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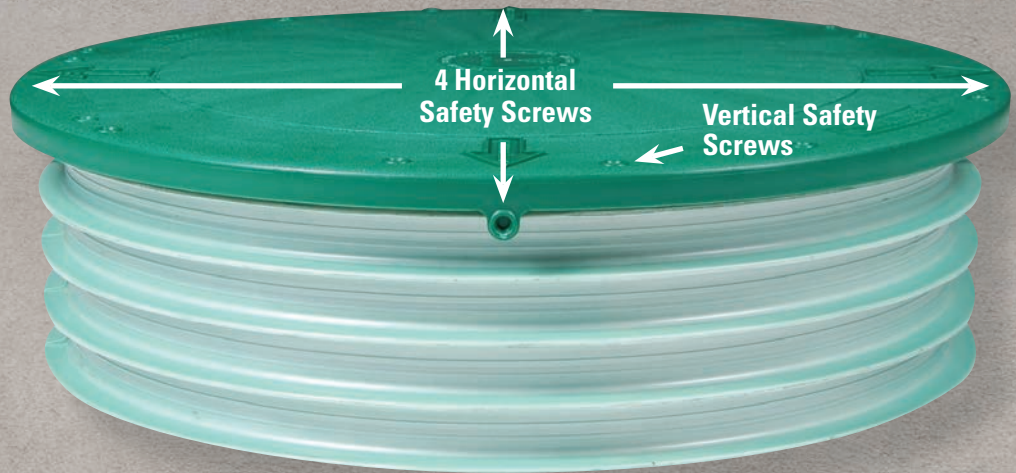
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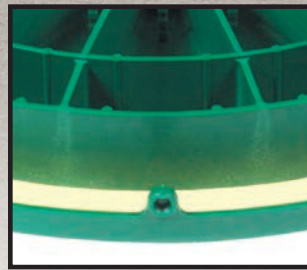
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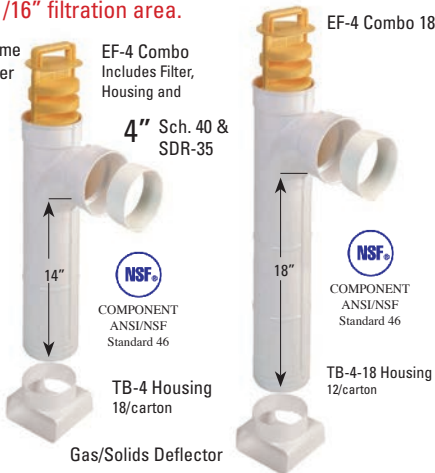


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TB-6 Housing

Gas/Solids Deflector

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### INSTALLER PROFILE:

#### Hired Hands

By Ken Wysocky

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Joe Bruening, of Bruening Excavating in Wickliffe, Ohio, has found success keeping his business small and partnering with other onsite professionals to get the job done. Bruening is shown at the controls of a Takeuchi mini-excavator. (Photo by Amy Voigt)

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## Enjoy this issue!

Established in 2004, *Onsite Installer*<sup>TM</sup> fosters higher professionalism and profitability for those who design and install septic systems and other onsite wastewater treatment systems.







Send your comments, questions or opinions to Jim Kneiszel at [editor@onsiteinstaller.com](mailto:editor@onsiteinstaller.com)

# Where Will We Find the Next Generation of Installers?

A Minnesota school works to match more students' skills and interests with rewarding, well-paid jobs in the trades

It's the biggest industry concern I hear from installers. "I'm so busy and I just can't find any good, young workers." It's no exaggeration to say that this complaint is shared with me every month (and probably more often) from contractors who are constantly pushing work back on their schedule for lack of enough help.

The message permeates the feature articles in this magazine, too. This month is a good example. The contractor in our profile story, Joe Bruening, downsized his company and looked for a new way to remain in business because he couldn't find workers with a passion for system installing. And in our Snapshot story, a Wisconsin Onsite Water Recycling Association member identified a shortage of workers as the biggest issue facing the state's installers.

Magnifying the seriousness of a labor shortage is the well-known graying of folks who lead excavation companies and operate machinery. We know a tremendous number of installers are reaching retirement age, and they're wondering where the young people are coming up to continue this vital construction work.

There is also a constant drumbeat from the trades that not enough emphasis is being placed on tech schools and the value of jobs that require physical labor. It is often said in these circles that too many high school students are being directed toward four-year college degrees and away from careers related to building and rebuilding our infrastructure — pursuits like welding, electrical, plumbing and the work of our wastewater professionals.

I believe that drumbeat is starting to be heard. A new emphasis in teaching for employability at a small school district in Northwest Minnesota is an example that should give hope to our overburdened community. And, specifically, talking to a student who is training to become an installer will show you that the labor situation may not be quite as dire as you think.

## GOOD THINGS HAPPENING

Jaden Thorson, 18, earned most of his required credits early at Detroit Lakes High School, located about an hour east of Fargo, North Dakota. He has been involved in an internship program to explore options in the trades right in his hometown. During the fall 2020 semester, he learned welding and custom fabrication at one company that partners with the school. This



▲ Vern Schnathorst, left, the work-based learning coordinator for Detroit Lakes High School in Minnesota, and student Jaden Thorson are shown on a work site with a John Deere 700L crawler dozer. (Photos provided by Vern Schnathorst)

spring, he honed his machine operator skills with an onsite installing company, and then started working full-time after graduation.

The first experience was the result of a partnership between the school, the business and the Minnesota Department of Labor, which awarded a grant to the school for training in three areas of need: advanced manufacturing, plant science and greenhouse management and a certified nursing assistant program. The second internship was through the school's work-based learning program.

The encouraging news for those who want to see more emphasis on job training is that the high school is moving from a college-prep emphasis to an



“academy” model program in 2021-22. This means students from freshman year on will be exposed to a variety of careers with in-demand jobs found close to home, says Vern Schnathorst, the work-based learning coordinator for the school district.

It's not that students will be discouraged from higher education options, Schnathorst says. But he says there has long been a mindset that most students should aspire to a college degree even if that wasn't the best choice for many of them. Now the goal is to identify students' interests and aptitudes early and present them with career choices, and he believes the trades are the best choice for many students in Detroit Lakes.

In years past, about 65% of students went on to some form of higher education, close to the state average, Schnathorst says. But the majority of jobs in Minnesota do not require a four-year degree, meaning that many students have been over-educated for the positions they end up taking after school. As he explained it, the school was always good at serving the top 20% and bottom 20% of students, while not helping the middle 60% find meaningful workplace experience.

“People were conditioned to think that if you didn't go to a four-year college, you weren't successful. And that's not the case,” Schnathorst says. “We're helping parents and students understand there are tons of good options for worthwhile careers that have a lot of nobility in them that don't require a four-year degree.”

## **JOB SITE EXPERIENCE**

Parents often wrongly assume that the trades are a less lucrative career for their students, according to Schnathorst. “They forget to look at the bill when they hire a plumber or an electrician,” he says.

When students find the appropriate career training path, they will all benefit financially and with upward mobility, he says. For example, a student who starts working in a trade after high school may earn \$15 an hour and in four years be making \$25 per hour with a good company, Schnathorst explains. Too many college grads leave school with student-

loan debt and find they are underemployed because they are not trained for skills required in their region, he says.

Under the new model at Detroit Lakes, all students will be exposed to career paths that reflect their interests and aptitude for work. Freshman activities will include guest speakers from the community and a career fair and expo that will help them choose a pathway for sophomore year. As sophomores they will take industry-related field trips, and as juniors they will job shadow with a professional. As seniors, one semester will include an internship in the community.

While some pathways focus on careers requiring four-year degrees, the “production” pathway will be a choice for students interested in trades like metal fabrication, small engines and agriculture. During senior internships, the students will be graded on weekly workplace learning reports and must

# Meeting your future workers

How can installers reach out to the students who might be their next great employees? Don't approach the school administrators first, according to Vern Schnathorst, the work-based learning coordinator for the Detroit Lakes High School in Minnesota.

While it might seem counterintuitive, Schnathorst says installers would be better off going right to shop teachers, for example, to get a foot into the classroom to explain the opportunities in their profession.

“Don't call the principal or guidance counselor. Those people get busy with lots of stuff and [your message] will be put on the list of things to do, and that's where it will end a lot of times,” he says. “It's better to find the instructor teaching the skills most similar to what you are doing and ask them if you can talk to the kids one day or offer to host a field trip at a work site.”

Then once you get to meet a group of students, make sure you can hold their interest. He says tradespeople are hands-on learners, and so are the students in classes such as woodworking, metal fabrication or agriculture.

“Don't just stand in front of the kids and talk to them. Have them do something,” he says. Schnathorst says a good example is when the North Dakota State College of Science visits schools and brings along an excavation simulator. The interactive gaming is a big hit and keeps the students wanting to learn more.

The same rule goes for school career expo events. Participating businesses should look for more engaging ideas to interact with students. Have an activity and don't just hand out candy to passing students.

