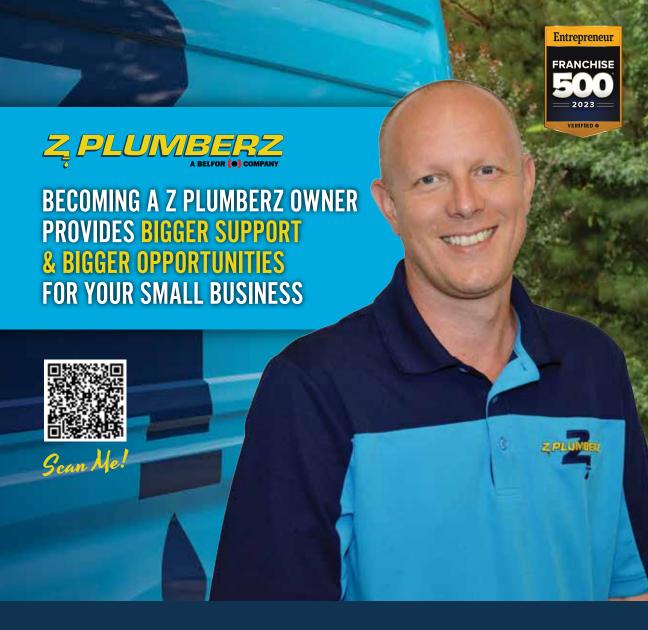


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Bigger Isn't Always Better

Knocks spurred plumber to play small ball.

- By Ken Wysocky



On the Cover

Baker Plumbing third-year apprentice Peter Baker, owner Bob Baker's son, uses a Milwaukee Tool Sectional Machine to clean a drain at a commercial property in Calgary, Alberta. Bob Baker took over the family business by 2000 and now has six employees and handles commercial service and repair plumbing throughout metro Calgary.

(Photography by Jeremy Klager)

Coming Next Month -Flow Expo Show Issue, Pipeline and Lateral Rehabilitation

- Plumber Profile: Pipeline Plumbing (Portland, Oregon)

From the Editor:

Making the Move

Transitions happen all the time, make sure you and your team are prepared for them when they come up. - By Cory Dellenbach

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22 On The Road:

Body Language

Company's fleet of utility-body trucks speaks volumes about productivity and durability.

- By Ken Wysocky

Rolling Billboard:

Semper Fi Pump Service Inc.

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Industry Insider:

Building Better Relationships

Six easy ways you and your team can pull in and keep customers long-term.

- By Dave Bailey

Smart Business:

Figuring Out the Equation

To develop a happy plumbing professional, simplify your approach to onboarding and follow lessons with hands-on learning in the field.

- By Kate Zabriskie

Talking Work:

Swimming With the Fish

Designing, plumbing a koi pond needs to take thought and planning from both plumber and owner.

- By James Careless

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Residential Plumbing

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Product Spotlight: Efficient tankless water heaters a fit for multiple applications

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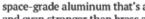
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FROM THE EDITOR



Cory Dellenbach

Making the Move

Transitions happen all the time, make sure you and your team are prepared for them when they come up

ransitions happen all the time, both in your home life and your work life. Sometimes these transitions can be easy and other times, not so.

Moving from one job task to another quickly and efficiently is one transition that plumbers can run into. Working on a water heater repair and then shifting to a fixture installation are just normal activities for you and the team you work with.

At times transitions can be much bigger, like looking for a new job with a different company all together or making changes at the company you own. Either way, it's best to be ready for any transition that might come your way.

THE BIG MOVES

The two biggest transitions you will probably run into in your career is either changing jobs with companies you work for, or making changes at the company you own.

Making career changes is always a transition that takes time and patience. It's going to take time to get accustomed to the new job and get the proper training. Make sure you know what you are heading into when making this transition. Is it a move you really want to do or is it something



There is never a right or wrong time to make big transitions. They just seem to happen when they do.

you may end up regretting in a few months? Take the time needed to evaluate your decision.

Another big transition is making changes with your own company. Bob Baker, owner of Baker Plumbing in Calgary, Alberta, had to do that in 2015 in order to make his company better. As you'll read in this issue's profile on Baker Plumbing, the owner let all of his employees go because having a large staff caused him stress and he saw things he didn't like — such as inconsistent job quality.

While Bob says "it was one of the hardest things I ever had to do," he knew he needed to otherwise his company would be in danger of not succeeding.

WHEN TO MAKE TRANSITIONS

There is never a right or wrong time to make big transitions. They just seem to happen when they do. For a large move like Baker did, it could take days, weeks, or months to decide what that transition needs to look like.

For a smaller transition like going from one task to another, it shouldn't take that long, but you can make it easier on yourself by ensuring you have a truck fully stocked with all the equipment and tools you might need throughout the day.

YOUR MOVES

What are ways you've made transitions easier on your-self and your team? I'd like to hear your ideas. Email me at editor@plumbermag.com and let me know.



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hen Bob Baker assumed ownership of Baker Plumbing, his family's wellestablished business in Calgary, Alberta, he kickstarted an aggressive growth strategy, guided by the concept that getting bigger was better than staying small.

"My father always was very conservative," says Baker, referring to the late Gerry Baker, from whom Baker inherited the company. "For most of his career, it was just him and me. But I decided to take the company in a different direction."

As it turned out, bigger was better — until it wasn't. That point came in 2015, when Baker decided to drastically downsize the family business, established by his grandfather, Ralph Baker, in 1956. Today, the company employs just six people, including three technicians: Baker and his two sons, Isaiah, 25, and Pete, 23, an apprentice.

Baker's roughly decade-long roller coaster ride from small business to big business to small again offers some important lessons for plumbers about the risks of fast, exponential growth; the benefits of offering diverse services; the value of carefully selecting a specific market niche and providing great customer service; and the merits of embracing new technology that improves productivity and profitability and opens up new markets.

It also underscores the importance of a little thing called resilience, which helped Baker, age 52, weather what essentially amounted to a complete rebuild of his company that often required 100-hour workweeks for

66 Maintenance contracts are great because they're realized revenue — guaranteed money. And customers are happy because they avoid disasters."

Bob Baker

"It was a lot of work," he notes. "But in the end, it was all worth it."

DEEP PLUMBING ROOTS

Baker initially had no interest in becoming a plumber. While he worked for his father throughout his teenage years, Baker told him after graduating from high school that he never wanted to hold a pipe wrench again.

Instead he earned a computer science degree at Mount Royal College and got a job after graduation in 1992. His career in computers was short-lived.

"After one week of sitting in a cubicle, I decided there was no way I was going to do this for the rest of my life," he says. "So I went back to my dad and begged him to let me sign up as an apprentice. And here we are."



Plumber **Profile**

By 2000, Baker was effectively running the company as his father slowly disengaged from the business. He officially took over as the company owner when his father died in 2006.

Baker initially steered the company, which was focused primarily on installing septic system drainfields and bathroom remodeling projects, into a more lucrative niche: new-construction plumbing for large, 5,000- to 10,000-square foot homes.

But the deep recession of 2008 hit the company hard; work on 13 luxury homes suddenly diminished to just one house in a span of about four weeks as building contractors went belly up.

A NEW MARKET BECKONS

An abrupt U-turn followed as Baker recalibrated and

entered the market for commercial service and repair plumbing. Rapid growth continued and by 2014, the company employed 18 people and was running 12 service trucks.

Baker chose to do commercial plumbing because the need is more constant than residential work and not as vulnerable to economic downturns. In addition, it's easier to build long-term relationships with commercial customers because they need service more often. Furthermore, they typically have budgets for things like plumbing repairs, unlike residential customers, who often are more interested in spending as little money as possible, he notes.

"We stayed busy even during COVID," Baker says. "There's no real off-season for commercial service. Most people we work with now we've worked with since around 2010. Many of them are on scheduled maintenance contracts where we jet out and inspect their lines every three months.

"Maintenance contracts are great because they're realized revenue -

> Journeyman plumber Isaiah Baker uses a RIDGID CS6X SeeSnake and RIDGID MINI TruSense while apprentice Peter Baker, back, uses a RIDGID Navitrack as they perform a sewer inspection.

66 Our profit margins are exactly where I want them to be and we're really busy."

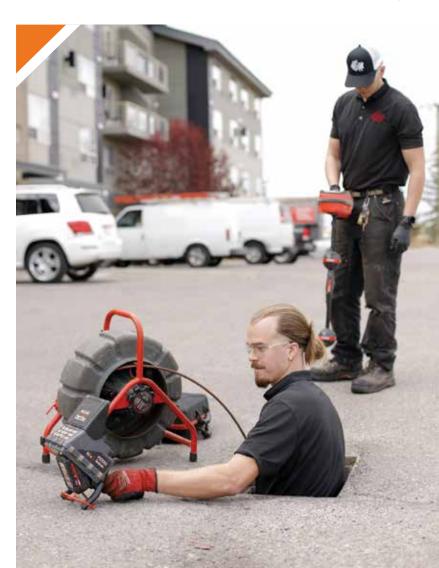
Bob Baker

guaranteed money," Baker explains. "And customers are happy because they avoid disasters. There's nothing like what we call a Friday night flood to get a business to sign a maintenance contract."

AN ABRUPT STOP

Nonetheless, things didn't work long-term as planned. The main cause? Employees who couldn't provide the kind of high-level customer service he and his customers expected, not to mention all the associated headaches that come with more employees, more bills, more vendors, more service calls and so forth.

