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2021 Our GIANTS coverage begins on pg. 42 Book of Giants

What will the post-COVID marketplace look like? See how some of the nation's largest mechanical contractors are facing the challenges — and opportunities — of this historic moment.



Murphy Co.

ISH Digital 2021: Hygiene, Efficiency and Sustainability in the Spotlight

FRANKFURT AM MAIN, GERMANY — Green Deal, life-giving air or the hygiene trend in the bathroom—the first digital edition of ISH, the world's leading trade fair for HVAC + Water, put the spotlight on themes of social, political and economic importance. A total of 373 companies presented their innovative products at ISH digital 2021.

The importance of the top themes chosen was evident even at the official start of ISH digital 2021 on 22 March: Peter Altmaier, Germany's



Photo: Messe Frankfurt.

At the Climate Forum control booth for ISH 2021.

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Sec. of Energy Granholm Announces Winners of the DOE's Solar Decathlon

SPECIAL TO CONTRACTOR



Secretary of Energy Jennifer M. Granholm announces the winners of the Solar Decathlon.

WASHINGTON, DC — Secretary of Energy Jennifer M. Granholm yesterday joined college students from around the world to announce the winners of the U.S. Department of Energy (DOE) Solar Decathlon—a collegiate competition that challenges the next generation of building

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CONTRACTOR INFOCUS

U.S. SHIPMENTS OF RESIDENTIAL STORAGE WATER HEATERS

Jan 2020 - Jan 2021

Residential Electric
Residential Gas



SOURCE: AHRI (ahricommunications@ahrinet.org)

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**THANK YOU
THANK YOU**

We stop and give pause, reflecting on all the professional drain cleaners, plumbers and others, dedicated to their craft and continuing to contribute to the community during these extraordinary times.

Thank you and be safe.

General
PIPE CLEANERS

Global Construction Industry Set to Grow 5.2% in 2021

■ SPECIAL TO CONTRACTOR

Following the historic collapse in construction activity in 2020 amid the severe disruption caused by restrictions imposed to contain the spread of COVID-19, the construction industry is set to grow by 5.2% in 2021, according to GlobalData, a leading data and analytics company. Output in 2021 will be 2.5% higher than the 2019 level.

Although recovering from



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Oregon Adopts 2021 Uniform Plumbing Code and 2017 WE•Stand

■ SPECIAL TO CONTRACTOR



ONTARIO, CA — Oregon is the first state to adopt IAPMO's 2021 *Uniform Plumbing Code*, employing it as the basis for the recently enacted 2021 *Oregon Plumbing Specialty Code (OPSC)*.

The State Plumbing Board went even further to protect its water resources by adopting the 2017 edition of IAPMO's *Water Efficiency and Sanitation Standard*

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PHCC—National Association Shocked and Saddened by Tragic Loss

■ SPECIAL TO CONTRACTOR

PHCC—National Association is deeply saddened by the tragic loss of GSM Services employees James Lewis and Robert Shook, two HVAC service technicians who were killed during a mass shooting that took place April 7 in Rock Hill, South Carolina. Lewis and Shook were working on a



PLUMBING-HEATING-COOLING CONTRACTORS ASSOCIATION

couple's home when a gunman entered the residence and killed the couple, their grandchildren and the two GSM Services employees. The family included Dr. Robert Leslie, his wife Barbara, and two grandchildren. Lewis died on the scene and Shook was in critical

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In Brief

A joint venture led by global construction and development firm, **Skanska**, along with **SG Contracting, Inc.**, has been selected to build the world's first newly-constructed Signia by Hilton hotel in Atlanta, GA. Skanska and SG Contracting are providing preconstruction and construction management services for the \$308.25 million project, which will be connected to and serve as the headquarters hotel for the Georgia World Congress Center (GWCC).

Snap-on Industrial Brands will now be known as Williams. **Williams** has a rich history of working with industrial professionals since 1882. Snap-on Industrial is a division of Snap-on Incorporated, a leading global innovator, manufacturer and marketer of tools, diagnostics, equipment, software and service solutions for professional users.

RectorSeal has released a monthly, live, distance-training schedule for distributors and contractors in the professional trades. NATE-certified trainers lead the classes to deliver an experience that equals a traditional on-site training class. Registration for all live-distance training classes is available at <https://rectorseal.com/webinars>.

The American Supply Association is part of a coalition of more than 100 entities showing strong support for the DRIVE-Safe Act (S.659, H.R. 1745) and urging its inclusion in forthcoming legislation. This legislation, which garnered the support of more than one-third of the House and Senate in the 116th Congress, will address the nation's growing truck driver shortage by promoting opportunity and enhanced safety training for emerging members of the transportation workforce.

The Heat Exchange Institute will now offer the sale of all nine HEI standards on their own updated website. Each standard is available for purchase at <https://www.heatexchange.org/products/hei-standards>. No login or membership is required to purchase. Users can simply add the desired standard(s) to the cart and purchase securely and conveniently by credit card. Materials will be shipped in one to two business days via UPS ground or UPS worldwide. HEI tech sheets are also available on the site for download at no charge.