“The old style of job fair, those are largely a waste of time. The way we do ours is much more meaningful. The student gets a lot more out of it and the business does, too,” he says.

meet strict attendance and punctuality requirements. They are there to learn the expectations in a professional workplace, Schnathorst says.

“We've conditioned kids to think they're perfect and have no flaws. It's important to learn what you're not good at and have the opportunity to learn and improve,” he explains. “You're not a professional employee yet. We expect failures and that's OK as long as you learn from it and get better.”

## **A GO-GETTER**

Thorson grew up with role models in the onsite installing industry. He was eight or 10 years old when he started practicing with his grandfather Nels Thorson's excavators and started working more officially for Nels Thorson Excavating at age 15. His father, Dan Thorson, owns Thorson Septic Design. So it was a natural progression to sign on for an internship with Colin Metry, owner of Metry Septic and Excavating, where he expects to lead his own installing crew now that he's graduated.

Thorson says it's valuable experience to work on a variety of equipment for Metry Septic, including excavators, loaders, skid-steers and bulldozers. The majority of the company's work is in septic system installation, but the crew also clears land, digs out stumps, levels off pads for houses and driveways, and even does sewer and water work.





» High school senior Jaden Thorson operates a crawler dozer during an internship with Metry Septic & Excavating in Detroit Lakes, Minnesota.

"This is probably one of the best ways I could get experience, working for somebody else. It's really cool just being able to use all this equipment," he says. Working for someone outside his family's businesses is a key to the program, according to Schnathorst. That's one of the internship requirements; students must work outside of a family business to learn how others conduct business.

Thorson says the intern experience has confirmed what he always wanted for a career.

"I think I'm doing pretty good for myself right now, but I know I have a lot of room to grow. The more experience you have, the more people are going to be willing to pay for it. People are telling me what I'm worth now and what I'll be worth in 15 years. It's motivating to know there are a lot greater things coming for me. I just have to keep getting up and working for it."

Thorson sees the aging of the onsite industry at a time when their services remain in high demand. This creates an opportunity for young people who want to work hard. "There are a lot of older guys getting ready to retire around here, and I just see that as more work for me to do and I don't think that's a bad thing," he says.

Thorson recognizes that he's in a small minority of classmates who rise and go to work before the rest of the class heads off to school. Fostering a work ethic might be the biggest impediment to students being prepared to work in the trades, he says.



"People are telling me what I'm worth now and what I'll be worth in 15 years. It's motivating to know there are a lot greater things coming for me. I just have to keep getting up and working for it."

Jaden Thorson

"It's crazy, young people just don't want to work anymore. People are paying good money right now for kids to come out and help, but nobody wants to get their hands dirty," he says. When he talks to other students about job opportunities, the first question they ask is, "How much do I get paid?" I don't know if that needs to be the most important thing. Kids don't see the opportunity that's there right in front of them."

### IT'S A LONG HAUL

Maybe Thorson can be part of the solution to raising awareness about the trades, Schnathorst says. He hopes the young excavator will come back to share that message of opportunity and hard work with younger students coming up. But progress isn't going to happen overnight, he says.

"Hopefully we'll start to make some progress toward this labor shortage. It's not a one-year fix; it's going to take a 10-year commitment," he says. While probably only 10% of Minnesota school districts have a work-based learning coordinator position, Schnathorst is starting to see more following suit.

And that's a good thing.

Learning about the strides being made in Detroit Lakes and talking to Thorson is a great counter balance to the pessimism our installing community rightfully feels these days. We should foster similar programs in our own hometowns to promote the value of working in the trades. We all have an important role to play in school-to-work programs as a way to bolster the ranks of quality workers in our industry. The future and so many young students depend on us. □

## WORKER RULES TO LIVE BY

In preparing students for careers after graduation, Detroit Lakes High School in Minnesota focuses on the 10 Commandments for Career Success, as created by the School District of Eleva-Strum and Cardinal Manufacturing, both near Eau Claire, Wisconsin.

1. **Be positive** - Attitude is everything.
2. **Show up** - On time, every day, reliably.
3. **Work hard** - Earn your keep, get something done.
4. **Get along** - Play together nice in the sandbox.
5. **Pay it forward** - Do more than is expected today, and you will receive more than you expected.
6. **Be flexible** - Willingly take on different tasks.
7. **Figure it out** - Be a problem solver, not a problem asker.
8. **Join the club** - Be proud to be a part of your organization.
9. **No whining** - Communicate positively and well, don't be high maintenance.
10. **Keep learning** - If you don't keep up, you will become obsolete.

### Drop Us a Line

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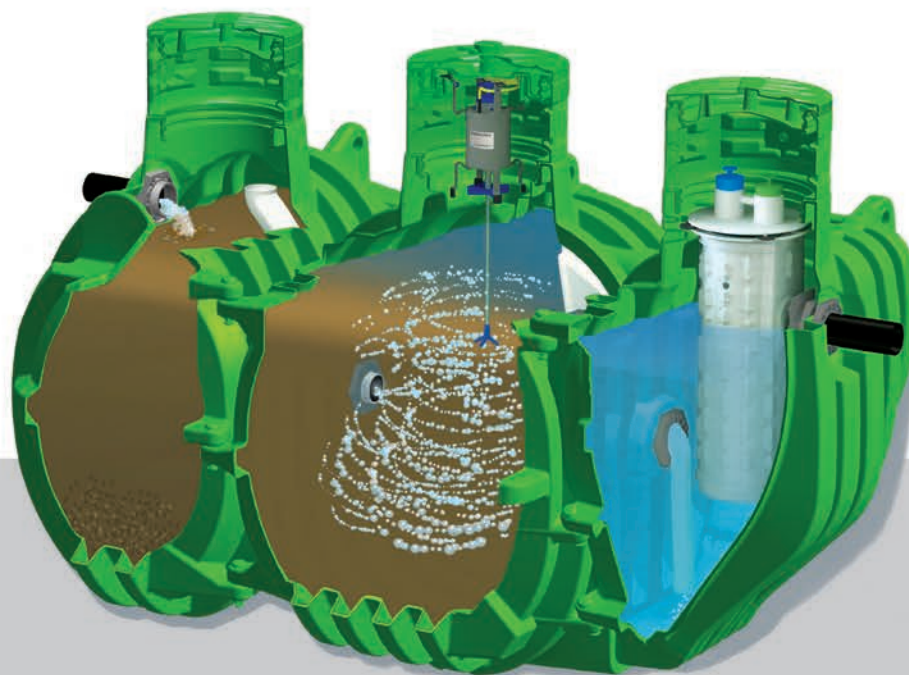
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## PROVEN AND PROFITABLE Versatile Mini-Excavators

Joe Bruening, featured on this month's cover, firmly believes smaller excavators make more money for his company, Bruening Excavating Corp. Read this exclusive online story about the work he does with compact excavator models and why they have proven more profitable than a bigger machine.

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## SEPTIC CONCERNS

### No Scum Layer?

Scum layers in septic tanks are a good indication that an onsite system is working as it should. Every septic tank should have a scum layer — not too thick, not too thin. When there is no scum layer, you should work with the owner to determine the likely causes and remedy them to extend the life of



downstream components. This article outlines things to discuss and evaluate if there's no layer. [onsiteinstaller.com/featured](http://onsiteinstaller.com/featured)

## SHOP AROUND

### Business Insurance Tips

Business insurance is a complicated subject for even veteran business owners. At least once a year, you make big, expensive decisions on the topic. Don't put blind trust in an insurance agent. Here are some lessons to keep in mind when you're looking for the right agent and shopping for business insurance.

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### Overheard Online

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# Precast Tanks Handle Water Table Issues For School Treatment Plant



Tanks were staged on the jobsite for efficient placement, and cranes set the tanks.



The 3,000- and 5,000-gallon tanks were 6-by-10 feet and 7-foot-6-inches-by-14-feet in size.

Photos courtesy of Norwalk Concrete Industries.

**Challenge:** Plans for an elementary school wastewater treatment system called for a mix of fiberglass and steel tanks, but when tank depths and a high water table posed problems, the contractor sought custom precast concrete tanks that accommodated the interior treatment equipment in the original plans and withstood the unique soil and water table issues.

**Solution:** The new system uses precast concrete tanks with limited joints. Tank tops were cast with integral risers at the transition points, and the midseam joints were sealed internally and wrapped externally. A single excavation with four well points controls the high water table, while the durable, watertight precast tanks provide reliable treatment.

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# HIRED HANDS

Ohio installer uses a unique approach to avoid the headaches of attracting, retaining and managing hard-to-find employees

By Ken Wysocky

In early 2020, shortly after Joe Bruening established his excavation and septic system installation business, he was already frustrated by and tired of employees who lacked his passion for productivity and customer service.

So the 32-year-old entrepreneur took an unorthodox step to solve the labor dilemma at Bruening Excavating Corp: He downsized the company's in-the-field employees from five to just himself and his brother, Christopher, and started using independent installation companies as subcontractors whenever possible. The only other employee is Bruening's wife, Hallie, who runs the office.