Continued >



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Drain Cleaning Amps Up **Revenue and Profitability**



It doesn't bother Bob Baker that many plumbers don't want to do drain cleaning because it leaves more work for his company, Baker Plumbing in Calgary, Alberta.

But at the same time, the veteran plumber can't understand why more plumbers don't clean drains — a service the 67-yearold company has been offering customers since 1996.

"I don't know how plumbers don't do it," Baker says. "There's so much money to be made. It's said there are two ways to make money: do things no one else can do and do things no one wants to do, and this falls under the latter.

"For us, drain cleaning leads to so much other business (such as pipeline coating and pipe lining)," he continues. "Drain cleaning helped us get our foot in the door with commercial clients.

"When you can clean drains as well as fix your \$10,000 boiler and provide other services, too, you become the go-to company for everything they need," he concludes. "Being a one-stop shop definitely has been an advantage for us."

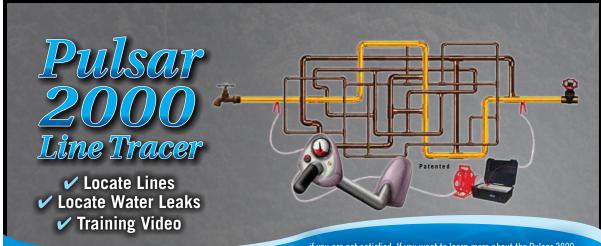
The company's go-to drain-cleaning tool is the compact but powerful RIDGID K-5028 sectional machine, which Baker says he bought during an emergency service call because other machines weren't getting the job done. The company was called into a shopping mall to clear a 6-inch-diameter cast iron sewer line that, as it turned out, was clogged by chunks of wood and other debris that built up behind them.

"We ground away on that clog unsuccessfully for about five hours," Baker explains. "So I went out and bought the K-5028 for about \$6,000. It unclogged the line in less than an

"The mall owner was very grateful," he continues. "That machine made us heroes, for sure. And I charged \$10,000 for the job, so the machine paid for itself the same day I bought it.

"I was shocked at how well it worked," Baker adds. "I was as impressed with that machine as our customer was with the results. I can't think of a machine with a better return on investment."

Continued >



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- Peter Baker works on a bathtub faucet at a customer's home in Calaary.
- ▼ Bob Baker uses a FieldPiece Dual Port Manameter and Pressure Switch Tester to check over and adjust pressure switches.

66 Our motto is if we can't do it, it can't be done. so we have to back that up by having the equipment to fix problems and fix them right." Roh Raker

"You think that if you keep hiring more guys and buying more trucks, you're going to make more money," he notes. "But it doesn't always work out that way.

"I was stressed out beyond belief," Baker continues. "It was just awful. We had all these high-end jobs, working on big, beautiful restaurants and \$50 million hotels — the kind of customers that had far higher expectations for customer service and craftsmanship.

"And with that many employees, there always was someone not meeting those high expectations," he adds. "I just got tired of apologizing every day for not meeting the expectations of customers who were extremely important to our cash flow."

Baker says he woke up one morning in October 2015 and decided that enough was enough. When he got to work, he called a meeting and informed employees he was letting all of them go.

"It was ridiculously hard," he says. "It was one of the hardest things I ever had to do."

STARTING OVER

Baker hired one employee and kept working with preferred customers while deciding to no longer work for others.

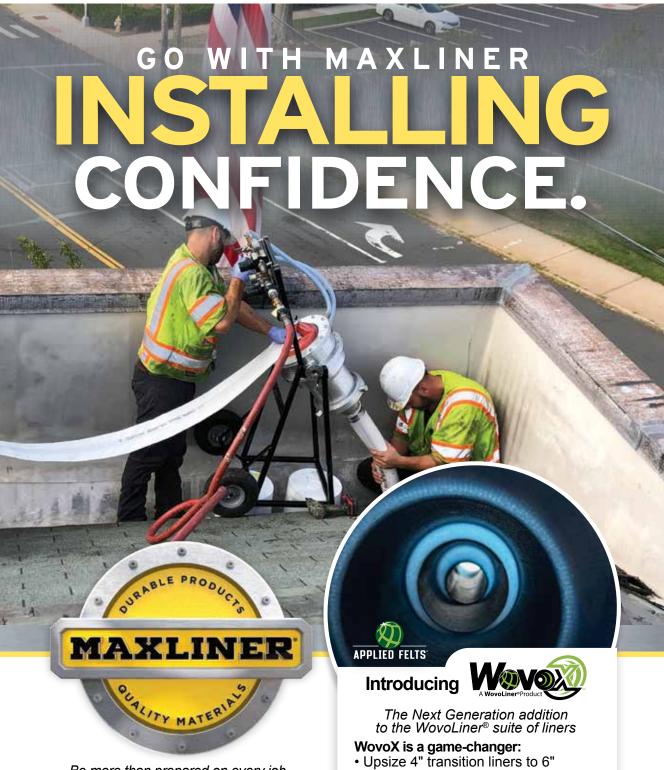
After a couple of years, Isaiah came aboard, and Pete

joined the company in 2020. Today the company focuses on a core clientele of hotels and restaurants and bolsters its business with scheduled-maintenance contracts for drain cleaning. Baker added drain cleaning to the company services when he started managing its operations in 2000.

The company also does pipe-coating, using the Brush Coating System from Picote Solutions; gas-fitting for boilers, furnaces and the like; and pipe lining.

"I don't know how you can provide only one service and be profitable at it," Baker says, explaining the benefits of offering a variety of services. "In fact, we'll do just about anything for customers as long as we have the knowledge and the tools to do it. I've fixed door hinges and hand railing for customers just because it provides another layer of value for customers."

Of course, providing multiple services requires a large inventory of equipment. For drain cleaning and pipeline inspections, the company relies on three RIDGID K-5208 sectional drain machines, RIDGID K-45 handheld units, RIDGID SeeSnake inspection cameras (standard, Compact C40, Mini Reel and microReel models; a RIDGID KJ-3100 cart-mounted jetter (3,000 psi at 5.5 gpm); and two JM-1450 cart-mounted mini-jetters (1,500 psi at 1.7 gpm) from General Pipe Cleaners (a division of General Wire Spring Co.) Continued >



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◀ From left, Bob Baker, owner, master plumber/ gasfitter; and his two sons Isaiah Baker, journeyman plumber; and Peter Baker, third year apprentice.

"Then we have it on hand for the next time we need it," he says.

A FOURTH GENERATION IN WAITING

As Baker looks back, he says that as painful as the downsizing was, it was the best move he could've made. It enabled him to better control job quality and minimize stress and headaches.

"Our profit margins are exactly where I want them to be and we're really busy," he says. "And I'm very involved with everything and can help the boys with problems.

"And because they're family, they're invested in the business at an entirely different level than a regular employee would be. So I feel like I'm able to ask more of them to get a job done and done right."

As for what the future holds, say, five years or so down the road, Baker envisions his sons carrying on the family legacy while he steps aside and "throws in some sage advice here and there."

He concedes that any kind of growth is constrained right now, with just three technicians. But he says he thinks Isaiah and Pete could very well decide to take the business to another level.

But whatever they do, Baker says he is extremely gratified his sons are interested in carrying on the family name in the plumbing industry.

"It'll be awesome — I love it," he says. "It gives me a wonderful sense of accomplishment and pride that they've taken such a keen interest in the business and will continue what my grandfather started way back when."

Technicians also rely on RIDGID 300 pipe-threaders, a RIDGID RP351 ProPress gun and RIDGID and Milwaukee Tool power tools. The company runs four service vehicles: two GMC Savana cargo vans, a GMC Astro van and a GMC Sierra pickup truck.

INVESTMENTS IN TECHNOLOGY

Embracing new technology is critical to success. It not only improves productivity, it can open up new markets as well as make a business a one-stop shop for customers, Baker says.

"Our motto is if we can't do it, it can't be done, so we have to back that up by having the equipment to fix problems and fix them right," he says.

A good example is the Picote epoxy brush-coating system, which Baker says he learned about by reading Cleaner magazine.

"Then I looked it up on Instagram and watched a contractor coat pipes," he explains. "I thought to myself, 'I can do that." So I made some phone calls and ended up buying the Picote system in fall of 2021."

Baker recently used the Picote system to fix leaking PVC pipes buried under concrete near an outdoor pool and a hot tub at a resort hotel. One contractor offered to jackhammer the concrete and replace the pipes for \$80,000, which would've put the pool and hot tub out of service for weeks.

But Baker came in and coated the leaking pipes for about \$10,000. And he did the job over one weekend, with minimal pool and hot tub disruption, he notes.

"The customer was absolutely delighted," Baker says. To cover the cost of such specialized equipment, Baker explains that he usually includes the price of the equipment in a job bid.



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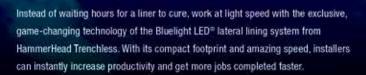
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5433



Body Language

Company's fleet of utility-body trucks speaks volumes about productivity and durability Bv Ken Wvsockv

ow important are Knapheide Mfg. utility truck bodies to the success of family-owned Brinkman Plumbing Contractors, a 32-year-old business based in Quincy, Illinois?

Critical enough that owner Jim Brinkman still vividly remembers the day he took delivery of his first new one in 1992. He already owned two used Knapheide bodies at the time and couldn't wait until he'd saved enough money to buy a new one.

"I thought I was in high cotton when I got it," says Brinkman, who established the company in 1991. "In fact, I still have pictures of that truck. It was a pretty big deal."

