Washington, part of the suburban area that runs south from Seattle to Tacoma, the company had grown and expanded under Andrew. Josh says he was chafing against the limits of not being the owner.

“As we get older, we measure the amount of risk we’re willing to take on differently based on where we are in life,” says Josh, 39, now owner and president of the company. “For me, I’m willing to take on lots of risk financially in many different areas because, worst-case scenario, if it all disappears, I’m young enough that I can rebuild and have years of life on my side hopefully.”

As a result, Josh says, their growth strategies, their acceptance of risk, and their willingness to partner on projects were different for him and his father in the past few years.

“THE CRITICAL PART IS TO IDENTIFY THE LIFE SITUATION YOU WANT WHEN YOU EXIT, AND CHART THE STEPS NEEDED TO ACCOMPLISH THAT GOAL BASED ON YOUR LIFE SITUATION NOW.”

SEAN OSTRANDER

### GROWING THE BUSINESS

Andrew, now the former owner, had started and expanded the company to seven divisions including civil construction, residential construction, plumbing, electrical, pumping, installing and home rehabilitation.

“Home rehab, that was my fantasy, but Josh couldn’t stand it,” Andrew says, and Josh laughs softly. “On top of that, it lost money for several years in a row.”

Also, Andrew says, he was passionate about civil construction while Josh had more liking for residential work.

“One of my problems is that, still to this day, I have to fight my own self to see my boys as 38 and 39 and leaders in the industry, when in my mind’s eye they’re still 17 and 18,” Andrew says. “We got to the point where Josh said, ‘Hey, either I’m leaving, or you’re leaving.’ By that time it wasn’t fun for me anymore either.”

Andrew says he realized the company was already larger than anything he’d envisioned, and he wasn’t interested in taking the company to another level.

“The good news in all of that process, is the key values and morals stayed intact in spite of feelings,” Andrew says.

When they got past the emotions, he says, they were able to come up with a plan. Through a referral, they connected with investment bank JD Merit. In about 90 days, the Gunias received an evaluation of the company. The value was not what the Gunias needed for Andrew to retire, but they learned how to adjust the value so Josh could get financing to make the purchase.

### IT TAKES A TEAM

Ideally, business owners should start planning for an exit when they start the business, and a few do, says Sean Ostrander, vice president with JD Merit in Gig Harbor, Washington. He is the mergers and acquisitions adviser who helped the Gunias reach their solution.

“This was a father and son who loved each other deeply, and the business was a sticking point in the relationship,” Ostrander says.

A mergers and acquisitions specialist should assemble a helpful team of professionals, he explains: They coordinate with certified public accounts, attorneys, wealth advisers and others so a deal moves smoothly. They also look for buyers. A portion of his time, he says, is spent on the phone maintaining relationships with private equity companies that may be interested in buying a business.

One of the biggest pitfalls for any business owner seeking to exit is to listen to the first potential buyer who knocks on the door, Ostrander says. Never assume that first person will end up buying the business,

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he adds. The difference between that and a managed sale with multiple buyers could mean millions of dollars, he says.

Many business owners don't understand how to value a business, he explains. Typically they believe value equals assets, which may undervalue the company, or they believe the business to be worth more than it is, he says. Cleaner financial statements often result in a higher valuation, he adds. Someone who treated a business like a personal bank account, running thousands of dollars in personal expenses through it, may find that it makes a difference of a couple million dollars in a sale.

"The critical part is to identify the life situation you want when you exit, and chart the steps needed to accomplish that goal based on your life situation now," Ostrander says.

**REMAIN FLEXIBLE**

For anyone with a business, Josh says, plan ahead because whether you're selling to a family member or another company, buyers will be looking at financials for the most recent three years. But beyond the accounting, establish the values or principles from which you want to approach the transaction, he advises.

"It's very important to guard yourself from other people's opinions and influence. It's a very emotional time," Josh says.

Some of his advisers disagreed with the way he and his father worked things out, he says.

"Had I listened to them, and not protected the core values we agreed on at the beginning, we wouldn't have had a deal," Josh says.