"We put in about 50 systems a year, and I kept running into quality and production problems," says Bruening, whose company is based in Wickliffe, Ohio. "You arrive on a job site expecting a job to be done and it's not ... a lot of times; you find guys are just milking the clock, which leads to dissatisfied customers. So I downsized and started over from scratch and hired my brother — trained him to do installs that would meet my standards," he continues. "Demand for work was still high, so I referred customers to other companies for a while, but then I started hiring those companies as subcontractors."

"People have said in Google reviews that they're shocked when I follow through and install a system on short notice. So following through on your promises and meeting customers' deadlines makes a big difference."

Joe Bruening

Bruening works primarily with one installation company and occasionally mixes in two others as needed. To vet the companies, he considers their reputations, talks to them about their business principles and gives each of them a "test" job to ensure they'd meet his criteria.

"When you hire another company, they're more passionate and caring about the work they do," he explains. "They have reputations to protect, so they don't come in and slop things together. They put into jobs the same quality and passion that I do."

Currently, subcontractors do about 25% of the company's system installations, but Bruening says he'd like to eventually expand that to 50%.

## LESS STRESS, FEWER EXPENSES

Many benefits flow from Bruening's decision. For starters, he's more productive and less stressed out because he spends considerably less time solving recurring problems on job sites.

"As an owner of the company, you become the fixer — chasing all the problems and not being productive," he says. "With subcontractors, I haven't had any problems with loose ends or screwups. They want to do an excellent job because they're not just a guy on a payroll."

Furthermore, there's less wear-and-tear on equipment because other companies' employees don't mistreat equipment the way some on-staff employees might. And







▼ Behind the controls of a Takeuchi mini-excavator, Joe Bruening, of Bruening Excavating, places a Norweco Singular Green treatment system at a residential property. (Photos by Amy Voigt)

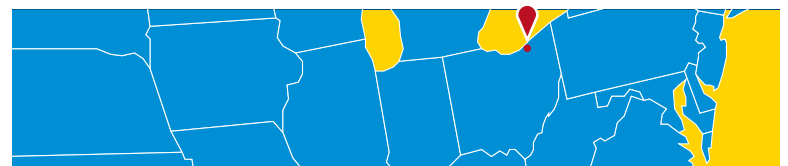
in some cases, subcontractors even use their own equipment instead of Bruening's, he says.

In addition, fewer employees results in lower payroll and overhead expenses, not to mention fewer management headaches. Bruening concedes that hiring subcontractors decreases his profit margins because he doesn't charge customers more when he uses them, but he says it's still worth it in the long run.

"I'd rather have lower margins than refer jobs to someone else or not finish a job on time and have a dissatisfied customer," he says.

### **BUILDING RELATIONSHIPS**

So far, subcontractor availability hasn't been an issue. Bruening says he's careful to not just drop jobs on them on short notice. But in some instances, if an emergency job pops up on short notice, he might take on that project and ask a subcontractor to do a job he otherwise would've handled.



## **Bruening Excavating Corp**

**Wickliffe, Ohio**

- Owner:** Joe Bruening
- Founded:** 2020
- Employees:** 3
- Service area:** 60-mile radius around Wickliffe
- Services:** Onsite installing and excavating
- Website:** [www.brueningexc.com](http://www.brueningexc.com)



▼ Joe Bruening, Bruening Excavating Corp owner, is operating a Takeuchi mini-excavator to move a Norweco Singulair Green system during a residential install. Christopher Bruening, left, and Annaka Silvia are guiding the tank into place.



“As an owner of the company, you become the fixer — chasing all the problems and not being productive,” he says. “With subcontractors, I haven’t had any problems with loose ends or screwups. They want to do an excellent job because they’re not just a guy on a payroll.”

**Joe Bruening**

“I’m not afraid of losing business,” he says. “I care less about the money and more about customer satisfaction.”

Of course, sustaining relationships with subcontractors means making things as easy as possible. To that end, Bruening strengthens the business bonds with subcontractors by supplying all the materials needed for each job.

“I organize each job as if it were my own,” he explains. “It’s totally hassle-less for them — they just have to show up with labor and equipment. They don’t need to spend time figuring out what materials they need and then going out to buy those materials.”

To minimize expenses that cut into profits, Bruening also suggests

hiring subcontractors on a flat-rate basis, which gives them motivation to finish jobs as fast as possible.

### **A WORKING EDUCATION**

Bruening’s unconventional approach to labor reflects his penchant for doing things a little differently.

“I think that’s true,” he says. “I like to try different things — do things that might seem scary at first.”

Take marketing, for example. Bruening embraces social media, a sales tool he believes is underutilized by many older installers. As such, using a website and social

media platforms such as LinkedIn allow him to reach out to customers that competitors might miss, which makes it easier to carve out market share.

“The older generation doesn’t care to learn how to use it,” he says. “A lot of Realtors are on LinkedIn, and lots of times they refer customers to me for inspections and installations.”

While he’s not exactly sure where his against-the-grain ideas come from, he partly attributes it to being exposed to multiple businesses while growing up. His father, Bud Bruening, founded Solid Rock Excavating in 1988 and later purchased a service company called Fry Septic around 2003. He’s now a co-owner of the company.

continued >>





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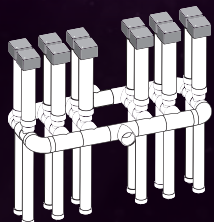
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▲ Joe Bruening, of Bruening Excavating, works with a Norweco Singulair system in the field.

“I was home-schooled, so I spent a lot of time working for my father,” he explains. “Instead of going to school, I was at school while I was working.”

Bruening also was heavily into motocross racing as a youth and was good enough to earn 20 corporate sponsorships. That added to the business experience he was picking up from his father.

“It all helped me develop an entrepreneurial personality,” he says. “I look at things as if I were the customer.”

Bruening became a certified installer and distributor for Norweco. This helps boost the company’s bottom line because he buys septic system components direct from the manufacturer with no middle-man markups.

## BRANCHING OUT

Bruening started managing the septic division of the company for his father before branching out on his own in early 2020. He still works out of space he rents in his father’s shop and often refers customers to Fry Septic, which does septic system service and pumps tanks.

“It really helps with customer service because they can rely on me for any issue,” he notes. “It’s a turnkey situation for them, which gives me a competitive advantage.”

Bruening says he refers customers to septic system design engineers and soil evaluators that he knows provide great customer service. And he does so with no guarantee that he’ll get the resulting installation work. Why? Bruening says it enhances customer trust and builds relationships that could lead to work down the line.

“I like the concept of giving a recommendation without any strings attached,” he explains. “It’s a marketing tactic, really. Most companies will only give that kind of referral if the customer signs a contract upfront for them to do the installation.”

To best serve customers, Bruening also relies on two Takeuchi compact excavators — a TB290 and a TB250; a TL10 track loader, also built by Takeuchi; bucket and “thumb” attachments made by Werk-Brau; a 1988 Mack dumptruck with a Godwin Manufacturing dump body; a

continued >>

## SPRAWLING DRIP SYSTEM WAS “CHALLENGING, BUT FUN”

Joe Bruening, owner of Bruening Excavating Corp, enjoys septic system installations that test all of his company’s capabilities. One particularly memorable project did just that: A three-mound drip system that replaced two failed existing systems on a roughly 7-acre estate with four buildings — a four-bedroom main house, a guest house, a garden house and a pool house.

“It was the biggest residential job we’ve ever done,” says Bruening. “We had to convert two separate aerobic systems on one property into one multi-building system. It was a pretty challenging but fun project.”

The project involved tying together six existing tanks (one fiberglass and five concrete tanks), one new concrete tank and a three-mound drip system. Because the buildings were so far apart, Bruening also installed four separate control panels.

“It would’ve been a lot of work and taken a lot of time to run and connect all those wires to just one panel, so each building got its own alarm,” he explains.

Water tests of the system’s existing six tanks revealed that three needed to be replaced. Bruening used concrete tanks made by McGill Septic Tank: a 2,000-gallon dual-compartment tank (the system’s primary tank), a 1,000-gallon flow-equalization tank and a 2,000-gallon dosing tank.

Those three tanks, plus an existing aerobic system made by NAYADIC (Consolidated Treatment Systems) were connected back-to-back in the home’s front yard. The dosing tanks feeds a three-mound drip system made by Active. A drip system was needed because of the property’s high clay content, Bruening says.

“Three-zone systems are pretty rare in our area,” he notes, “but we had to expand from two zones to three because the main house was so large. Fortunately, there was enough room for an additional mound.”

The company also installed an additional tank: a 500-gallon pump tank made by Infiltrator Water Technologies. That tank collects waste processed by an existing Jet aerobic system connected to the estate’s guest house and was integrated into the new system, he says.

In all, the system required laying about 4,400 feet of PVC and drip pipe and took about three weeks to complete. It also required horizontal directional boring to lay about a 600-foot pipeline under a driveway. The pipe connected the 500-gallon Infiltrator pump tank, located in the backyard, to the 2,000-gallon dual-compartment tank in the front yard, he says.

After completing the installation, Bruening hired a subcontractor to examine all the lines with a pipeline-inspection camera. “We wanted to make sure all the tanks were correctly tied together,” he says.