Since then, Brinkman estimates he's purchased 50 Knapheide bodies, mostly utility models with an enclosed storage area (roughly 4 feet wide and 11 feet long) in between two banks of cabinets accessible from the exterior. He grew to admire Knapheide products while working for a plumbing company before he formed his own, and Knapheide's production facility - located in northern Illinois - was one of the company's clients, he says.

Brinkman Plumbing employs 32 people, including 27 plumbing technicians, and does industrial, commercial and residential plumbing. The company serves customers within about a 60-mile radius

around Quincy (located on the Mississippi River in westcentral Illinois), which includes parts of Missouri and Iowa.



Brinkman Plumbing Contractors owner Jim Brinkman stands near one of his company's trucks outfitted with a Knapheide Mfg. utility body at their shop in Quincy, Illinois. The company has 28 vehicles fitted with the utility body. (Photo courtesy of Brinkman Plumbing Contractors)

44 Just having all the materials in the right place and knowing where everything is, as opposed to tools and parts just scattered about, is huge from an efficiency standpoint."

Jim Brinkman

The company runs about 28 trucks, a combination of Ford F-350s and GMC 2500s. Almost all of them are configured identically.

Knapheide bodies typically last about 20 years, and Brinkman tries to buy a new one every year to replace the oldest one in the fleet.

PRODUCTIVITY AND BRANDING

Why stick with Knapheide for more than two decades? Two key reasons: Productivity and branding, Brinkman

The steel and aluminum truck bodies are warehouses on wheels. They deliver a productivity boost by carrying roughly \$10,000 worth of parts and tools. Some of the exterior cabinets hold tools while others are equipped with drawers, shelves and bins.

"We buy the Knapheide bodies to achieve optimal efficiency," Brinkman says. "Just having all the materials in the right place and knowing where everything is, as opposed to tools and parts just scattered about, is huge from an efficiency standpoint.

"In the morning, all our technicians go to a staging area and load up their materials for the day," he continues. "Then they head out to their job sites, where they stay for eight hours because they have everything they need on those trucks.



VEHICLES 28 Ford F-250 and GMC 2500 trucks outfitted with Knapheide Manufacturing utility bodies.

FUNCTION Increased efficiency and productivity while transporting

materials/tools/parts

FEATURES Two banks of weathertight exterior cabinets; steel construction; enclosed 4-by-11-foot interior central storage area; rear barn doors; built-in, customizable shelf, drawer and bin configurations; side above-cabinet walkways with chrome tread plates for safe access to roof-top pipe racks.

[05] About \$28,000 per utility body

WEBSITE www.brinkmanplumbing.com

KNAPHEIDE www.knapheide.com





"I don't want them going to parts warehouses," Brinkman adds. "I want them leaving here all loaded up and ready to work."

Furthermore, the bodies are pretty much identical, which helps keep operations moving efficiently if a technician unexpectedly has to drive a truck other than his own, he notes.

PROTECTION AND SECURITY

Furthermore the weathertight canopy and cabinets protect tools and materials from damage incurred by the weather. Plus the cabinet doors and rear barn doors can be locked with padlocks, which prevents costly thefts, Brinkman points out.

"Plus nothing can blow out of the rear of the truck and hit another vehicle," he adds.

Inside the center storage area, LED lights keep things highly visible.

"When those lights are on, it's really bright in there," Brinkman says. "It's 100% better than a dimly lit cargo van."



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44 I wouldn't want to run our business without them. It would make life more difficult and we wouldn't be as profitable."

Jim Brinkman

Furthermore, a 5-foot-high ceiling allows technicians to move around much more easily than if they were inside a cargo van, Brinkman notes.

"You just have to bend your head down a little and you can walk around pretty easily," he says.

Some customized features also increase productivity and efficiency. In particular, the trucks include roughly 8-inch-wide walkways on each side of the truck, above the cabinets. For added safety, they're covered with chrome tread plates, as are the steps that provide access to the top of the truck, where pipe racks hold materials, Brinkman says.

BUILDING BRAND RECOGNITION

The Knapheide bodies also boost brand recognition. The trucks and bodies are painted green and the cabinets' flat-panel doors provide plenty of space for the distinctive Brinkman Plumbing logo and lettering.

"After all these years, people definitely know us by our green trucks and those utility bodies," Brinkman says.

The utility bodies cost around \$28,000 each. Add in a truck chassis and tools and the cost tops out at about \$70,000, he says.

"But if you break down the cost of the utility bodies over 20 years, it comes out to around \$1,400 a year," Brinkman points out. "We save way more than that a year just in materials not getting damaged by weather, stolen or blowing out of trucks, not to mention how they help increase productivity and efficiency.

"I wouldn't want to run our business without them," he continues. "It would make life more difficult and we wouldn't be as profitable. Speed and efficiency are the name of the game and that's exactly what we get with these utility bodies."

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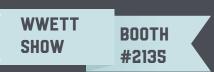


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Semper Fi Pump Service Inc.

Saylorsburg, Pennsylvania

oby Poster, president of Semper Fi Pump Service Inc. and a Desert Storm veteran, wanted to recognize his six years active duty in the United States Marine Corps and designed this box truck for his company, based in Saylorsburg, Pennsylvania. The graphics, designed by Bay Image in Texas, shows a soldier on the box of the truck and the driver's side door carries the U.S. Marine Corps emblem. This truck pictured is a 2020 Chevy 3500 Savannah box truck. The 14-foot interior of the truck sports aluminum shelves built by Poster's welder and bins that were purchased from American Van. The company offers complete well pump, grinder pump and septic service throughout a 60-mile radius of Saylorsburg, which is about an hour and a half west of New York City. Poster says they also have a small septic pumping truck with a similar wrap. The company, which has been in operation for over 25 years, is also a distributor for Engineered Products in Pennsylvania. For more information on Semper Fi Pump Service Inc, go to www.semperfipumps. com.



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Building Better Relationships

Six easy ways you and your team can pull in and keep customers long-term **Bv Dave Bailev**

he goal of home service companies is to get the phone to ring. We can calculate the cost to get the phone to ring, and to have a service truck show up to a house. Depending on your market, it can be very costly to get a service truck to a new customer's home.

How many companies are you competing with for the ability to take care of that one customer? Once you've won the opportunity, how do you keep that customer calling your company for any future service needs?

Do you see your customers as someone that needs you to sell them something, or are they people with a problem that you are there to solve? Of course, they need to buy the solution to their problem, but getting them to buy can be difficult unless you are able to establish trust and to build a relationship.

Whether your company services residential or commercial customers, here are some things your plumbers, technicians and customer service representatives can do to build trust with your customers and get them to call you back when the need arises.

Have you ever called your own company as a "customer" to see how you are greeted and treated by your CSR? Have your CSRs been trained on how to interact with your customers? CSRs set the mood for your customers. If they have a great attitude and are helpful on the phone, the customer will be at ease and will be more willing to spend more time with your plumbers and technicians.

1. Do your CSRs have a really good understanding of the services your company provides? It may not be a bad idea for your CSRs to spend time in the field to learn more about what your plumbers and technicians do. Also, have your plumbers and technicians spend time in the office listening to the conversations that your CSRs are having with your customers.

- 2. Know your job and be honest when you don't. Be confident in your ability to properly diagnose the problems and to fix them in a timely manner. If you aren't sure how to proceed, or if you're stumped by a problem, tell the customer this and ask someone in your company for help. Your customers will respect honesty. Try to avoid saying "I don't know." Tell them that you're having trouble diagnosing, or fixing, an issue and that you'd like a more experienced plumber to give their input.
- 3. Listen to understand, not to respond. You may have fixed this exact same issue a hundred times before, but you haven't fixed it a hundred times for this customer. Listen to what they have to say. Building relationships with your customer will keep you working when things start to slow down.
- 4. It's OK to do things for free sometimes. Have you ever gone out on a clogged tub call for a senior citizen only to find the trip lever down? The tub is actually draining fine, but someone hit the trip lever and made it look like the tub was plugged. Take the time to show the customer this. They'll be embarrassed, but they'll be grateful that there isn't a major issue. The trust you're building is valuable. This customer will tell their friends and family about their embarrassment and about your

Do you see your customers as someone that needs you to sell them something, or are they people with a problem that you are there to solve?

- honesty. Since you have worked toward earning their trust, they'll be more likely to go with your recommendations in the future, when something really is wrong.
- 5. Don't be afraid to give them bad news. You just cleaned a bunch of roots out of their sewer line. After you get the line open, you see a crack in the line that's letting the roots in. The line is seven feet deep and under the driveway. You feel bad for them, so you cut the roots out and call it good. Is that really solving the problem? Your customer needs to be aware that this issue exists and that it needs to be fixed or roots will grow back and, eventually, the pipe will collapse. Don't feel bad. You didn't cause the problem, but you can certainly fix it. It's not up to you to decide what a customer can afford and what they can't. Remember, you're there to solve their problem. If you don't solve it, your competitor will.

Know your job and be honest when you don't. Be confident in your ability to properly diagnose the problems and to fix them in a timely manner.

6. Remember that return customers are the lifeblood of service companies. Follow these guidelines and add a few others that you find successful as well. Before long, you'll have a long list of loyal customers that won't hesitate to call you the next time they have a plumbing issue.

Dave Bailey is the vertical market manager, plumbing for Service Nation Inc. and has 25 years working in the plumbing industry — 23 in the field. If you would like to send a message to him, email dbailey@servicenation.com.