At the same time, you must be flexible, he adds. Too many people get stuck in their preconception of how a deal must happen instead of realizing that a different process could generate the same outcome.

Have your team in place — your banker, accountant, lawyer, and the people in your office, Josh says.

"Our team, inside of my building, is what made this deal come together," he says. "It was their hundreds of hours of document requests, of meticulous attention to documents."

Learn EBITDA, Andrew says. That's a financial measurement: earnings before interest, taxes, depreciation and amortization.

"I really didn't think it was going to happen, and there were so many components in this process that I would have never thought of, but also really didn't have any control of," Andrew says. "The message I would openly share for anybody who is a business owner is: Prepare, prepare, prepare, and spend some time around the topic because, quite frankly, this is your identity, your purpose, everything you've been doing for a lifetime."



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Josh and his father remain partners in a couple of other businesses, one a property management company that owns the land A Advanced Septic and Construction is on, and another that owns land containing a \$23 million plant that produces clean water and fertilizer from municipal wastewater and is owned and operated by Generate Upcycle and Sedron Technologies.

But transfer of A Advanced Septic and Construction, the primary company, is complete.

"Was it worth it? Absolutely," Andrew says. "I now spend every other month in Arizona enjoying the fruits of a lifetime of showing up every day whether I wanted to or not."

There is more to think about. Just five months after finishing the business transfer, at age 60, Andrew had a heart attack. There are three stents in his chest now. There was a period of time, he says, when he had to attend to the details of his life as if he would not be around anymore.

"There's no guarantees on how it all works out and plays out, and how long you get to enjoy what you've earned," he says. **c**



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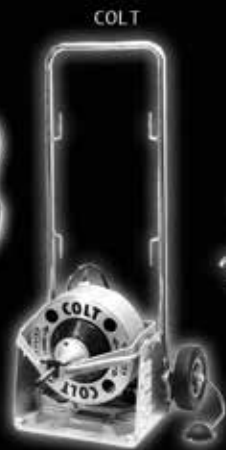


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#### 3 // ELECTRIC EEL ECAM ACE 2 SL

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#### 5 // EPL SOLUTIONS GVISION V7

The **Gvision V7** from **EPL Solutions** is a ruggedized, elite camera system that can be purchased for mainline use with 200, 300 or 400 feet of stiff yet flexible pushrod or a 150-foot mini-camera. Instantly capture video recordings and snapshots with the press of a button and access them anytime within the internal storage. The tech will never have to wonder where a video was taken as geolocation information is automatically attached and displayed on recordings. Add text overlay using the camera reel or a USB keyboard. Copy recordings and snapshots on two USB flash drives at once, or share them using the Gvision app. The app allows the user to remotely control, preview and download video inspections for easy sharing. Users can capture every detail with the color camera head clearly displayed on a 10.4-inch TruView LCD screen. Add an internal battery for up to six hours of runtime. **714-453-9760; [www.epls-usa.com](http://www.epls-usa.com)**



#### 6 // GENERAL PIPE CLEANERS GEN-EYE X-POD PLUS

The **Gen-Eye X-POD Plus** sewer camera system from **General Pipe Cleaners** includes the Gen-Pack battery adapter, Wi-Fi transmitter and an on-screen distance counter as standard equipment. The battery adapter lets you operate the camera system for up to 12 hours in remote locations with limited access to power. Fuse-protected to safeguard your equipment investment, the battery adapter is also available separately. A battery and charger are not included. The built-in Wi-Fi transmitter lets you view and record inspections on a cellphone. Using the system's USB port, you can also archive activity on handy flash drives. The on-screen distance counter shows how far the camera has traveled down a line in feet or meters. Settings can be adjusted for full-size or mini-reel configurations. **800-245-6200; [www.drainbrain.com](http://www.drainbrain.com)**