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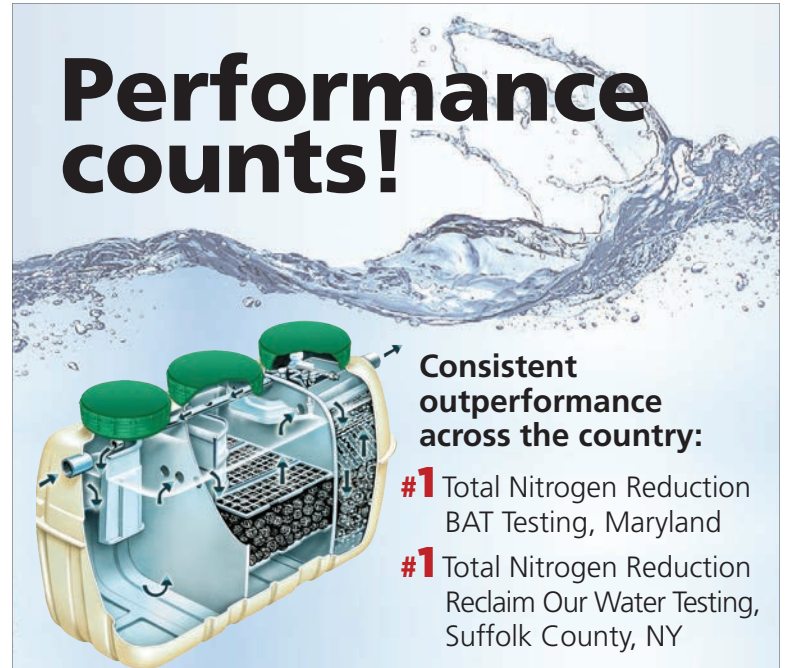
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"I'd rather have lower margins than refer jobs to someone else or not finish a job on time and have a dissatisfied customer ...

**I care less about the money and more about customer satisfaction."**

**Joe Bruening**

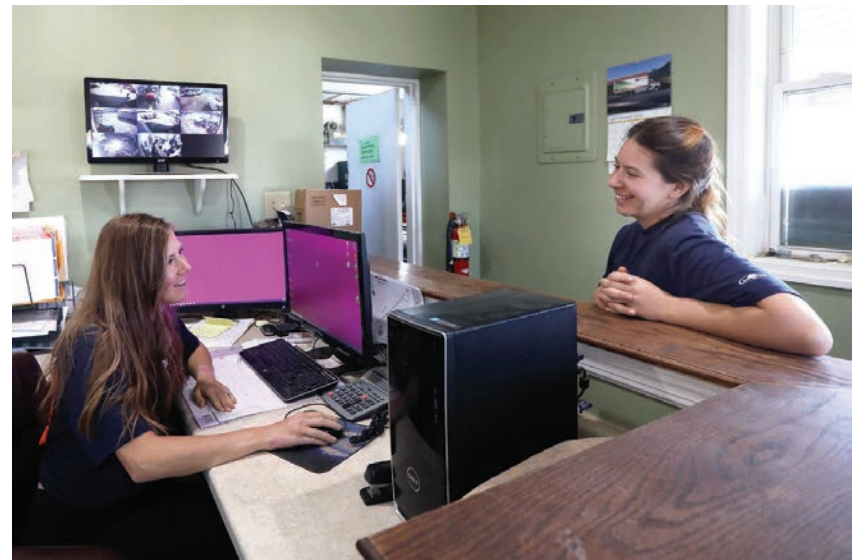
20-ton and a 10-ton flatbed trailer, made by Interstate and Behnke Enterprises, respectively; a 14-foot enclosed cargo trailer manufactured by Diamond Cargo Trailers; laser levels made by Spectra Precision; Chevrolet and GMC pickup trucks; and Stihl and Milwaukee Tool power tools.

### **GETTING ADVANCED**

Bruening installs a lot of aerobic pre-treatment systems from Norweco because of the high water tables and thick clay common to the region, not to mention pockets of bedrock.

"The Norweco Singular systems earn us a reduction in the height of a sand mound or the depth of the trenches," he explains. "We use it in front of drip, mound, spray and leachfield systems to get a depth credit for required soil-separation distances."

About 40% of those Norweco installations involve obtaining a National Pollutant Discharge Elimination System (NPDES) permit, which places limits on sewage treatment and allows discharge off-lot into a storm sewer, ditch, stream or some other surface-water body.



▲ Hallie Bruening, left, and Annaka Silva, discuss the day's duties at Bruening Excavating in Wickliffe, Ohio.

▼ The crew of Bruening Excavating includes, from left, Christopher Bruening, Joe Bruening and Annaka Silva.





The other 60% are either traditional leachfield systems (Bruening prefers the plastic chambers that Infiltrator Water Technologies makes), engineer-designed sand-mound systems built with pumps made by Champion Pump Co.; and drip-mound systems created with Active brand drip systems.

The majority of the concrete tanks Bruening uses are made by McGill Septic Tank Co. and the rest are plastic tanks manufactured by Infiltrator and Norweco.

### CUSTOMER SATISFACTION

In the end, however, providing great customer service is the key to his successful business model. It leads to repeat business and word-of-mouth referrals.

What are the hallmarks of great customer service? Many times, it boils down to simple things that nonetheless are important to customers, Bruening says, such as promptly returning phone calls and responding to emails. It never hurts to come through in the clutch on emergency jobs, either. Sometimes he encounters customers that are selling a house and need a system installed within a week, for instance.

“That’s where I shine,” he says. “People have said in Google reviews that they’re shocked when I follow through and install a system on short notice. So following through on your promises and meeting customers’ deadlines makes a big difference.” ▣

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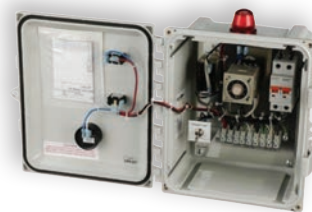
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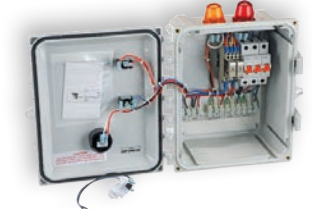
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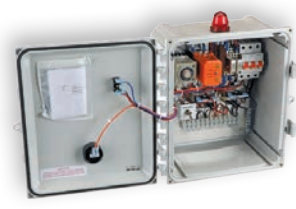
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# Alabama Groups Will Receive Nearly \$5 Million for Onsite Infrastructure Improvements

By David Steinkraus

A group of organizations in Alabama will receive \$4.85 million from the U.S. Agriculture Department to develop rural wastewater solutions for the state's Black Belt.

The Consortium for Alabama Rural Water and Wastewater Management will use the money for a technical assistance and training program, and to develop construction-ready plans. The consortium is led by the University of South Alabama and includes the University of Alabama, Auburn University and the Alabama Department of Public Health.

Dark, rich soils are responsible for Black Belt region's name, but those soils also include clay, which retards drainage for onsite systems. The belt covers 17 counties, from roughly Tuscaloosa in the west to Bullock and Macon counties near the Georgia border in the southeast.

This grant builds on a \$710,000 grant from Columbia World Projects (part of Columbia University in New York City) in 2020. Columbia said it would match other funds, such as the USDA grant, to a maximum of \$5 million. All the work is intended for the installation and testing of cluster and decentralized wastewater treatment systems at pilot sites.

Information from the tests will be published openly so anyone can learn from it, said an article from the University of South Alabama.

Kevin White, a professor and chair of the university's Department of Civil, Coastal and Environmental Engineering, the lack of good rural wastewater infrastructure has many ramifications.

"It's also about the lack of a critical developed world infrastructure that allows for economic growth and development, environmental protection and public health protection," he said.

## Arkansas

Landowners in the Illinois River watershed are eligible to apply for financial assistance to repair or replace failing septic systems. There is no income cap for receiving assistance, but people with lower incomes will get a larger share of the grant. The Illinois River Watershed Partnership is managing the program. A similar program for landowners in the Beaver Reservoir watershed is being managed by Ozarks Water Watch.

## Montana

After more than two years of discussions, the Ravalli County Health Board has unanimously passed new wastewater regulations.

The board worked on revisions after dealing with problems such as people who began construction without a permit and people who did not comply with their permits, the Ravalli Republic reported. County Commissioner Greg Chilcott said the new regulations are clearer and have reduced penalties and fees.

Commissioner Jeff Burrows, who also chairs the health board, said

much information will be going out to the public. Given the influx of new residents, that's especially important, he told the newspaper, because many people moving into the area have never lived in a place without municipal sewer service.

## Colorado

Onsite system records for Larimer County are now available online as an attachment on property records of the assessor's office. The information is under the Building Information tab at the top of each records page. In the past, people trying to locate records about their onsite systems had to directly contact the county's Department of Health & Environment. The county has records on about 15,000 permits dating back to the late 1950s.