Kate Zahriskie

Figuring Out the Equation

To develop a happy plumbing professional, simplify your approach to onboarding and follow lessons with hands-on learning in the field Bv Kate Zabriskie

learned so much during orientation. It's too bad I won't use most of it for six months. I took some notes, but I'm sure I won't remember half of what they told me to do."

"I'm overwhelmed. I learned a new piece of equipment today. The person showing me what to do knew everything. The problem I had was the deep dives. He spent so much time on troubleshooting techniques. It was just too much for my first day."

"I can follow the steps, but I have no idea why I'm doing what I'm doing. I sort of feel like a trained monkey. I hope nothing goes wrong because I will have no clue how to fix it if something does."

Despite the best efforts of plumbing service companies, it's not as easy as it looks to get the training equation right. You train too early, train too much or make a host of other

Ask yourself, what does my learner need to be successful

in the first day, the first week, and the first month? Teach

to those needs as much as possible, and save the more

know about a job in the first few hours, days or weeks. The information is important, but it has no immediate value. Subsequently, learners become overwhelmed, and then they don't have opportunities to apply or reinforce what they've learned for months or even years.

Good training designers know the value of careful pacing, and they practice just-in-time training when they can. Ask yourself, what does my learner need to be successful in the first day, the first week and the first month? Teach to those needs as much as possible, and save the more in-depth information for a more appropriate time. What do you need to prioritize?

Strategy 2: Connect to why again and again

When people don't know why they are doing something, they don't understand the big picture. While they get the

> process at a surface level, their limited understanding potentially keeps them from following procedures later.

> For example, say someone is learning how to use a print/copier/ scanner/fax machine and part of the process is putting the guard up on the paper tray with jobs over 100 sheets. Without explaining why that's important to do, that learner might take it upon himself to skip that step back on the

job. Only when papers are scattered all over the floor and have to be re-collated does the learning know the importance of raising the guard.

Great trainers make connections. They repeatedly explain why they're doing what they're doing, why procedures are written as they are, and so forth. Are you connecting the dots as well as you should, or could you do a better job?

errors. While some of us learn from our mistakes, many practice a cycle of rinse and repeat, making the same blunders year after year. The good news is it doesn't have to be this way. With some careful planning and follow

through, you can avoid new-employee training issues

in-depth information for a more appropriate time.

Strategy 1: Keep training relevant and immediately applicable

people will encounter again and again.

Countless onboarding programs attempt to teach everything a person would ever want to know or need to

Strategy 3: Use multiple channels to cement learning

I showed her how to do it, she did it, and now she's

trained. Maybe that's true for the simple stuff, but for the complex processes and procedures, multichannel encoding reigns supreme.

For example, show learners in real time how to complete a process. Then do it again, while at the same time providing a narration track as the learner takes notes. Next, have the learner read aloud the notes she's taken. Finally, have the learner demonstrate the procedure.

The multichannel approach allows learners to see, to hear, to write, to speak and to do whatever process they are learning. Depending on the learner, some senses may be more powerful than others. And in rare cases where there is no preference, repetition wins the day. What can you do differently to engage more senses?

Strategy 4: Teach with reference tools

It's one thing to conquer a task during class or oneon-one job coaching, but it's entirely another to reproduce those results on the job.

People who have mastered the training function know to develop and teach reference tools in addition to processes themselves.

Ask yourself what kinds of support you need to develop. Decide where you need to incorporate them in your training plans. Those who learn how to solve problems themselves are worth their weight in gold. In addition to strong productivity, these people are also usually happier and more motivated than those who don't have the tools to stand on their own feet.

HIT THE CLASSROOM

Four strategies and none hard: Make training relevant, connecting to why, repeating information using different channels and incorporating the tools learners should use to solve problems back on the job. If done deliberately and with routine, you will almost certainly get a good result when the technician and driver start the daily septic service route.

Kate Zabriskie is president of Business Training Works, a Maryland-based talent development firm. Reach her at www.businesstrainingworks.com





Swimming With the Fish

Designing, plumbing a koi pond needs to take thought and planning from both plumber and owner By James Careless

t first glance, plumbing a koi pond — a backyard body of water stocked with colorful fish — looks simple. You connect the pond, bottom drain(s), skimmer and filters together using pipes and pumps into a continuous closed loop system — just as you would a swimming pool.

Except, this isn't a swimming pool: The need to gravityfeed water from the pond to its mechanical and biological (beneficial bacteria) filters and then return it to the pond, requires an approach to piping that minimizes friction at all costs. This is why the best koi pond designers use wide diameter (4-inch or larger) PVC pipes with no angle fittings,



▲ In this photo of a koi pond under construction, the first contractor on the job laid the pipe with too many angles, which created friction and less movement of the water to filter the pond. A repipe was required. (Photo by James Careless)

66 In a house where you're doing plumbing, you deal with toilets, sinks, and bathtubs and they all work under the same principle. But a pond is completely different."

Joseph McAuley

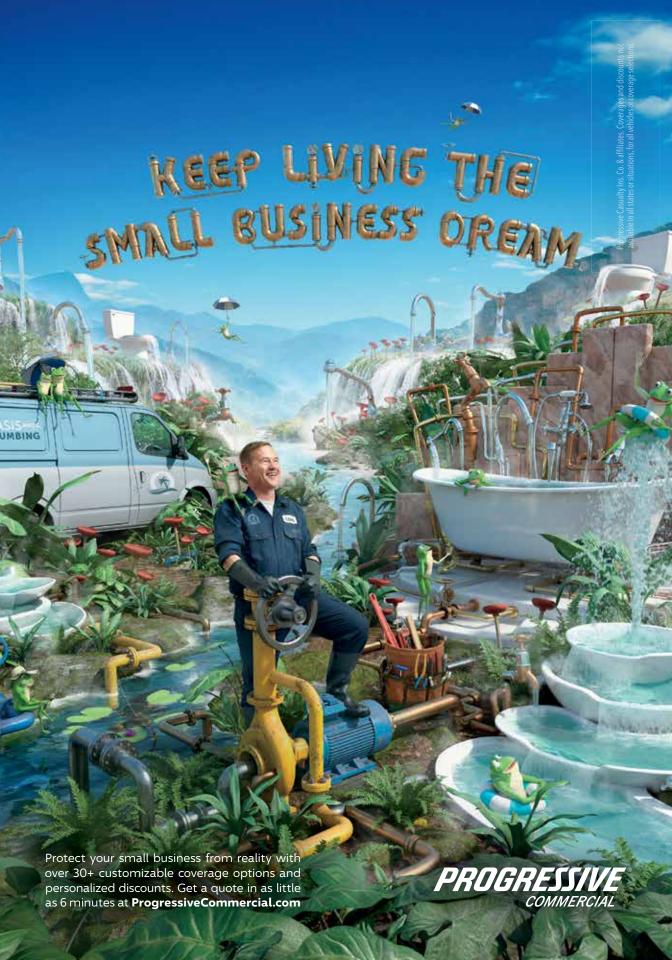
and when they need to turn corners, they use 90 degree sweeps or flex pipe.

The science behind designing a low-maintenance, reliably healthy koi pond is enough to fill a book, and much more information than a plumber needs to know. There are many different pond configurations out there, and there are many ways to filter the environment. But as long as the client or contractor has taken the time to select the pumps, filters and other equipment properly as part of an overall pond design — or hired a competent koi expert to do the job for them — all the plumber needs to know is how to connect everything to maximize water flow while minimizing friction.

This being said, "I'm not going to lie: It is truly apples and oranges," says Joseph McAuley, a highly skilled, creative journeyman plumber in Ottawa, Canada. He was the one called to fix the plumbing disaster documented below. "In a house where you're doing plumbing, you deal with toilets, sinks and bathtubs and they all work under the same principle. But a pond is completely different. It's still plumbing, but it's like comparing city plumbing to rural plumbing, you know? It's not the same thing."

HOW NOT TO PLUMB A KOI POND

The initial plumbing job in koi pond (done by the general contractor who built the pond's concrete container) is a prime example of how not to plumb a koi pond. It was full of errors that drastically reduced the flow of water





Many of the angles were removed and replaced with more gradual curves in the pipe layout, allowing the water from the pond to move more freely and filter properly.

healthy water." That's important; pools don't run 24/7, but ponds do.

McAuley followed all of these principles when he replumbed the koi pond, using minimal fittings and sweeps to maximize water flow. The result: The water management system of this 9,500-gallon koi pond has been working flawlessly for two years, with sufficient gravity-fed flow to keep all of the filters and pumps running optimally.

from the bottom drains to the filters. In a pond, filters remove debris and toxins from the water.

Even though koi ponds use pumps to move the water around, it is imperative to have an efficient gravity-fed system for the filtration process to work. "This is why you want to create the most streamlined plumbing installation possible, while using the least amount of fittings," says Zac Penn, owner of Deepwater Koi Innovations. "You also want to use sweep fittings wherever possible to reduce the friction loss, while using large diameter pipes is a must because koi ponds need to have the filtration running 24/7 to keep

THREE KEYS TO RIGHT PLUMBING

Nº 1 — Select the Right Pipe

In some cases, the client may leave it to the plumber to decide what type and size of pipe to use for their koi pond. If they do, be sure to choose PVC over ABS. PVC is stronger and more robust than ABS, which allows it to survive changing weather/temperatures above ground and weight/pressure changes from the soil when buried underground.

"Rigid Schedule 40 PVC pipe is the best option available for koi pond plumbing," says Penn. "The inside wall of

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the pipe is smooth for less friction, and the inside diameter of Schedule 40 pipe is the same as what the pipe is labeled."