#### 7 // INSPECTORCAMERAS.COM SCOUT 3-PRO PLUS

The **Scout 3-Pro PLUS** from **INSPECTORCAMERAS.COM** is a lightweight, easy-to-carry, rugged and waterproof inspection camera. Use the 10-inch screen for better viewing and the 130-foot heavy-duty cable for longer pushes. Included is a 23 mm stainless steel camera head that self-levels with a sonde for locating. It can capture high-quality images while recording videos with sound from the built-in microphone. It has a Bluetooth keyboard for typing on the screen, secure internal storage for accessories, and a completely removable control box for limited space areas and easy cleaning. It comes with a set of skids, accessories and two chargers. **603-267-0400; [www.inspectorcameras.com](http://www.inspectorcameras.com)**

# PRODUCT FOCUS

## 8 // MYTANA PGR200

**MyTana's PGR200** push camera has the range and rigidity to inspect long laterals and small mains. The reel has a brake with adjustable drag to help manage the 200-foot pushrod as you work. A self-leveling camera head with adjustable LED illumination delivers crisp video footage and includes a built-in 512 Hz sonde. The control box mounts securely on a full swivel bracket so you can position the 12-inch daylight-readable monitor for best viewing. All-digital recording saves footage to internal storage or a USB flash drive. Operators can also stream video wirelessly to multiple devices. The rugged frame has balanced weight and anti-skid feet for easy maneuvering. **800-328-8170; [www.mytana.com](http://www.mytana.com)**



## 9 // RATECH ELECTRONICS PLUMBER'S HELPER JR.

The **Plumber's Helper Jr.** pipe inspection system from **Ratech Electronics** is based on a small-scale reel and comes with 100 feet of mini Gel Rod cable, a removable compact command module with 7.1-inch LCD, a built-in battery, and an SD recorder for digital images and video. This mini pipe inspection system is available with a full-spectrum, 1.375-inch, self-leveling color camera; a standard color camera; or any of the company's three micro camera heads — 5/8-, 3/4- or 1-inch diameter. **905-660-7072; [www.ratech-electronics.com](http://www.ratech-electronics.com)**



## 10 // RIDGID SEESNAKE MINI PRO

The **RIDGID SeeSnake Mini Pro** inspection camera with TruSense Technology provides digital self-leveling without mechanical rotation, inspecting up to 200 feet of 1 1/2- to 8-inch pipe with its midflex push cable that can navigate hard 90-degree bends. Its 25 mm digital self-leveling camera keeps the in-pipe image upright and, when paired with a TruSense enabled monitor, delivers an in-pipe image with clarity, detail and fewer blown-out areas and sections of the pipe too dark to see. Digital zoom/pan provides the ability to focus on a single point of interest, while the TiltSense Inclinometer measures the camera's angle and displays the degree of tilt on the monitor, giving a useful indicator of the pitch of the camera in-pipe. It pairs with the RIDGIDConnect Online Business Tool for seamless customer reporting. **800-474-3443; [www.ridgid.com](http://www.ridgid.com)**



## 11 // SECON EXTREME SERIES

**Extreme Series** cordless sewer mainline cameras from **SECON** come with two 20-volt DeWALT batteries and a charging station (Milwaukee upgrade available). An 18-volt power supply is included for plug-in operation. They have a Wi-Fi connection to view inspections in real time on personal smart devices as well as an SD card recorder (SD card included). The unit includes a 7-inch color LCD monitor, 512 Hz sonde/transmitter and a stainless steel camera head. They are available with 100 to 300 feet of push cable and are capable of viewing 3- to 12-inch pipe. **702-527-5100; [www.seconv.com](http://www.seconv.com)**







### 12 // SUBSITE ELECTRONICS PUSH CAMERA

When a transporter isn't an option because of pipe size or limited access, the **Subsite Electronics Push Camera** allows operators to complete inspections in the most challenging conditions. Ideal for pipes from 1.5 to 12 inches, it features single conductor technology with a rigid 1/4-inch fiber pushrod covered with a durable Hytrel jacketing that allows operators to inspect up to 500 feet down the line. Additionally, the 1/4-inch-diameter single conductor cable provides added strength without weight concerns, allowing operators to complete significantly longer inspections without the cable getting twisted or warped. The 1545 camera with an in-line 512 Hz beacon allows the operator to easily locate damage and blockage in the pipe. The camera is controlled by a 1575 controller, which features a rugged, durable and reliable enclosure. **800-846-2713; [www.subsite.com](http://www.subsite.com)**