## Texas

Landowners in the Lampasas River watershed may be eligible for money to help repair or replace failing septic systems. The watershed covers part of Mills, Hamilton, Lampasas, Coryell, Burnet, Bell and Williamson counties. Federal grant money available through the Lampasas River Watershed Partnership, in collaboration with Texas A&M AgriLife Extension, is enough to pay for about 15 systems. Residents may receive up to 100% of the cost, up to a maximum of \$8,000.

## Massachusetts

The Association to Preserve Cape Cod wants Barnstable County to drop the interest rate charged under the Community Septic Management Program. Decreasing the rate from the current 5% to zero will enable the county to offer no-cost financing to the thousands of people who are either upgrading onsite systems or connecting to municipal sewers, said a letter from Andrew Gottlieb, the association's executive director, to Barnstable County commissioners.

"The cape has failed to invest in the level of advanced wastewater treatment needed to restore and preserve our marine waters," he wrote, according to *The Bourne Enterprise*. Barnstable County covers all of Cape Cod.

## Minnesota

A group of Amish men have petitioned the U.S. Supreme Court to review their wastewater regulations case. No appeal is guaranteed because the court may reject a case if justices believe there are no significant legal issues for them to decide.

Since 2006, Fillmore County has contended the Amish must install onsite systems for graywater disposal. (The Amish use outhouses for human waste, which is permitted under Minnesota law.) The Amish refused, saying the county's rules infringe on their religious beliefs. Instead of a septic system, the



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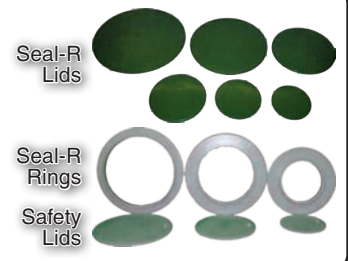


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Amish proposed using a mulch basin system. During a trial in the case in 2019, a witness said a mulch basin would not work in Fillmore County.

The Supreme Court petition repeats the claim that county rules violate the constitutional right of the Amish to practice their religion. The brief from the attorney for the Amish says, in part, that the county and state failed to prove "that their generic interests in public health and environmental protection were so compelling in this specific application as to justify trampling Petitioner's religious beliefs."

In addition, the brief asserts the county and state failed to show that mulch basins were not an acceptable alternative.

At the end of the trial, Judge Joseph Chase wrote that by not following wastewater rules, the Amish interfere with the rights of others.

"This is a situation in which the Amish cannot, despite their most sincere efforts, be separate from the world," he wrote. "All water is connected, and all of us, Amish and English alike, drink from the same aquifers."

\* \* \*

Owners of failing septic systems in Polk County may apply for cost-sharing to repair or replace those systems. Funding for repairs is through a grant from the Minnesota Clean Water Legacy Act. Money is limited, and preference will be given to people based on household income, condition of the existing system and proximity to surface water, KROX News reported. Homes involved must be a primary residence, and landowners will be required to pay any match up front. ▣

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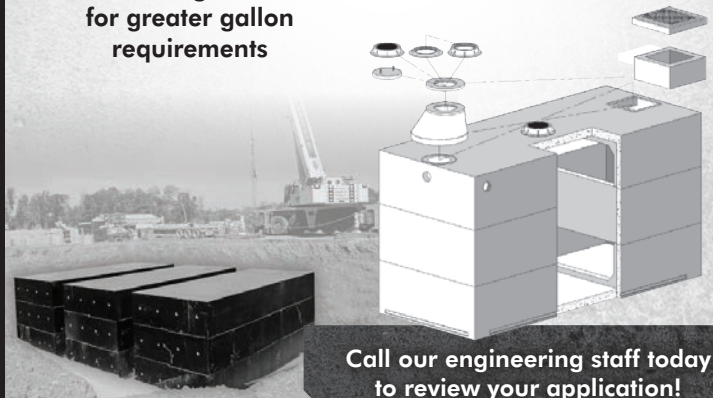
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## SYSTEM PROFILE

Because of the tight space and low clearance, Stewart Concrete fabricated a custom frame that the LaFollette Excavating team could use to lift and swing the Puraflo pods. Excavator Billy Lewis, left, helps guide the pod. (Photos courtesy of Jeff Julien/Stewart Concrete Products, and Larry LaFollette/LaFollette Excavating)



# A snug fit was required when LaFollette Excavating encountered an environmentally sensitive work site

Anua Puraflo replacement system allows continued occupancy of a Missouri lakefront home following a real estate transfer

By David Steinkraus



➤ After maneuvering the Puraflo pod through the carport, Brandon Stevens hooks on the mini-excavator to set the pod. Keeping the pod under control are Bron Bradley, left, Billy Lewis, second from right, and Jeremy Craig, right.

✓ Billy Lewis, excavator, checks the depth on one of the Anua Puraflo units installed at a house on the James River near Rogersville, Missouri.



**A**s the sale of a waterfront property proceeded in Rogersville, Missouri, a home inspection found the onsite system was not up to code. “There was an existing wastewater system, but it was 40 years old. Nobody knew what size it was or where it discharged,” says Larry LaFollette. He co-owns LaFollette Excavating of Strafford, Missouri, which installed a replacement system.

The two-bedroom house was built as a recreational residence and sits on a bank about 25 feet above the James River, which made the project environmentally sensitive. The owner liked the home so much that he took up permanent residence, LaFollette says. Expected flows are 120 gallons per bedroom, so the 360 gpd capacity of the new system allows for some extra flows. That’s a fairly standard capacity for systems in the area, LaFollette says.

The team looking at the new onsite solution settled on a Puraflo system from Anua. “The other option was a holding tank and pumping it out monthly,” LaFollette says. The county wasn’t keen on that option, he adds.

### New system

Because the lot is very small, the system starts at a septic tank beside the house and ends at Puraflo pods around a corner behind the house.

## System Profile

- Location:** Rogersville, Missouri
- Facility served:** Single-family home
- Designer:** Crocker Consulting Engineers, Springfield
- Installer:** LaFollette Excavating, Strafford, Missouri
- Type of system:** Puraflo
- Site conditions:** Loamy sandy silt
- Hydraulic capacity:** 360 gpd

Wastewater leaves the house in a 4-inch pipe. It runs about 10 feet and empties into the septic tank from the old system. “We were able to reuse the septic tank because we were adding on a larger pump tank,” LaFollette says. The existing septic tank is a 1,000-gallon concrete model with three chambers. All are now used for settling solids.

At the outflow is an 8-inch filter from Polylok. A 10-foot run of 4-inch pipe takes water to the pump tank, an 800-gallon polyurethane model made by Infiltrator and supplied by Stewart Concrete of Halfway, Missouri. Inside is a single Zoeller pump discharging through 2-inch PVC to a pair of



## SYSTEM PROFILE



◀◀ With the Puraflo pods in place, Jeremy Craig, left, and Billy Lewis, right add 1-inch stone to the bedding. To the left is a 25-foot drop to the James River.

✔ There wasn't a true backyard at the house near Rogersville, Missouri, only a strip of ground before the drop to the James River. Here, Brandon Stevens, on the excavator, Billy Lewis, foreground, and Jeremy Craig, background, set the Puraflo pods.



Puraflo modules set about 3 feet deep and with their lids at grade. A panel from SJE Rhombus controls the system. Floats control the dosing, and each dose is 120 gallons. Beneath the pods are 6 inches of 1-inch-diameter stone to accept the effluent.

Peat filters like Anua's Puraflo have a large surface area for treatment and a large capacity to hold water, according to the University of Minnesota Water Resources Center. Unsterilized peat also brings with it a variety of microorganisms, and the result is a high-quality effluent that is especially well suited for environmentally sensitive areas.

To do the job, LaFollette's team used a Cat 299 skid-steer and a rented IHI mini-excavator. The excavator had to be rented because the canopy on LaFollette's own excavator isn't removable, and the team needed lower clearance so the machine would fit under the carport at the side of the house.

They also rented a bucket on tracks to move stone to the Puraflo beds.

### Lack of space

Aside from needing a special permit from the county, the team's other challenge was the very tight space. At the rear of the house was a sliver of land between the house wall and a retaining wall and fence that kept people from falling down the riverbank.

Landscaping blocks covered the existing tank at the side of the house. Equipment had to move over this, so the LaFollette crew laid 2-by-12 planks to distribute the weight of equipment.

Because there was only one point of access, the crew started from the far end, setting the Puraflo units first and working backward, "kind of like painting yourself out of a room," LaFollette says.

Moving the pump tank to its position was easy. Lightweight, technicians carried it by hand. Moving the Puraflo tanks to the back of the house was another story. The low carport roof restricted the height of any equipment carrying the tanks, and beyond the carport there was limited room to swing equipment. A representative from Stewart Concrete came up with a solution.





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“Once we got out from under the carport, we could pick up [the Puraflo unit] higher and swing it around so we didn’t hit the fencing.”

Larry LaFollette

The company fabricated an H-shaped custom frame using 3-inch steel pipe with quarter-inch walls. Angle irons reinforce the corners. Polypropylene rope on the Puraflo pods slipped over the ends of the frame. The skid-steer operator could slide the fork under the frame and float the tank a few inches off the ground to move it through the carport.