As for deciding how to best lay the pipe and what diameter(s) to use? "Most fitting manufacturers give you a coefficient of drags with respect to their products, which you can use to calculate flow rates," says Mike Swanson, owner of Koi Acres. "You use this data to do the math by factoring in the pond size by gallon and a desired

turnover rate, namely how many gallons per hour that you want to move through the filters to keep the water healthy." The recommended turnover rate is usually once/hour if your fish load is one fish/500 gallons.

The best koi pond designers use a wide diameter pipe, like 4-inch or larger, with no angle fittings. If cor-

ners need to be made, they should be 90 degree sweeps or flex pipe.

NO 2: Remember Head Pressure

Unlike a house where water flows from top to bottom, water in a pond goes sideways. Filters are installed at or below the water level, and sometimes above. When water has to move up, it creates head pressure that impedes the water flow, which has to be overcome by using pumps with sufficient gallons per hour capacity.

"For example, a five-foot high waterfall will add five feet of static head pressure," says Clayton Arnall, owner of Everything Ponds. "A pressurized filter might add five to 10 feet of head depending on how dirty the filter is. The pipe will also add pressure, which is why it's important to use the right size pipe."

Fortunately, Everything Koi has created an online tool to calculate head pressure in a pumped system, as well as the water speed in the pipe. It can be found at www.everything-ponds.com/pond-head-pressure.html.

Nº 3: Unions are a Must

When a house is plumbed, the connections are done and that's it, so gluing them in place isn't a problem. But a koi pond is different: PVC pipe unions are a must for every equipment connection. The reason? "If we need to replace a pump, valve, or filter, we can unscrew the union and put a new one in place," said Eric Triplett and Leslie Triplett, owners of The Pond Digger.

LAST WORDS OF ADVICE

For those plumbers willing to take the plunge, koi ponds can be an interesting and profitable venture, as long as they heed the following advice.

"Check your ego, be open-minded to the uniqueness of koi pond filtration and don't fly from the seat of your pants," says Penn. "And if you notice that something in the plans doesn't look right, then talk to the designer. If a change needs to be made, the pond designer should also be humble and admit that they didn't have the best idea originally."

At the same time, "keep it simple," McAuley says. "Otherwise, the friction loss created by all the extra fittings you put in won't allow the filters to work properly."



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Watco Innovator Shower Drain

The Watco Innovator Shower **Drain** is a receptor-type drain for preformed shower bases. It has an orange test membrane, testable to 22 psi or five floors, which eliminates the



need for test balls, caps or plugs. It includes a heavy-duty, snap on grid strainer. The grid is available in four finishes including chrome, matte black, brushed nickel and oilrubbed bronze. Plumbers appreciate the E-Z grip installation tabs on the top piece and the squared-off ribs on the bottom receptor; these features aid tightening and installation. The top piece is made of dark gray PVC to reduce the appearance of dirt and mildew. The bottom piece is available in white PVC or black ABS. The drain includes a green, polycarbonate cover to protect the grid finish during construction and prevent debris from entering the drain during construction. 816-796-3900; www.watcomfg.com

Faucets



Elkav Avado 2-in-1 Filtered Faucet

The Avado 2-in-1 Filtered Faucet from Elkay provides the convenience of cleaner, healthier water, straight from the kitchen sink. The faucet offers standard hot and cold water, plus high-quality

filtered water from the tap, without installing a second tap or additional equipment. Available in three finishes chrome, lustrous steel and matte black — the faucet comes complete with an NSF/ANSI 42 and 53 certified, long-life, easy-change filter which reduces lead, cysts, particulates and chlorine taste from drinking water. 630-408-4191; www.elkay.com



PRIER Products P-118 TrueTemp

The PRIER Products P-118 **TrueTemp** is an outdoor faucet that provides a year-round source of water in areas that are subject to freezing temperatures. With a single-handle temperature and

water flow control, this hydrant is highly versatile and is ideal for washing a car and cleaning a pet. The ergonomic, rubber grip handle controls the flow of water, while the temperature is controlled by the inset dial on the handle. It is offered in a satin nickel-plated finish or an oil-rubbed bronze body, both maintaining an attractive aesthetic for the home. Each valve is air-tested at the factory to provide a leak-free quality product. It is a simple installation process that includes a mounting bracket to help secure the valve on the outside wall. PRIER also offers the P-114, a matching single temp hydrant. 800-362-9055; www.prier.com



A.Y. McDonald 72080PF & 72082PF No-Lead Supply Stops

Experience quick access to the water shut off for a fixture with A.Y. McDonald's 72080PF & 72082PF No-Lead Supply Stops. This solution was created with Press Fit end connections, straight or angled options, and is suitable for residential and commercial applications. Each supply stop is fully



certified to all applicable standards and designed with a durable chrome-plated brass handle. Connections can be made in a fraction of the time it takes to sweat a pipe and not as much training is required to operate the Press Fit tool compared to soldering. These supply stops can be installed on wet or dry systems and are also easy to use in tight spaces. 800-292-2737; www.aymcdonald.com





ASC Engineered Solutions SCI Copper Press

SCI Copper Press from **ASC Engineered Solutions** is one of the most extensive



copper press product lines available, and comes fully supported by free access BIM and Revit content from ASC-ES. The line has a full range of elbows, tees, reducers, caps, adapters, couplings, unions and crossovers, providing reliable and economical pipe connections for copper systems. Available in 1/2- to 4-inch sizes, these products meet industry regulations for press fittings, including NSF 61, IAPMO and ASME standards, and are approved for use with EPDM compatible fluids. They are intended for use with ASTM B88, Types K, L, and M hard copper tubing in sizes 1/2 to 4 inches and soft copper tubing in sizes 1/2 to 1 1/4 inches. Installation is simple and can be done using standard press tools and jaws. The fittings feature exterior green lines that mark the proper pipe insertion depth. Full instructions for their installation are provided on the product packaging and on the submittal. 800-766-0076; www.asc-es.com

BrassCraft Tankless Water **Heater Installation Kits**

BrassCraft Tankless Water Heater Installation Kits connect most tankless water heaters to gas and water supplies.



Connectors are made of corrugated stainless steel that is compatible with copper pipe. They are approved for indoor and outdoor use, with a temperature rating of 40 to 180 degrees F. The service valve pressure rating is 125 psi maximum/gas connector 1/2 psi maximum. The gas connector is 100% leak-tested. 877-272-7755; www.brasscraft.com

Supply Smart Brass PEX Fittings

Supply Smart offers a variety of Brass PEX Fittings in a choice of brands and sizes. Whether you're a Crimp PEX



or Expansion PEX plumber, you're covered. The fittings provide strong connections that are anti-corrosive, resulting in long-lasting, quality work. With the ability to withstand extreme temperatures, they are a popular choice among plumbers. 800-631-7793; www.supplysmart.com

Viega MegaPressG

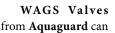
MegaPressG from Viega is a safe, fast and clean way to connect gas pipe. Made from carbon steel alloy with corrosion-resistant zinc nickel coating, it is available in sizes and configurations from 1/2 to 4 inches. It is approved for more



applications than any other carbon steel press fitting system, including underground use, and has an HNBR sealing element for fuels and gasses. The graphite separator ring is engineered to withstand high temperatures. Available configurations include elbows, couplings, no-stop couplings, reducers, tees, reducing tees, adapters, reducing adapters, unions, caps and flanges. It helps keep job sites cleaner with no threading oils or other products. Connections can be made in 16 seconds or less, saving up to 90% on labor costs. The flameless connection eliminates the need for hot work permits or a fire watch, meaning other trades can work simultaneously and safely. 800-976-9819; www.viega.us

Fixtures

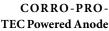
Aduaquard **WAGS Valve**





stop a leaking water heater tank from continuously refilling and dripping, or until the tank fails catastrophically. The shut-off valve halts the incoming water supply, and on gasfired units, shuts off the gas supply to ensure the home's safety from water heater failure. They are mechanically operated; meaning no maintenance, no electricity or no battery checks are required. They sit in a drip pan under the water heater and are activated when leaking water accumulates to a predetermined level in the pan. Once activated, the industrialduty, one-shot safety valve shuts off the water and gas supply if so equipped. A red tab pops out to indicate valve activation. 844-438-9247; www.wagsvalve.com

CORRO-PROTEC Powered Anode Rod





Rods made of titanium stop corrosion, rotten egg smell and limescale buildup inside hot water tanks. Designed to last over 20 years, they are a long-term solution that don't require any maintenance. The power supply, plugged on top of the

titanium anode rod, provides small electrical current that completely stops corrosion. With that unlimited source of protection, it can double the life of the tank and prevent unwanted reactions like the sulfur smell in hot water, limescale buildup inside the water heater and air in water pipes. Since the anodes won't deteriorate over time, they are 12 inches long and easy to install in a wide range of water heaters starting from 10 gallons to 120 gallons, including a specific model for Bradford White tanks. They fit on electric, gas, solar, hybrid, indirect and geothermal water heaters. 877-466-6660; www.corroprotec.com

Vista Water Group VersaCheck Dual Check Backflow Preventers

VersaCheck Dual Check Backflow Preventers from Vista Water Group are available in sizes ranging from 1/4 to 1 1/2 inches and feature FNPT threaded ports for maximum flexibility in accommodating virtually any type of tube or pipe connections with



generally available adapter fittings. These inline backflow

preventers are simple to install and provide reliable protection from back-siphonage and backpressure. They are certified to meet ASSE 1024 and NSF 14, 61 and 372 standards. Available in PVC and hard-anodized aluminum, all models are strong and lightweight, 100% free from lead and toxic chemicals and highly resistant to scale, corrosion and oxidation. Designed specifically for beverage dispensing equipment, select models are both ASSE 1024 and ASSE 1032-certified to provide reliable backflow protection for carbonated and non-carbonated beverage equipment. 480-462-2707; www.vistawatergroup.com

Zoeller Pump Owik Jon Premier

The Qwik Jon Premier from **Zoeller Pump** is a 1/2 hp grinder pump system used to install a full



bathroom when gravity drainage is cost-prohibitive. An ideal product for residential or light commercial use, it can be installed freestanding or behind a wall with the ability to connect to multiple fixtures including the Qwik Jon

The Upgraded eCAM Ace 2 SL Inspection Camera

New Features!