### 13 // TROJAN WORLDWIDE VIS-130HDPT

The **VIS-130HDPT** all-in-one camera system from **Trojan Worldwide** includes a small pan-and-tilt 1080P high-definition camera head measuring 1 inch in diameter. The unit is encased with a 10.1-inch LCD screen, DVR recorder, controls for the camera head and a keyboard for text writing. With the included Wi-Fi capability, the user will have the ability to record audio and video directly to any Android phone or tablet, making this a versatile, compact camera. **800-392-4902; [www.trojanworldwide.com](http://www.trojanworldwide.com)**

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## 14 // VIVAX-METROTECH VCAMMX-2

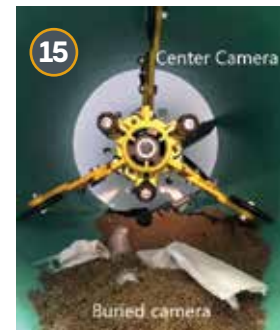
The **vCamMX-2** from **Vivax-Metrotech** is a portable all-in-one camera to inspect pipes between 1 1/2 and 4 inches. The control module's 8-inch daylight-viewable LCD screen shows the distance of deployed pushrod as well as the current time and date. Recordings are made in MP4 video and pictures in JPEG format directly to a USB thumb drive, then instantly backed up to an SD card. The internal microphone allows audio commentary over recorded video. The pushrod is traceable with the use of an external locator transmitter and is available in 100 or 150 feet. The 512 Hz frequency sonde is standard equipment. It comes with two interchangeable camera heads. The smaller D18-MX camera is fixed position and 0.70 inch in diameter, and the D26-MX is self-leveling and 1 inch in diameter. **800-446-3392; [www.vivax-metrotech.com](http://www.vivax-metrotech.com)**



## >> INSPECTION CAMERA ACCESSORIES

### 15 // CPI PRODUCTS URS1

Often inspection cameras get down a pipe and start pushing debris, which obstructs the camera lens, or they just cannot reach the problem. The **URS1** roller skid from **CPI Products** moves the camera off the bottom of the pipe and centers it for an improved image. The wheels reduce friction and enable the camera to also go farther down the pipe. The legs automatically extend to keep it centered, and when the retrieval rope is pulled, it reduces the size of the URS1, making it easier to retrieve. Optional LED scuba lights increase visibility. **413-443-0925; [www.cplproducts.com](http://www.cplproducts.com)**



### 16 // CUA CLAWS CRAWLER WHEELS

Crawler wheels from **Cua Claws** can help improve footage in wet, slippery PVC or other plastic pipe. The wheels have a tungsten carbide furnace brazed to the wheel. An extended range of modes is available that can be retrofitted to the customer's crawler. The company also offers a service to apply its carbide to crawler wheels. Some wheels are stainless steel and cannot be processed so Cua Claws has a line of replacement wheels of exact fit in mild steel so the grit can be applied. This way the customer can harvest the savings to re-grit instead of replacing the wheels when necessary. **714-697-8697; [www.cuaclaws.com](http://www.cuaclaws.com)**



### 17 // INFOSENSE SL-RAT

The Sewer Line Rapid Assessment Tool, or **SL-RAT**, from **InfoSense** is an acoustic inspection technology used to screen for blockages in small-diameter gravity sewers. It is a highly portable on-site assessment tool that utilizes transmissive acoustics to safely provide a very fast and low-cost understanding of blockage conditions. Hundreds of utilities around the world utilize the SL-RAT to rapidly screen collections systems and better deploy costly cleaning and CCTV resources. This technology offers real-time blockage assessments in 3 minutes or less with no flow contact. **704-930-0145; [www.infosense.com](http://www.infosense.com)**