“And once we got out from under the carport, we could pick it up higher and swing it around so we didn’t hit the fencing,” LaFollette says. Setting was done with the mini-excavator. The crew took down a portion of retaining wall and the fence on top of it to provide space for the mini-excavator to move.

A fully loaded pod weighs 1,500 to 1,800 pounds, LaFollette says. When the job was done, the frame stayed with Stewart. That way, he says, it’s available for other contractors to use as well.

Technicians will check the pods as part of their annual maintenance work on the system, LaFollette says, and the company’s four-page report (like the

maintenance report for a car) shows the homeowner how the system is doing. When the peat shows signs of breaking down, in about 12 to 15 years, it can be easily sucked out with a vacuum truck and replaced, he says.

Teamwork on the job was very good, LaFollette says.

Michael Bowers from the Greene County Environmental Division was a great help in getting the needed special permit through the process, he says. That took a couple of months.

The previous owner also had a good attitude. She was the widow of a local builder and wanted to do the right thing, LaFollette says.

“She called us. We’d worked with her husband quite a bit,” he says. “She volunteered to pay for the whole system. She wanted to do it right and make sure the new owners were happy ... and didn’t add to the price of the house.” □

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# Start Asking Questions Well Before You Pop the Septic Tank Lid

When conducting a septic system evaluation for a real estate inspection, gather as much useful information as possible before you get started

By Jim Anderson and Dave Gustafson

**W**e have gotten a few inquiries about the type of questions that inspectors should ask homeowners when a septic system is to be inspected for a property sale. Our tongue-in-cheek answer is that it depends on if you are talking to the buyer or the seller.

We like to start our system inspection classes raising that little bit of real estate inspection humor. But while it is true that the questions and answers will vary depending on whom you are dealing with, there are some questions you want and need to have answers to regardless of who is paying if you are interested in doing an unbiased inspection.

Having answers to these questions before opening any part of the system will help when evaluating the results of your observations. It also will give you a check on how forthcoming the current homeowner has been in their answers! Some of the information can be obtained through other sources, such as the local planning and zoning office. But there is no substitute to getting information from the people most affecting system performance.

## A good question for both the buyer and seller is whether this is their first experience using a septic system.

If so, it indicates you will probably need to spend a little more time educating them about septic system importance and why you are asking these questions.

## USER HABITS ARE IMPORTANT

The questions can be divided into at least three general areas: information about the homeowner and residence, information about the system and information about household water use.

In terms of the owner and residence, these questions may come up: Is use full time, part time or seasonal? Seasonal use indicates a reduced level of use with resting times in between. How many residents are using the system, and what are their relative ages? An older couple versus a family with teenagers in the mix will indicate a potentially higher level of use.

What is the current number of bedrooms and bathrooms, and has this changed from time of system installation? Additional bedrooms indicate additional use. Is there any type of in-home business? Hair styling, taxi-dermy or painting could all indicate increased water use and introduction of chemicals or cleaners that can have an impact on system longevity.

Questions about the current system should include the following:

When was the current system installed? This indicates not only how long it has been used, but the likelihood it is up to current standards or will need to be upgraded. How many tanks are in the system and what are their sizes? Knowing system age helps with some assumption about tank sizes and whether it is single or multi-compartmented. Has the system been regularly maintained? Is it on a regular maintenance schedule, and when was the last time it was pumped or evaluated? A system under a regular maintenance schedule is probably in better shape and had any problems corrected as they arose.

Regular maintenance usually goes hand in hand with access, so these questions should be asked: Are there risers over the maintenance holes, and can all parts of the system be accessed from the surface without excavation? The in-field portion of an inspection will go a lot faster if everything is accessible and does not have to be located. As an aside, if components need to be located, you should have a separate fee for locating versus the actual system inspection. Along with location and access questions, do the septic tanks have effluent screens? Or were they fitted after the fact with these screens? Over the past decade, most states have moved to require these as standard at septic tank outlet baffles. System age also helps determine if this has been done.

Also ask whether the system has ever experienced freezing or effluent surfacing problems. If there have been backups, evidence of this will likely show up when the tank is inspected. Ask if there have been repairs done on the system, and if so, when and why they occurred. When the system inspection is conducted, these areas can be looked at specifically to see if the repairs were completed.

Ask whether there have been or are odors associated either around the system or in the house. Odors may indicate problems including effluent surfacing or lack of adequate system venting. What kind of cover is over the soil treatment part of the system, and is it below or above ground? Is there a pump or pump in the system? Where are they located and what is the purpose — to deliver sewage from the basement? Or deliver effluent to higher elevation than the septic tank? When were the pumps last serviced



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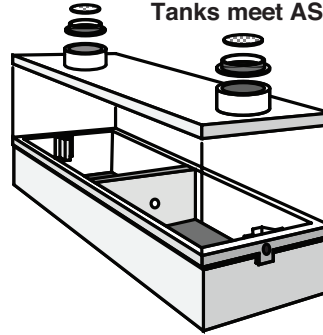
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and are there high water level alarms? If they have a management plan, what are the dose sizes and the number per day?

## WATER-USING DEVICES

If there is a water well, where is it located relative to the system? What is the distance?

There are questions about household product usage that should be asked and can help explain conditions you will encounter when you begin to open components during your inspection.

What water using devices are in the house — garbage disposal, water softener, dishwasher, washing machine (top or front loading), water treatment devices (iron filter), whirlpool or hot tubs? These increase water use and are items to keep in mind when evaluating the current system condition.

Excessive use of cleaners, antibacterial products or bleach can have a negative impact on the biology of septic tanks and will be evident when examining tank contents. Other potential problems that can interfere with solids settling in the tank include certain types of medicines being taken by the occupants.

A good question for both the buyer and seller is whether this is their first experience using a septic system. If so, it indicates you will probably need to spend a little more time educating them about septic system importance and why you are asking these questions.

In future columns, we may focus more specifically on some aspects of these questions related to troubleshooting and system inspections. This may seem like a long list, but the answers are the key to a complete inspection. □



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# An Aging Workforce Remains Our Biggest Challenge

A Wisconsin wastewater pro echoes a common industry theme: We need enthusiastic young people entering the field

Compiled by Betty Dageforde



**Todd Stair**  
Vice President

**Business:** Herr Construction, (fourth generation in the industry), Oconomowoc, Wisconsin, in the "Lake Country" area of the southeastern part of the state

**Job description:** I wear all hats — master plumber restricted, soil tester, septage operator, customer contact, bidding, some design work, some soil testing, training, safety.

**Age:** 58

**Services we offer:** Soil testing, septic system installs, sewer and water work, sewer camera, sewer sectional lining, excavating, drainage, stormwater systems, trucking and excavating.

**Years in the industry:** 32

## Association involvement:

I have been on the Wisconsin Onsite Water Recycling Association (WOWRA) board of directors most years since the mid-1990s. I was president from 1997 to 2001 and was again recently voted in as president.

## Benefits of belonging to the association:

Benefits include having legislative representation, staying at the forefront of laws affecting our industry, education and continuing education hours, the annual conference with lots of great classes, other training throughout the year, and networking to learn from colleagues and regulators.

## Biggest issue facing your association right now:

The graying of the industry. Membership numbers are low. Where's the next generation?

## Our crew includes:

We have amazing people, starting with my wife, Peg Stair, and Kelly Reese in the office. Ann Cataldo is lead soil tester and a master plumber. Jeff Reese and Ben Hilmer are crew leads. Mike Esguerra and Chris Brezinski are pumpers, have their plumber learner cards and drive the dump truck.

Jason Strankowski, Jeff Christensen, Jeremy Wagie, Nate Strankowski and Dakota Wirth round out the crew. And Mark Ridgman, our mechanic, keeps everything running. We strive for everyone to have as many licenses as we can help them achieve — plumbing, soil testing, pumping, well pump installation, commercial driver's licenses.

## Typical day on the job:

Although no day is typical, mine usually includes getting crews prepped in the morning, helping to get the day's initial schedule complete (and it changes frequently), meeting with potential customers, bidding jobs. I perform soil tests when needed, help out on crews when short-handed and, when the schedule dictates, I do some of our sewer camera work.

## The job I'll never forget:

We installed a replacement private onsite wastewater treatment in-ground system (POWTS) for a national TV show called *Extreme Home Makeover*. The first thing that stuck out is that the streets were lined with people waiting for the show to start filming — and the first thing that came down the street was our pump truck, as we had to pump and abandon the existing septic system. Crowds on both sides of the street cheered. I've never seen hundreds of people cheer a pump truck before. Then there were storms and tornado warnings and we had to remain on standby. When we finally got the okay to install the septic system it was 10:30 p.m. We installed the system under artificial lighting and had to wake up the inspector in the middle of the night. He was very understanding about it.

## My favorite piece of equipment:

While the excavators are extremely important in our industry, I'd have to say my favorite tool is the sewer camera (RIDGID). It's such a versatile tool and we're using it more and more. To be able to both visually see a sewer problem *and* accurately locate it is something previous generations could not do as efficiently.