The display screen is now TWICE AS BRIGHT as comparable cameras in its class.



This new feature is an important factor in the clarity and definition of viewing inspection camera images and data. A brighter screen provides better contrast and visibility of inspection making it ideal in brightly lit environments like full and direct sunlight.

- New location on the rear of the monitor for the battery cradle and AC/DC power input.
- Unit can handle both 18V battery (Milwaukee® M18 or compatible) & 12V AC/DC adapter inputs (not at the same time).
- Entirely new operating system and menu navigation.
- Other new standard features include: Addition of screen shot function in JPEG format
- On/Off function instead of powering up when plugged in
- Menus in three languages including English, French and Spanish
- Upgraded keypad to reflect new functionality including sonde function operated from keypad rather than being switched on 100% of the time
- Improved battery life off a single charge.





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elongated toilet. Being a grinder pump system, as opposed to a macerator system, this unit can easily handle human waste, toilet tissue and sanitary items. It has a shut off head of 29 feet and can achieve 45 gpm of flow at 5 feet of head. Installation requires no breaking of concrete and dealing with construction inconveniences such as lengthy schedules, messes and costs. 502-778-2731; www.zoellerpumps.com

Hand Tools

CHANNELLOCK SpeedGrip Tongue & Groove Pliers

CHANNELLOCK SpeedGrip Tongue & Groove Pliers combine the same strength and durability of the company's original Tongue & Groove Pliers with a new push button that quickly locks into place for fast and easy



adjustments. The laser heat-treated, cross-hatched teeth are made to stabilize, tighten and loosen pipes and nuts, while the CHANNELLOCK BLUE non-slip grips provide ultimate control and comfort on the job. They are forged from 100% U.S. steel. 800-724-3018; www.channellock.com

Koul Tools Fitting Fixer

The Fitting Fixer from Koul Tools utilizes a 37-degree inverted cone with diamond-dust coated lapping material to resurface the conical sealing area on JIC fittings. It allows a plumber to repair a leaky fitting on the spot when replacing it



is not possible or would be a major headache, for example, a leaking bung on a tank. The fitting screws into a guide to hold it in place and the lapping cone is attached to a drill. Simply spin the lapping cone on the fitting's sealing surface until the damaged area is repaired. It comes in sizes 3/16 to 1 inch and works on steel and aluminum fittings. 928-854-6706; www.koultools.com

RIDGID Straight Pipe Wrenches

RIDGID Straight Pipe Wrenches feature a sturdy, ductile-iron housing and an I-beam handle. Fully floating forged hook jaw includes self-cleaning threads with replaceable hook and heel jaws. A lightweight aluminum model is also available with the same durability



and ease-of-use found in all heavy-duty wrenches. The iron straight pipe wrench ranges in size from 6 to 60 inches and the aluminum model from 10 to 48 inches. 800-769-7743; www.ridgid.com

SaNuts

SqNuts sewer cap removal tools have several variations that easily fit any sewer cap. They are dual-sided combination sockets made to fit more than one size PVC/ABS sewer



cap. These sockets are meant to be used with 1/2-inch drive ratchets and 1/2-inch drive socket extensions in any length for the reach needed. They are made from high-strength/ lightweight aluminum, giving the socket receivers long-lasting use. 303-947-5220; www.sqnuts.com



Flow-Liner Systems Neofit+Plus Expandable **Pressure Pipe**

Neofit+Plus Expand**able Pressure Pipe** from Flow-Liner Systems is a non-invasive option for



leaking underground water services with inside diameters from 1/2 to 2 inches. The EPP forms a continuous barrier between existing pipe and drinking water — ideal for lead replacement programs. It can be installed in any pipe type and in lengths up to 300 feet. It often only requires a single small access pit, saving yards, sidewalks and floors from demolition. The speedy process allows for many installations a day and immediate return to service. 800-348-0020; www.flow-liner.com

REHAU RAUPEX UV shield PEXa pipe

RAUPEX UV shield PEXa pipe from REHAU offers uniform crosslinking for optimum strength in residential plumbing



applications. The pipe is extruded and tested with REHAU's PEXa pipe formulation using a high-pressure peroxide method for crosslinked polyethylene. As a result, it is a durable yet cost-effective alternative to copper that resists corrosion, pitting and scale buildup for long-term flow performance. The flexible properties further support a fast, easy installation. When making directional changes or navigating crowded mechanical chases, simply bend the pipe to reduce installation time and save money on fittings. It is available in 100- to 1,000-foot coils and 20-foot straight lengths. It can be paired with EVERLOC+ compression-sleeve fittings or F1960 cold expansion fittings. 800-247-9445; www.na.rehau.com

for easy swaps between reels. Powered by the M18 Control Hub, the system has a 25mm, 1080p HD self-leveling camera head and a push cable designed to balance push distance and navigation of bends in 2- to 6-inch lines. Equipped with a telescoping handle and wide wheelbase design, this reel allows for easy transportation on and off the job site. Technicians can digitally zoom and pan up to 4X, making it easier to focus in on the point of interest. The system provides a clear image and easy inspections. Milwaukee also offers additional reels, including 325-foot Stiff, 120-foot Mid-Stiff, and 200foot Stiff. 800-729-3878; www.milwaukeetool.com

Power Tool

Milwaukee Tool M18 200-foot Mid-Stiff Pipeline Inspection System

The 200-foot Mid-Stiff **Pipeline Inspection System** from Milwaukee Tool is part of the modular pipeline inspection system designed around the M18 500GB Control Hub allowing



Sink

HamatUSA Nero PVD

The Nero PVD collection of workstation sinks from HamatUSA is available in black



stainless steel. Workstation sinks are in high demand with





their multipurpose design that adds functionality to the kitchen. And black is a dramatic yet versatile choice that goes well with nearly every color of cabinet and countertop. They come with a built-in sliding platform system and a selection of interchangeable accessories, including a hardwood cutting board as well as a multi-purpose roll-up mat, wire bottom grid and basket strainer in coordinating black PVD. All are fabricated with nano technology to enhance durability and scratch resistance. Constructed from PVD plated T-304 stainless steel, each sink is handmade and features 10 mm radius corners, scored bottoms and a satin finish. All sinks are outfitted with TotalGuard+ insulation to boost thermal insulation, prevent condensation, and optimize noise reduction. 833-334-2628; www.hamatusa.com

Toilet

Niagara Phantom One Piece



Niagara's Phantom One Piece toilet includes Stealth Technology and is a solution for those wanting a modern, sleek design, without sacrificing performance and efficiency. Offered in 0.8 gpf, the design includes a concealed trapway that is easy to clean and ideal

for residential, multifamily residential and hospitality properties. It is offered in round and elongated bowls as well as ADA and standard heights with left and right handle options. This powerful product also flushes 1,000g of miso, and is MaP Premium and WaterSense certified. 833-812-0908; www.niagaracorp.com

Water Conditioner



Water-Right Sanitizer Plus Series

The Sanitizer Plus Series water treatment system from Water-Right combines self-chlorinating technology with advanced electronics to perform like four units in one. This system uses Crystal-Right media, a customengineered zeolite. In just one single

pass, this media will soften, reduce hardness, iron and manganese while raising low pH levels. This advanced system also controls odors caused by nuisance bacteria buildup inside the media tank. The advanced controller remembers all operating functions and will never lose programming due to a power failure thanks to the battery backup. Advanced history screens will display the total number of gallons used, gallons used per day, even each hour of the day. This smart controller will also display total regenerations and errors. System regenerations are automatically activated according to actual water consumption and usage patterns. 800-777-1426; www.water-right.com

Water Heaters



Bosch Thermotechnology Tronic 5000T Electric Storage Tank Water Heater

The Bosch Thermotechnology Tronic 5000T Electric Storage Tank Water Heater is available in seven models ranging from 30 to 50 gallon capacity in medium, tall and LowBoy dimensions, providing the perfect fit for a home's hot

water needs. Its heavy gauge steel tank provides extra years of trouble-free service and is lined with glass to help prevent corrosion. The water heater also includes two anode rods for extra tank protection, double heating elements to conserve energy, Incoloy elements and HFO foam insulation to reduce fuel costs and increase efficiency. The temperature and pressure relief valve is included and the easy-to-use drain valve makes maintenance simple. 800-283-3787; www.bosch.us

Heat-Flo HO Series

The HO Series of indirect water heaters from Heat-Flo are available in 60-, 80- and 115-gallon capacities. The body of the tank, the oversized heat transfer coil and even the cold-water inlet (dip tube) are made of high quality 316L stainless steel. All the piping connections are on the top of the tank, making the installation easy and costeffective, with less material and less labor.