18

**18 // MILWAUKEE TOOL M18 WIRELESS MONITOR**

Part of Milwaukee Tool's Modular Pipeline Inspection System, the **M18 Wireless Monitor** delivers clear, sharp viewing of sewer drainlines. Equipped with an 8-inch, daylight-readable screen, the monitor is optimized for use outdoors on a roof or in a dimly lit basement. With the ability to zoom up to 4X, users can get a better focus on the point of interest inside the pipe. Drain-cleaning technicians can easily replay saved videos, trim video lengths and add labels or audio directly on the monitor to show their clients. With a wireless range of 200 feet from the camera reel, it is easier than ever to show findings in real time. It is water-resistant and protects from other job site elements. **800-729-3878; www.milwaukeetool.com**



19

**19 // TRUGRIT TRACTION WHEELS**

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## » MAPPING SOFTWARE

### 20 // RAPIDVIEW IBAK NORTH AMERICA IKAS EVOLUTION

**IKAS Evolution** sewer analysis software from **RapidView IBAK North America** is capable of PACP, LACP and MACP data interface, adaptable to modern sewer inspection standards, and customizable to the specific user's workflow. It is available in four base bundles with over two dozen extension options including: full digital HD resolution, laser measurement and LaserScan continuous profile analysis. One module included in all four bundles is a powerful tool called 3D GeoSense. Compatible with all RapidView cameras (excluding AxialCam 2.0), each camera has an option to install a sensor that tracks the movement as it travels through the pipe. This allows it to capture distance, position and depth accurately and efficiently. **800-656-4225; [www.rapidview.com](http://www.rapidview.com)**



### 21 // WINCAN ENTERPRISE

**WinCan Enterprise** helps managers keep track of progress on different sewer projects directly from the cloud. Supporting an enterprise approach to work-order management, it gives users high-level control of project data for an entire sewer system. They can quickly break down inspection results with rating metrics and observation data, and when they are ready, all the details and raw media from individual inspections are available at the click of a button. Job maps give management teams the ability to oversee all projects currently in progress, with color-coded results that give insight into system health. Users can drill down into inspections directly from these map views or switch to a Kanban-style inspection manager to assign or move projects through their life cycle. **877-626-8386; [www.wincan.com](http://www.wincan.com)**



## » SMOKE BLOWER

### 22 // SUPERIOR SIGNAL SMOKE GENERATOR

Smoke generators from **Superior Signal** locate sources of surface inflow resulting in wet-weather sanitary sewer overflows. A fast, inexpensive and easy way to find leaks and faults in collections systems, smoke candles provide visible smoke to detect more faults at longer distances and come in sizes to meet any need. Smoke candles, blowers and fluid systems for smoke-testing are available. **800-945-8378; [www.superiorsignal.com](http://www.superiorsignal.com)**



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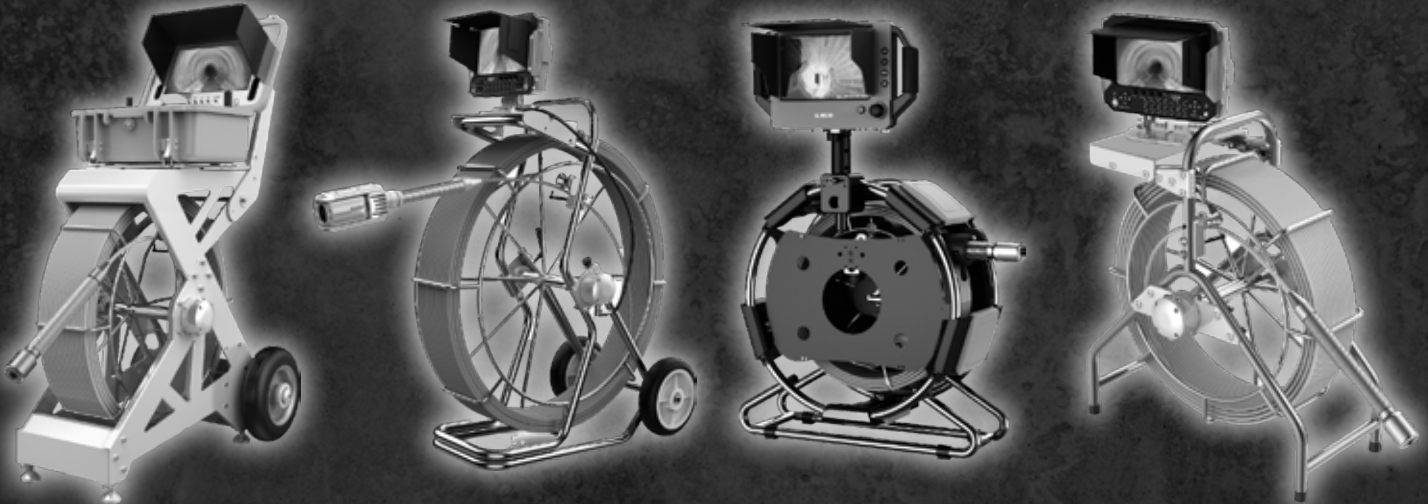
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## PRODUCT SPOTLIGHT