## Most challenging site I've worked on:

We did a job far up on a wooded knob of a site that was a straight drop-off on three sides. We did the septic prior to basement excavation. Every grain of soil had to be hauled offsite. Of course they waited for the middle of winter to begin the project. We had dump trucks driving down very dangerous wooded roads in pure ice conditions.

continued >>





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## SNAPSHOT

» Ben Hilmer, Herr Construction crew lead, installing Eljen system.

» Ann Cataldo, lead soil tester and master plumber, doing soil testing using a Takeuchi TB045.



### Oops, I wish I could take this one back:

We learned the hard way not to base a bid on information someone else gives us. We're currently working on a project where we trusted the information a municipality provided and are now digging ourselves out of a lose-lose situation. A little tiny honey-do turned into three days of digging up someone's yard. Moral of the story — do your own due diligence or risk losing money.

### The craziest question I've been asked by a customer:

"How many holes should I shoot through the 55-gallon drum I'm installing as my septic system for my hunting cabin up north?"

### If I could change one industry regulation, it would be:

I'd like to see more uniformity. It's frustrating when one municipality requires something different than another.

### Best piece of small business advice I've heard:

Rich Herr, owner of our company at the time he hired me in 1989 said, "Any work you do, do it as you would want it done at your own home. Think every job is your own house, do excellent work and don't skimp on any facet of what you are doing." Everyone at our company lives that advice on every job.

### If I wasn't working in the wastewater industry, I would:

I love astronomy, science and wastewater treatment so it would probably be something in the field of science.

### Crystal ball time - This is my outlook for the wastewater industry:

I am hopeful the younger generation steps up with as much passion for what we do as we have. I hope they keep improving POWTS treatment and protection of groundwater in ways we haven't even imagined. And, thirdly, I sincerely hope our industry changes the paradigm of water use and guides our nation to understand the importance of stormwater as a resource for non-potable purposes, as we work every day with the tools to make that happen. □

### Would you like to see someone in your state or provincial wastewater trade association profiled in Snapshot?

Send your suggestions to Jim Kneiszel at [editor@onsiteinstaller.com](mailto:editor@onsiteinstaller.com).



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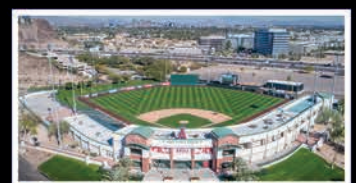
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## PRODUCT NEWS

### Liberty Pumps PC441-10A Sump Pump Combo system

The PC441-10A Sump Pump Combo system from Liberty Pumps is a complete pre-assembled primary pump and 441-10A backup pump available in several primary pump models. The Model 441-10A emergency sump pump system is a mid-range product, falling between the base-level 441 system and the higher-end 442 systems. It has a 10-amp charger, and the high-output 12-volt battery-operated pump starts automatically when the power fails. Its compact design is drop-in-the-pit ready, making onsite installs quicker and easier, according to the maker. Primary pumps are available in 1/3 or 1/2 hp and are ready to connect to a 1 1/2-inch discharge. Charger features include two different modes that charge and maintain your battery, seven LEDs that transmit critical system information at a glance and a battery voltage indicator on the charger. Other charger features include a self-resetting 24-hour silence and audible in-use alarm and light. 800-543-2550; [www.libertypumps.com](http://www.libertypumps.com)



### Franklin Electric Little Giant 12E Series effluent pump

Franklin Electric's Little Giant 12E Series 1/2 hp effluent pump for dewatering, water transfer and septic wastewater removal has a rugged design and features designed to meet the most challenging deep vault effluent applications. Each unit features a unique cloverleaf intake that allows for higher flow with 3/4-inch diameter solids handling. The cast iron impeller delivers superior clog resistance, according to the maker. Surrounding it all is a heavy-duty epoxy-coated cast iron housing designed to stand up to extreme elements including cold-weather climates where deep septic wells are common. Continuous duty rated, the energy-efficient PSC motor includes thermal overload protection designed for reliable performance. The pumps are available in with either a manual or automatic switch option. 866-271-2859; [www.franklinengineered.com](http://www.franklinengineered.com). □



## PRODUCT SPOTLIGHT

### MicroSepTec EnviroServer ES designed for simple installation

By Tim Dobbins



Ease of installation in a single excavation was the thought process when the MicroSepTec EnviroServer ES Series was designed for residential treatment systems.

The systems utilize five chambers to achieve primary settling, treatment and clarification, all in one tank. "Another unique feature is the plug-and-play concept," says Mike Sundberg, president of MicroSepTec. "All of the components needed for the treatment system come with the system when it is purchased from the distributor."

The units use a moving bed biological reactor (MBBR) made specifically for the residential market. "The uniqueness of the MBBR is the hybrid fixed film and suspended growth that happens in the aeration chambers, making the EnviroServer very robust in its treatment capabilities," Sundberg says.

The first compartment of the system is the primary clarifier for the settling of sludge and solids. The second section houses the first of two aeration chambers and contains biomedica providing surface area to promote a healthy population of microorganisms. The third compartment is used for further aeration to amplify the growth of nitrifying bacteria and the process of nitrification.

Following the stages of aerations, the fourth chamber is the final clarifier where suspended solids settle out. Wastewater is then recirculated back to the primary clarifier in the first compartment, which contains enough carbon to promote denitrification removing high levels of nitrate. Clarified water is then moved through an effluent filter before entering the fifth and final compartment, an effluent chamber for storage.

MicroSepTec offers options for different types of recirculation based on use and desired effluent quality, along with control options for different types of discharge options. A result of the recirculation is sludge and solids accumulating in the primary clarifier. The "ES" in the systems name stands for extended storage, meaning the tank is sized to hold enough volume for one to three years depending on usage.

The design of the EnviroServer ES series also allows the system to be installed on a variety of sites and conditions including steep hills, small lots, ocean shore or lakefront, high elevation and hard-to-reach locations.

"Installers choose the EnviroServer because of the simplicity of the design and installation process," Sundberg says. "Regulators like seeing them installed because they know they can get the desired effluent quality in terms of BOD, TSS and nitrogen reductions on a consistent basis." 877-473-7842; [www.microseptec.com](http://www.microseptec.com) □



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**INDUSTRY NEWS**

**Larsen retires from Felling Trailers**

Daniel "Boone" Larsen, Felling Trailers' Great Lakes regional sales manager, has retired. The 40-year industry veteran joined Felling in 2010 as its Midwest and Southeast U.S. regional sales manager. He provided dealer support for 15 states spanning from Minnesota to Virginia, to Florida to Mississippi. In 2014, Boone reduced his coverage area to the Great Lakes Region.



Daniel Boone Larsen

**Wieser Concrete acquires Minnesota Precast Industries**

Wieser Concrete acquired Minnesota Precast Industries, based in Rosemount, Minnesota. The staff will remain at the Rosemount plant, with Kenny Lien from Wieser's Maiden Rock plant joining to assist in production and deliveries.

**NOWRA launches new website, announces conference dates**

The National Onsite Wastewater Recycling Association (NOWRA) launched a newly designed, mobile-friendly website that includes industry information, education and tools for members and state affiliated organizations. Other features of www.nowra.org include an enhanced septic locator to search for septic professionals and coverage of the latest advocacy efforts in Washington, D.C., and with regulatory agencies.

NOWRA also announced that the 2021 Onsite Wastewater Mega-Conference will be held Oct. 17-20 in San Marcos, Texas. The conference is a collaboration involving NOWRA, the National Association of Wastewater Technicians, the State Onsite Regulators Association and the Texas Onsite Wastewater Association. The conference theme this year is Essential Work in the Lone Star State.

**OneWater announces Algaewheel acceptance in Colorado and Vermont**

OneWater announced the acceptance of Algaewheel Rotating Algal Contactors as an alternative technology for use in domestic wastewater treatment works in Colorado. Denver-based Coombs-Hopkins Company serves as manufacturer's representative for the Algaewheel system in Colorado. Champlin Associates of Essex Junction, Vermont, is OneWater's manufacturer representative for Algaewheel in New England states. □

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# Alarms, Controls and Monitoring Systems

By Craig Mandli

## ALARM SYSTEMS/COMPONENTS

### Aero-Stream Aero-ALERT

The multi-function Aero-ALERT alarm from Aero-Stream is designed for easy installation and to fit any residential or commercial septic system or holding tank. Employing a self-contained power cell, installation is simplified and mitigates the need to hire an electrician or pull an electrical permit. This reduces installation costs and eliminates the liability of performing the wiring yourself. The alarm can be used in systems requiring an alarm event such as ATU air flow, or utilizing a free-standing float switch system, effluent filter maintenance, holding tank or pump chamber alarm. Incorporating high efficiency electronics including a 95dB audible and a 360-degree flashing light allows the unit to emit a continuous alarm signal for more than 2,000 hours (90+ days) without depleting the battery, as well as be located up to 100 feet from the tank. 877-254-7093; [www.aero-stream.com](http://www.aero-stream.com)