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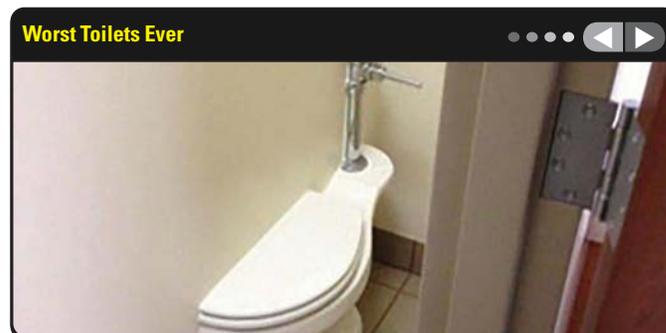
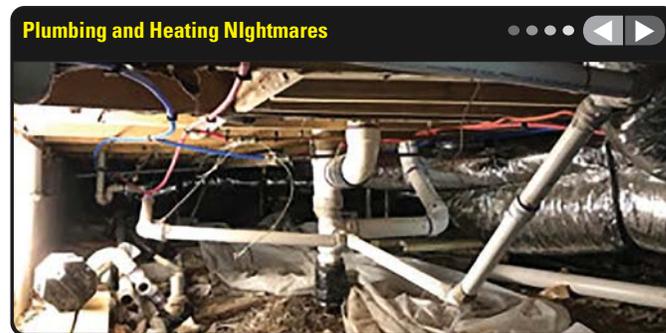
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For the latest news on the federal and local response, code and regulation developments, opinions and best practices from industry experts and more, bookmark CONTRACTOR'S Coronavirus News Page: www.contractormag.com/covid-19.

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INDUSTRY PERSPECTIVES

- ▶ Want to know what is on the mind of Ed O'Connell, business coach and consultant?
- ▶ Want to know about how to get the flow rates right in hydronics from master trainer Steve Swanson?
- ▶ Want to know what the 14 characteristics are of a professional plumbing company? Matt Michel will tell you.

If so, our Industry Perspectives page is the place for you! Visit Industry Perspectives today at

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Want to converse with experts in the plumbing and hydronics industries? Then check out CONTRACTOR's Industry Perspectives, serving up thoughtful, conversational content from the industry experts you have gotten to know so well at www.Contractormag.com.

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First Choice Chooses the Versatility, Speed of Cordless Press Tools

BY STEVE SPAULDING OF CONTRACTOR'S STAFF

Mike Flynn has been in the trades for the past 13 years, so he has seen the development of pressing technology from almost its earliest stages of acceptance. He can even remember the “good old days” when you had to set a fire watch and get in there to sweat joints.

“At my old company we used to do combis—heating and domestic in one unit—so we used to sweat all of them,” Flynn says. “It would literally be a two-day job. You would go, break down the unit, set up the wall, put your unit on start, put all your fittings together and start sweating... you couldn’t possibly get it all done in one day.”

After the switch to press fitting the job was cut down to 13 hours, start-to-finish. “We’d get in there at 8:00 in the morning, leave at 9:00 at night and the unit would be up and running,” Flynn says. “And then the next day you can go on to another install, go make some more money.”

He also has fond memories of a different company that gave him a corded press tool for a job inside a tight boiler room. “And yeah, I was tripping over it the whole time,” he says.

Now, Flynn owns his own cordless press tools (a 12-v. RP 241 and an 18-v. RP 340, both from RIDGID), in part to keep something like that from ever happening again. And he’s also found a new home to use them. For the past two months he’s been working for First Choice Heating and Cooling in Metuchen, NJ, as a Lead Installer, heading up the company’s hydronic and steam installation.

First Choice covers a service area that includes most of north and central New Jersey with about a dozen trucks, ten installers and five service technicians. First Choice is a family-owned business that prides itself on offering its customers a total comfort solution. The company does service, repair, maintenance, refit, design and installation for both residential and commercial customers. First Choice will sometime sub out electrical contract-

ing work, but everything else that has to do with keeping people comfortable they can handle in-house.

a four-foot piece of pipe onto an elbow, and then another three foot piece of pipe, how are you going to get that in

First Choice is a family-owned business that prides itself on offering its customers a total comfort solution.

Runtime and Productivity

The move from cords to cordless operation took pressing to the next level. Suddenly, workers were free to move around an installation. The next limitation to deal with became battery life, and at every stage of battery development that zone of freedom has expanded wider and wider.

Just as an example, the RP 241 mentioned above currently uses RIDGID’s advanced Lithium Ion batteries, with each battery able to deliver roughly 140 crimps per charge. “Roughly,” because smaller fitting sizes require less energy per press. Working with 1¼” copper fittings the battery may deliver as many as 150 crimps per charge.

For Flynn, runtime is crucial because of how he chooses to work. “The way I do it,” he says, “is I put together a small portion, strap it up and then press as I go. Instead of putting it all together and then pressing it. I’ve found that pressing as you go ensures you’re not going to miss any joints.”

Flynn finds the “auto-off” feature a big help, saving battery life while on the job.

Handy in Tight Spaces

Another feature that helps Flynn work, not just faster, but the way that suits him best, is the 360° swivel head that allows better access to tight spaces. (The 360° swivel is a new innovation—the old heads could only move 180°.)