The finished tank is jacketed with dent- and rust-resistant HDPE plastic and is highly insulated to minimize standby heat loss. Although initially designed for high outputs of domestic hot water, today's efficiency demands have found these tanks commonly paired with lower approach temperatures from air-to-water heat pumps and high efficiency boilers. 508-278-2400; www.heat-flo.com

Rheem Ikonic

The **Rheem Ikonic** tankless gas water heater delivers a 0.96 UEF, resulting in up to 36% less energy use than a standard residential 50-gallon tank water heater to help minimize your impact on the environment. In addition, it improves air quality by reducing greenhouse gas NOx emissions by up to 65% for a cleaner



environment. It features a built-in recirculation pump (SR models), integrated Wi-Fi technology, exclusive Hot Start Programming (which keeps the water heater in a ready state for five minutes between back-to-back usage), and a dual stainless-steel heat exchanger. Users can control temperature adjustments, energy usage tracking and recirculation mode modifications from a smartphone with the EcoNet mobile







Residential Plumbing By Craig Mandli

Heating system filter offers total system protection

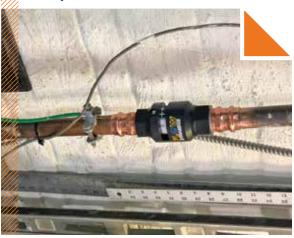


Problem: Grand Mechanical Solutions was hired to install a residential heating system filter in an older house in Brantford, Ontario, with piping that was almost 100 years old. Old, degraded piping was contributing to contaminants that were reducing the efficiency of the residential boiler system.

Solution: Their technicians decided to install a **BoilerMag** BM/R and add the BM1 Inhibitor from Eclipse Tools to maximize the system's efficiency.

RESULT: After flushing the system, they noticed an increased flow rate and improved heat transfer in the radiators. The picture shows how much contamination was captured from the BoilerMag BM/R after two system flushes. Eliminating contaminants in any system is vital to maximizing its heating efficiency. BoilerMag offers complete hydronic system protection with a three-step solution — clean, protect and inhibit — using their range of quality system treatment products and chemicals. 905-664-5585; www.boilermag.com

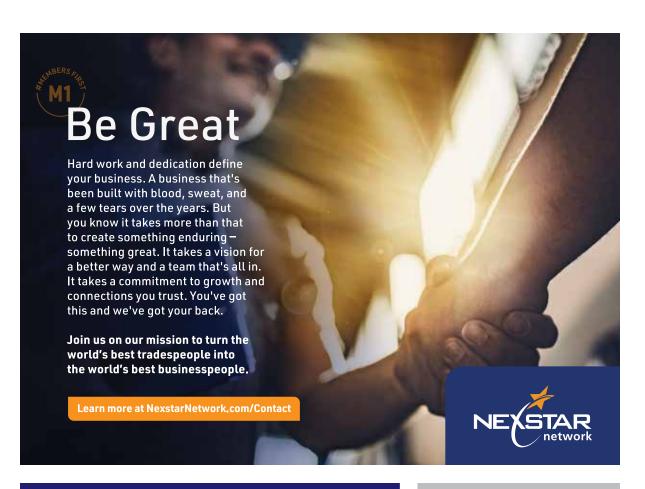
Intelligent valve helps save money on water and sewer costs



Problem: A California customer had a very high water bill and was worried about his rising costs as he also was having a relative stay with him over the summer.

Solution: The customer hired a plumber to install a 1-inch Smart Valve solution onto his waterline. Once installed, the Smart Valve creates a steady backpressure through the meter that maintains the pressure. Because it is installed after the meter (on the user side), it keeps everything between it and the meter at a constant pressure. Because of this, the meter now does not overspin, and any pockets of air present (which normally register and are counted as volume) remain condensed and now will not register. The Smart Valve also acts as a pressure-reducing valve, and can be adjusted to custom fit each home, while reducing the pressure from a minimum 1 to 2 psi, up to about 20 psi if the pressure is much higher. In all, the job took about 45 minutes.

RESUlt: The customer saved over 50% year over year even with an additional family member staying with him. His overall savings per month have averaged about 35% over the three years, and he recouped his initial investment in less than a year. 201-690-6512; www.getsmartvalve.com









Product Spotlight

Efficient tankless water heaters a fit for multiple applications By Craig Mandli

our customers request tankless water heaters for a good reason — they never want to run out of hot water again. Thankfully new innovations in tankless technology are making the systems more efficient and reliable than ever. The Infiniti GS and Infiniti GR Series from Bradford White deliver that sought-after high performance and efficiency with long-lasting reliability thanks to a



robust stainless steel heat exchanger for long life.

"The new Infiniti tankless models came to the market after a lot of consideration about the ease of installation and ease of maintenance," says Dongtaek Lee, senior product manager at Bradford White. "In addition, the maintenance process is easier than ever, as our new Infiniti tankless does not require to open the cabinet to access all the filters."

Both models boast a wide array of features to increase efficiency and make service and maintenance more convenient, with the GR adding an integrated recirculation pump with dedicated connection and the GS featuring a high temperature setting of 180 degrees for commercial use. The GS and GR both feature cascading and common venting; variable heat control, adjustable from 95 to 140 degrees; a free-standing rack system for time-saving flexible installations; and convenient water, gas and vent connections for easy installation.

The Infiniti GS and GR include flexible venting with PVC, CPVC, stainless steel or polypropylene up to 150 feet. Their intake air and inlet water filters mounted outside of cabinet for easily accessible servicing, while a precise burner control and combustion system is designed for longer life and reduced dust buildup. The terminal block enables easier control of the air han-

dler and installation of the on-demand kit. Both models also include a robust digital display for easier control and troubleshooting. A built-in recirculation pump reduces total installation cost and space on the GR model. Finally, an advanced recirculation feature is designed for the whole home, with a dedicated loop, bypass valve through the cold line, or inside product for faster hot water delivery. The models were designed with the customer in mind, according to Lee.

"We put in a lot of time and effort to realize the easy service and maintenance, and enhance the heat exchanger reliability and longevity," he says. "What we have is a quiet, reliable heater with great performance, easy maintenance with the filter access and extra confidence with additional leakage detecting sensors. 800-523-2931; www.bradfordwhite.com

Patterson Davit Crane at **WWETT Booth 4540**

The Patterson Davit Crane will be in action at February's WWETT show, Booth 4540. Designed for ease of use, durability and reliability, the cranes incorporate the highest quality components and finishes. The low-

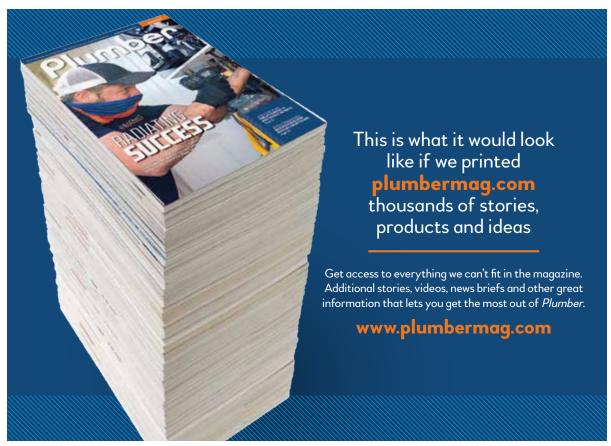
maintenance, easy-to-assemble design is portable so multiple locations can be serviced with a single piece of equipment, minimizing upfront investment. Additionally, the crane is designed with adequate reach to lift large loads within tight



spaces, and a boom that can be adjusted to nearly 45 degrees to allow for clearance over obstructions such as handrails. It also comes standard with a hot-dipped galvanized finish, stainless steel hardware and steel sheaves, making it ideal for wet work environments. Available in 1/2- and 1-ton capacities, Patterson

Davit Cranes are made in the USA and deliver on the company's promise of keeping employees safe and positively impacting your business's bottom line. 800-322-2018; www.pattersonmfg.com/davit-cranes







Electric Eel upgraded eCAM Ace 2 SL inspection camera

Electric Eel's upgraded eCAM Ace 2 SL inspection has a display screen that is twice as bright, improving the clarity and definition of viewing inspection camera images and data. A brighter screen provides better



contrast and visibility of inspection, making it ideal in brightly lit environments like full and direct sunlight. There is also a new location on the rear of the monitor for the battery cradle and AC/DC power input. The unit can handle both 18-volt battery and 12-volt AC/DC adapter inputs (not at the same time). Other new standard features include: addition of screen shot function in JPG format; on/off function instead of powering up when plugged in; menus in three languages including English, French and Spanish; upgraded keypad to reflect new functionality, including sonde function operated from keypad rather than being switched on 100% of the time; and improved battery life off a single charge. 800-833-1212; www.electriceel.com



ADEY MC40+ hvdronic heating system cleaner

ADEY's MC40+ hydronic heating system cleaner and descaler is a high-strength powdered chemical, specially designed to restore existing



boiler systems by removing lime-scale deposits, calcium and magnetite. Rapid-performing MC40+ delivers an advanced clean, with a highly concentrated formula, in as little as one hour. It comes with neutralizer packets to provide extra peace of mind if there is concern over residues being left in the system. 844-378-0442; www.adey.com

American Standard Ultima Selectronic flush valves

American Standard's Ultima Selectronic Touchless Diaphragm flush valves are engineered to deliver superior performance and reliability with less maintenance. The new valve system is equipped with advanced



touchless technology, self-cleaning wiper springs, full mechanical override for use without external power, and premium chemical-resistant diaphragm material to help ensure a superior level of water efficiency, cleanliness, reliability and longevity. The latest flush valves can be paired with toilets and urinals and is offered in four products to date including the 6245 Series battery-powered Selectronic urinal flush valves, 6247 battery-powered Selectronic toilet flush valves and 624B Series hard-wired AC urinal and toilet flush valves.