### Alderon Industries VersAlarm 4X

The VersAlarm 4X from Alderon Industries is an outdoor rated alarm panel with included auxiliary contacts, battery backup and capacitive touch test/silence button. When powered, green LEDs will illuminate. This alarm can be used for a variety of applications including septic tanks, sump pits, holding tanks, pump chambers and water tanks. Connect various sensors for liquid level monitoring. During an alarm condition, the red alarm LEDs illuminate, flashing, with the left/right green LEDs illuminating solid for zone indication, buzzer annunciates with a pulse tone and auxiliary contacts activate. Press and hold (1 second or longer) the test/silence button to silence the buzzer during an alarm condition. After the sensor(s) deactivate, the alarm automatically resets itself for the next alarm cycle. Available in 120VAC or 240VAC, 1-zone or 2-zone, and installing a 9VDC lithium battery (not included) provides battery backup during power outages. 218-483-3034; [www.alderonind.com](http://www.alderonind.com)



### Anua i/o.site

The i/o.site system from Anua provides performance monitoring of electromechanical components while keeping everyone connected to information through a simple web interface. It can remotely monitor any blower, aerator, pump, float switch or motor. It tracks water use, catches motor issues before failure, uses any mobile device or computer, and monitors any powered onsite system. 336-547-9338; [www.anuainternational.com](http://www.anuainternational.com)

### MSA Safety TG5000 Gas Monitor

The TG5000 Gas Monitor from MSA Safety detects oxygen, combustibile and toxic gases. It offers multiple sensor and installation options. Its modular single or dual sensor design doubles sensing power and reduces wiring costs. The intuitive design of the local interface makes it simple to install, use and maintain. Its OLED display and LED indicators show power, fault or alarm, gas readings and Bluetooth connection. A touch button accesses all functions. It operates in standalone mode or can be connected with a 4-20 mA output to a PLC or DCS. HART is available, and it supports remote monitoring, where the sensor must be separated from electronics. It has XCell TruCal sensors, which respond rapidly to gases. Self-diagnostics and SafeSwap capability enable sensor replacement without turning off the instrument. It includes a 95 dB audible alarm with horn silence control. 800-672-4678; [www.msasafety.com/detection](http://www.msasafety.com/detection)



### Polylok 3014AB Filter Alarm (smart alarm)

The 3014AB Filter Alarm (smart alarm) from Polylok is a wired indoor/outdoor filter alarm that provides audio/visual warning notifying operators that a tank filter needs cleaning. The Smart Alarm Switch activates when the filter cartridge is near capacity (approximately 90% full) with solids. The Smart Alarm Switch installed in the filter sends a signal to the panel, activating the audible and visual alarm. It offers a manual alarm test switch and horn silence, an alarm horn rated to 82 dB at 10 feet, and 15 feet of cable, with longer lengths available. 888-765-9565; [www.polylok.com](http://www.polylok.com)





## Septic Products Observer 400

The Observer 400 system-monitoring device from Septic Products is a 120-volt indoor/outdoor high-water alarm that includes a 15-foot alarm float for high levels. It includes a large 360-degree indicating light and 85 dB at 10 feet audible alarm. It comes with a test-normal-silence switch, automatic alarm reset, auxiliary contacts and 120-volt circuit power for the pump. It has easy access to the interior components for a repairable design. The alarm can be adapted for use as either a high- or low-level alarm. It is built and labeled to UL 508A. 419-282-5933; [www.septicproducts.com](http://www.septicproducts.com)



## SJE Rhombus PS Patrol

The PS Patrol from SJE Rhombus is an outdoor pedestal high-water alarm system that provides a convenient location to connect all wiring required for a pumping station application. It employs a receptacle for easy connection of a 120-volt pump and piggyback pump switch. The sleek, angled design of the clear enclosure includes a removable cover for easy access for field wiring and viewing components. The enclosure meets Type 3R watertight standards for outdoor use. The design allows the controller to accept a 5-inch square plastic post or 4-inch pipe/conduit for mounting. All internal components are sealed within the cover for protection from the elements. The red LEDs illuminate the top of the cover in an alarm condition for easy 360-degree visual identification. It is available with or without a 32-inch mounting post. It is CSA certified. 888-342-5753; [www.sjerrhombus.com](http://www.sjerrhombus.com)



## Liberty Pumps NightEye

The NightEye app and cloud-based system from Liberty Pumps allows internet connection of a pump via the home's wireless router and provides alarm and other performance information to a mobile device. The system sends information via text, email and push notifications, to up to four different address/phone numbers anywhere in the world. Connected products include the ALM-EYE series indoor pump alarm, 442-Series battery backup pump systems and the SumpJet water powered backup pump. The system is easy to use and set up through a portable device. Download the app, register the device and connect to the equipment using BlinkUp technology. The app is a free download and is compatible with iOS and Android devices. There are no subscription or service fees. 800-543-2550; [www.libertypumps.com](http://www.libertypumps.com)



## PUMP CONTROL PANELS

### Aquaworx by Infiltrator Intelligent Pump Control

The Intelligent Pump Control panel from Aquaworx by Infiltrator transforms pump system performance. The easy-to-install panel monitors liquid levels, controls pumping time intervals, logs events in real-time and calculates daily system flow utilizing a pressure transducer in the pump chamber and an embedded microprocessor in the pump controller. The Aquaworx Tapper handheld Wi-Fi programmer broadcasts a signal that allows the user to program the panel using any Wi-Fi-enabled device. Once connected, the user navigates to a website that has all control settings for the panel and provides the operator with a history of system function critical to troubleshooting and maintaining a pump-driven system. The Tapper is intended for use with multiple panels and includes a USB slot, allowing the user to capture and download system events and settings onto a removable USB memory device. 800-221-4436; [www.infiltratorwater.com](http://www.infiltratorwater.com)



### Flygt - a Xylem Brand MAS 801

As part of a complete pumping system, the MAS 801 pump monitoring system from Flygt - a Xylem Brand helps reduce costs over a pump's lifetime, according to the maker. With 24/7 onsite overview of pump data that simplifies methods for diagnostics, this technology enables continuous station health checks on pump operation. In addition, with three-axis vibration, current measurement and temperature and leakage measurements, the user can take timely, preventive measures for increased lifetime of the pumping equipment. 704-409-9700; [xylem.com](http://xylem.com)

### Franklin Electric Simplex and Duplex Non-Clog Control Panels

Available in both single- and three-phase power options, Simplex and Duplex Non-Clog Control Panels from Franklin Electric are designed exclusively for FPS submersible non-clog pumps. These control panels are UL 508A listed, and they feature a waterproof NEMA 4X enclosure, an IEC motor contactor, an adjustable overload and a lockable latch. Single-phase control panels also come standard with starting components for proper operation and simplified field maintenance. Three-phase control panels are designed with a multi-tap transformer that supplies control power directly from the pump power. All non-clog control panels can be designed with additional options, including an event counter, intrinsically safe circuits, elapsed time meter, lightning protection, redundant "off" float, low-level cut-off and anti-condensation heater. 866-271-2859; [www.franklinengineered.com](http://www.franklinengineered.com)





## PRODUCT FOCUS

### Gorman-Rupp Integrinex Advanced

Integrinex Advanced controls from Gorman-Rupp are custom-engineered to meet unique system requirements. When equipped with FloSmart technology, the control system can detect a pump obstruction and run a cleaning cycle until the debris clears, according to the maker. Upon detection, the device initiates a cleaning operation without interfering with the operation of the pump station. When the cycle is complete, the pump is ready to return to normal operation. If the clog remains, the cleaning sequence repeats until the blockage is cleared. FloSmart is designed to help maximize uptime while reducing maintenance costs. 419-755-1011; [www.grpumps.com](http://www.grpumps.com)




### Jet Inc. Model 196

Prewired Model 196 control panels from Jet Inc. are designed to control and monitor operation of the Jet system aerator or aerators, as well as control the function of one or two 120/1/60 or 240/1/60 pumps for flow equalization and various pressured distribution system applications such as time dose, demand dose and night spray. The series of control



panels allow for optional cycle timer, cycle counter, remote telemetry and auxiliary alarms. All controls and audible and visual alarms are housed in a NEMA 4 control enclosure. 800-321-6960; [www.jetincorp.com](http://www.jetincorp.com)

### Orenco Systems 4-in-1 Controller

The 4-in-1 Controller from Orenco Systems supports numerous electrical configurations and dosing schedules within a single panel. Both Simplex (MVP-S2DM) and Duplex (MVP-DAX2DM) models are available and can be configured in the field for timed or demand dosing. While the control circuit operates on 120-volt power, the pump circuit is dual-rated for both 120- or 240-volt power, meaning installers and service providers can reduce their panel inventories for new installations and repairs. It includes a programmable logic unit with multiple timing intervals for changing flow conditions and has a built-in elapsed-time meter and counter. It also displays float position and has a float error indicator. Each panel includes a reference chart to assist with troubleshooting during installation and testing as well as wiring diagrams. It is completely touch-safe. 877-257-8712; [www.orenco.com](http://www.orenco.com) 



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