### FIELD SERVICE MANAGEMENT PROGRAM KEEPS DRAIN CLEANERS ORGANIZED

By Craig Mandli

To grow your drain cleaning business, you need to be organized. FieldBin, a cloud-based field service management software, can help. Its easy-to-use solution gives service providers, technicians, contractors and field service trade professionals the tools they need to stay organized and increase profits.

FieldBin manages every aspect of the business — from work order scheduling, dispatching, and inventory management to estimating, invoicing, and payments processing — using a simple-to-use interface, intuitive navigation and easy drag-and-drop functionality accessible from anywhere on any device. According to Garrett Wilson, co-founder and president of FieldBin, it's an ideal management device for drain cleaners.

“FieldBin’s solution solves common drain cleaning industry operations challenges such as efficient team scheduling and dispatch, tracking complex quotes and invoices, multiproperty customer job management, inventory and fixed cost reduction by keeping all business and customer data in one place to do more,” Wilson says. “The software is designed to give field service businesses and their teams the advantages they need to work faster, work more efficiently, be better organized and make more money.”

Recently updated features include GPS stamping for location and time tracking, inventory management for multiple locations, and increased customer messaging capabilities via email and text confirmations, “on my way” notifications, technician reminders, and live chat support for 24/7 assistance. FieldBin also made QuickBooks integration data synchronization improvements to better align operations and reporting information. Earlier, several new features were launched that included a price book which the company expanded on in this latest round of feature updates. Companies can



now build a price book of services they offer and then easily apply them to an invoice or estimate at a later date.

“FieldBin’s software is designed to meet the needs of cleaning companies dealing with worker shortages by enabling them to efficiently schedule, dispatch, and assign jobs based on their size, scope, and worker availability,” Wilson says. “Calendars that cross-reference team assignments to easily move workers from one job to another, for example, can be constructed so there is no wasted time, while task management can set reminders, prioritize stops, track time and manage workloads.”

According to Wilson, feedback has been extraordinarily positive.

“We often hear how much they love having all the workflows of their business connected in a single app, as well as how easy it is to use,” he says. “We also get feature requests and improvement suggestions from customers that we frequently implement to make the software better, as a direct result of real-world customer needs.” **541-754-3010; [www.fieldbin.com](http://www.fieldbin.com)**

#### 1 // VACALL AJV COMBO SEWER CLEANERS BUILT BY GRADALL

Vacall’s AllJetVac models feature an oval-shaped debris body with cylindrical sides for extra strength and efficient material dumping. Water tanks are fabricated from high-quality aluminum and mounted high on the chassis away from road debris. With lifetime warranties on water tanks and optional galvanized debris tank with supreme finish, top-class AllJetVac models are rugged machines that are built to work and built to last. **800-382-8302; [www.vacall.com](http://www.vacall.com)**