800-442-1902; www.americanstandard-us.com

Send us your plumbing product news: Email new plumbing product news, photos, and videos to editoraplumbermag.com.





Let's face it, business opportunities ebb and flow on a daily basis. But there is ONE thing you can count every year—The WWETT Show.

It's the world's largest annual trade show for wastewater and environmental service professionals. The WWETT Show offers a robust educational program with nearly 100 live and online sessions, live demos, multiple networking opportunities and an expo floor brimming with the latest technology and innovations in the industry.

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Picote opens trenchless training center in Porvoo, Finland

Picote Solutions Oy announced the opening of a hands-on trenchless training center for international customers in the wastewater and water rehabilitation industries. Picote has finalized upgrading the training facilities and hiring full-time employees with extensive in-house lining experience. The Porvoo training center is conveniently located close to Picote CIPP contracting services and Picote manufacturing facilities in Porvoo, Finland, around 45 minutes from Helsinki. The Picote Training Center offers a wide variety of training, including drain cleaning for plumbers and trenchless contractors, cutting/reinstatement, failed liner and concrete removal, connection collar installation and specialty classes focusing on CIPP lining inside buildings.

Bradley promotes Latisha Rathell to director of customer service

Bradley Corp. promoted Latisha Rathell to director of customer service. Rathell brings over 20 years' experience in financial and business analysis, reporting, project management



and contract performance management roles. She brings a diverse background in regulatory, service, product surveillance and customer service leadership. Prior to joining Bradley in 2020 as product compliance analyst, Rathell worked in various leadership roles at General Electric.

Kim Gill named executive director of WiPP

Kim Gill, a veteran Colorado nonprofit executive with experience in the plumbing and contracting industries, has been named the founding executive director of Women in Plumbing



and Piping, a 501(c)(3) project focused on the empowerment of women in both industries nationally. WiPP's mission is to provide a community of connection and empowerment for women in the plumbing and piping industries to thrive personally and professionally. The organization is built on four pillars including mentorship, education, networking and education. The newly established membership organization seeks partnerships with associations and corporations to drive this initiative for the industry.

Neighborly honors Its top performing franchises

Neighborly announced its top performing franchise owners of the year during the brand's annual Reunion conference held in October in Nashville, Tennessee, With nearly 4,000 attendees from across Neighborly's network, the event was the largest Reunion in the company's history. The 2022 Franchisee of the Year award winners included: Aire Serv, Ben and Betsy Boyce and Sarah Boyce; Dryer Vent Wizard, Ed Rauch; Five Star Painting, Anthony Kulikowski; Glass Doctor, Justin and Jennifer Eimers; The Grounds Guys, Travis Hicks and Travis Reed; HouseMaster, Tim, Trent and JoAnn Paino; Molly Maid, Harry Young; Mosquito Joe, Sean and Sara Bess; Mr. Appliance, Anthony Arroyo; Mr. Electric, Matt and Lara Bruhn; Mr. Handyman, David Sipp; Mr. Rooter Plumbing, Scott Hobbs; Precision Garage Door, Jim Rapp; Rainbow Restoration, Dallas Nevill; Real Property Management, Shawn and Joni Wolfswinkel; ShelfGenie, Bret Chevrier; and Window Genie, Robin McKenna.

\$60.000 raised for Joseph Groh Foundation at Service World Expo

Service World Expo, held in Tampa, Florida, this year, raised \$60,000 for the Joseph Groh Foundation. At the Expo, Ken Goodrich, CEO of Goettl Home Services, set a challenge. If Expo attendees donated \$50,000 to the foundation, he would personally match it. The Joseph Groh Foundation is a 501(c)(3) charity and provides grants exclusively to individuals in the contracting and construction trades who are living with a life-altering disability. The grants fund accessible bathroom remodels, ramps, accessible wheelchair vans, vehicle retrofits, assistive and rehabilitative technology, and more.

AquaMotion appoints Upper Midwest representative

Rich Gruber, national sales manager of AquaMotion, announced the appointment of a new representative in the Upper Midwest territory. SWS Consulting will represent the complete line of AquaMotion hydronic heating pumps, hot water recirculating systems and pressure boosting pumps. SWS Consulting is headquartered in Fond du Lac, Wisconsin, and is led by Steve Wagner. They will represent AquaMotion products in the states of Wisconsin, Minnesota, North Dakota and South Dakota.

Jones Stephens introduces new website

Jones Stephens introduced a new website where users can search and navigate products more easily than before, view specs, learn with videos and more. This new website also includes live chat to provide immediate, expert help to users whenever they need it. Registered distributors can login to quickly check pricing and inventory availability, place online orders and track their orders with ease.



CALENDAR

Feb. 1-2

Austin Build Expo.

Palmer Events Center, Austin. Visit www.buildexpousa.com

Feb. 6-8

AHR Expo. Georgia World Congress Center. Atlanta. Visit www.ahrexpo.com

Feb. 20-23

Water & Wastewater Equipment Treatment & Transport (WWETT) Show.

Indiana Convention Center. Indianapolis. Visit www.wwettshow.com

March 17

Illinois PHCC Expo North. Drury Lane Conference Center. Oakbrook Terrace. Illinois. Visit www.ilphcc.com

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March 26-30

Mechanical Contractors Association of America **Annual Convention.** JW Marriott Phoenix Desert Ridge. Phoenix. Visit www.mcaa.org/events/calendar/mcaa-2023annual-convention/

April 2-5

Air Conditioning Contractors of America 2023 Conference & Expo. New Orleans Marriott, New Orleans. Visit www.accaconference.com

April 12-13

Dallas Build Expo. Dallas Market Hall, Dallas. Visit www.buildexpousa.com

Mav 17-18

Tampa Build Expo. Tampa Convention Center - East Hall. Tampa, Florida, Visit www.buildexpousa.com

June 5-7

Safety 2023 Professional Development Conference & **Exposition.** Henry B. Gonzalez Convention Center. San Antonio. Visit www.safetv.assp.org

June 11-14

AWWA Annual Conference & Exposition (ACE). Sheraton Centre Toronto, Toronto, Ontario. Visit events.awwa.org

June 12-14

Women in the Mechanical Industry (WiMI) 2023 **Conference.** Renaissance Cleveland Hotel, Cleveland. Visit mcaa.org/events/

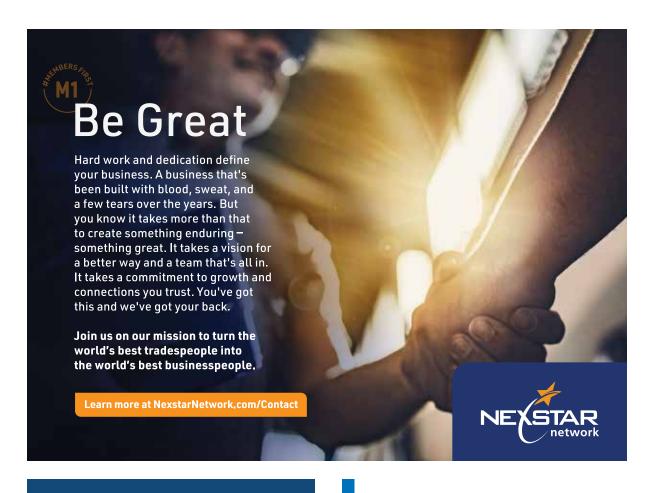
June 18-20

Canadian Institute of Plumbing & Heating (CIPH) **Annual Business Conference.** Delta St. John's Hotel and Conference Center. St. John's. Newfoundland. Visit www.ciph.com

June 28-29

Houston Build Expo. NRG Park Center - Hall E1/E3. Houston. Visit buildexpousa.com

Plumber invites organizations and associations to submit details about upcoming industry trade shows and conferences for our calendar of events. editoraplumbermag.com.



"We work off of the three-win rule.

where the company, the employee and the customer all have to win. If just one loses, everyone loses. We live off this. If a customer is upset, for example. then the employee didn't make sure the customer won. Or if we don't provide a great customer experience. our profitability isn't as good, so the company doesn't win.

> Sometimes we even give customers their money back."

Richard Hart

Harts Services Tacoma. Washington

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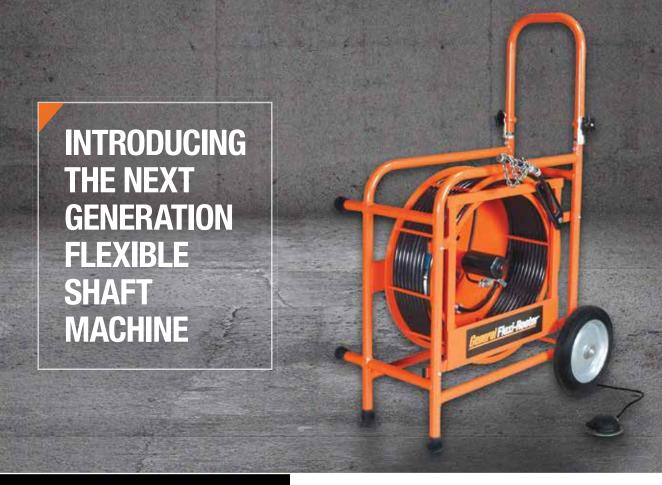
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