2



3

**2// SUPERIOR SIGNAL 5E FLEX BATTERY-POWERED SMOKE BLOWER**

Superior Signal's new 5E FLEX battery-powered smoke blower is specifically designed for smoke testing building plumbing and sewer laterals. The 5E FLEX is compatible with leading 18- to 20-volt tool batteries and, utilizing a high-quality power adapter, the blower integrates seamlessly with an existing electric tool set. Additionally, it can also run off any 12- to 24-volt power source — such as a car or truck battery — using the DC clips power adapter. The 5E FLEX gently pushes smoke through the system in only a few minutes and takes only seconds to see results. Smoke testing is a cost-effective solution ideal for hard-to-find odors, leaks and other faults in commercial, residential and municipal facilities. While the 5E Blower is popular for a variety of plumbing applications, it is also particularly useful in testing sewer laterals, and can clearly illustrate where a fault or leak may occur on private property. U.S.-made, the 5E FLEX comes with an 8-foot industrial grade hose. Used with Superior's 1A or 2B smoke candles, it creates 4,000 or 8,000 cubic feet of smoke, respectively. Superior's smoke candles are also sold in convenient SealPac cans which extend shelf life. 732-251-0800; [www.SuperiorSignal.com/CRFLEX](http://www.SuperiorSignal.com/CRFLEX)

**3// RIDGID K9-12 FLEXSHAFT DRAIN CLEANING MACHINE**

RIDGID, part of Emerson's professional tools portfolio, introduces the K9-12 FlexShaft drain cleaning machine, the latest in RIDGID's FlexShaft line. The K9-12 is the smallest of the machines and perfect for residential use, eliminating the need to repeatedly unclog the same household drainlines. Clearing up to 30 feet of 1 1/4- to 2-inch pipe, the K9-12 breaks up grease, hair and other soft blockages, making it ideal for kitchen and bath sinks, as well as tubs and shower drains. Powered by an 1,800 to 2,500 rpm cordless drill, the machine's chain knocker expands inside the pipe to quickly clear the blockage and restore the pipe to full flow. A flexible, protective sheath encapsulates the cable, keeping it fully enclosed for less mess and faster cleanup. The built-in clutch design also extends the cable life. 800-474-3443; [www.ridgid.com](http://www.ridgid.com)



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### Stellar Service Brands names new brand president

Stellar Service Brands, a multi-brand residential and commercial service organization that includes Restoration 1, bluefrog Plumbing + Drain and Softroc, has appointed Courtney Harmon as the brand president of bluefrog Plumbing + Drain, in addition to her role as brand president of Softroc. Harmon will play a pivotal role in consolidating support and direction for both emerging brands.



Courtney Harmon

### Stantec partners with Palmdale Water District, Capture6

Stantec has partnered with the Palmdale Water District and carbon removal startup Capture6 to design an advanced water treatment demonstration facility with novel brine management technology in Palmdale, California. The AWT demonstration facility is part of PWD's Pure Water Antelope Valley indirect potable reuse program, which will produce approximately 5 million gpd of potable water using tertiary effluent from the Los Angeles County Sanitation District's Palmdale Water Reclamation Plant. Stantec is providing program management services for Pure Water AV.

### RIDGID STEM Day teaches students about roles in manufacturing

RIDGID, a part of Emerson's professional tools portfolio, hosted its third annual We Love STEM Day in June for local students in grades three through eight. The event is designed to expose young learners to the real-world roles science, technology, engineering and mathematics play in their everyday lives and potential future careers. Students participated in a variety of hands-on activities, including making balloon cars, robotic hands, pinwheels, water filtration systems and solar-powered cars. Each activity allowed students to learn about the importance of mechanical engineering, electrical engineering, renewable energy and natural resources in manufacturing.

### Aries sells water well assets

Due to significant growth in its core business of wastewater inspection and rehabilitation product lines, Aries Industries is selling its non-core water well assets to Laval Underground Surveys of Fresno, California. The sale allows Aries to focus and invest its efforts entirely in the continued development of solutions for the larger wastewater inspection and rehabilitation markets. LUS will immediately assume responsibility for Aries Industries' water well quotes, parts, service, support and warranty. **c**



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