“The old school guys are like, well, if you plan your presses before you wouldn’t need to get into those tight spaces,” says Flynn. “Listen, you can plan all you want, but sometimes you can’t get in there. If you pre-press, say,

there? How are you going to get it back where you need to get it, without NOT pressing it in the first place and then trying to work your pistol in?”

Ceilings, he adds, are always tricky. So are teeny-tiny access panels cut in, for example, sheet rock, with the customer anxious you don’t cut out any more. “And you know,” Flynn says, “we’re not there to repair that. So, you pop a coupling, 90 or 45 degrees, and you have your C1 rings, and you press away and that’s it.”

Accessorize to Impress

The conventional wisdom on press tools has it that they’re basically a one-trick pony (albeit, with a very good trick). Thanks to some of the accessories now available with RIDGID press tools, that’s starting to change.

The LED light was a no-brainer. But the soil pipe cutter attachment is useful enough to be its own tool. The cutter can get through 1½” to 4” no-hub and service weight soil pipe in only a matter of seconds, without the need to score the pipe.

And then of course there’s Flynn’s favorite, the Strutslayr strut shear head. It can deliver fab shop quality, burr-free strut channel cuts on the job site in five seconds or less. “I don’t even want to use anything else,” Flynn says. “If you’re cutting with a bandsaw it bend it because of the motion you’re cutting with. This one, it actually keeps its shape, and it’s literally perfect... that’s the only thing I grab.”

Schooling the Youth

Flynn typically keeps both his 12-v. and his 18-v. handy so he doesn’t need



Photos by Mike Flynn

The 12-v. RP 241 from RIDGID.

to swap heads all the time on the job site. Another reason he keeps two press tools around is so he can loan one out if he needs to.

Warm bodies being often scarce in the plumbing industry, Flynn has had to play teacher many times in his career, sometimes to people with little-to-no plumbing experience. Luckily, the same qualities that make a press tool easy to use make it easy to teach someone how to use.

“Just ream the inside and the outside of the pipe before you put in the fitting,” Flynn says, “if you’re not sure, mark the insertion depth, make sure it’s all together before you press it.” Flynn will show the trainee on a couple of joints, then let him do a couple of joints, and then it’s off to the races. And sometimes that’s just an afternoon helping out. But sometimes, it’s the beginning of a brand new career in the trades. **C**

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Hub X Hub**

SPF-DL

1½
2
3
4



**1/8 Bend
Hub X Hub**

SPF-45L

1½
2
3
4



**Coupling
Hub X Hub**

SPF-DS

1½
2
3
4



**Repair
Coupling
Hub X Hub**

SPF-DSR

1½
2
3
4



**Sanitary Tee
Hub X Hub X Hub**

SPF-LT

1½
2
3
4



**Reducing
Sanitary Tee
Hub X Hub X Hub**

SPF-LT

2 x 2 x 1½
3 x 3 x 1½
3 x 3 x 2
4 x 4 x 2
4 x 4 x 3



**Wye
Hub X Hub X Hub**

SPF-Y

1½
2
3
4



**Reducing Wye
Hub X Hub X Hub**

SPF-Y

2 x 2 x 1½
3 x 3 x 1½
3 x 3 x 2
4 x 4 x 2
4 x 4 x 3



**Long Sweep
1/4 Bend
Hub X Hub**

SPF-LL

1½
2
3
4



**Increaser
-Reducer
Hub X Hub**

SPF-IN

2 x 1½
3 x 2
4 x 2
4 x 3



**SP-Trap
Hub X Hub**

SPF-SPT

2



**1/4 Bend
with
3 Layer
Hub X Hub**

SPF-3L

4



**Cap Tightening
Jig**

CTJ

1½ x 3
2 x 4

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MCAA Holds MEP Innovation Conference

BY STEVE SPAULDING OF CONTRACTOR'S STAFF

The MCAA held its annual MEP Innovation Conference over three days, April 26-28. The conference was moved from its typical January dates to accommodate its transition to a virtual format.

This year, the conference looked to build on its previous success by inviting more union-affiliated sub-contractors to participate, and now it includes content for mechanical, plumbing, service, electrical and sheet metal contractors. To that end, the MCAA partnered with NECA and SMACNA as well as extended MCAA member pricing to their membership. Sponsors of the event included Trimble, Milwaukee Tool and Dado.

In addition to roundtable discussions and exhibitor demonstrations, various breakout sessions covered a wide range of topics. Notable sessions (listed here with their presenters) included:

- Low Cost Tech for Smaller Contractors – Carlos Osorio, VDC/BIM Manager, Mann Mechanical
- Field Foremen Tech Tools -- Trent Leinenbach , VDC and Technology Manager, NNorth Mechanical Contracting, Inc., DJ Phipps , Sr. Strategic Product Consultant, Procure, and Jeff Elwell , Director of Innovation and Technology, EM Duggan
- VDC 101 For Project Managers -- Stacy Zerr , Director of PreConstruction Services, The Waldinger Corporation
- Diversity, Culture and Resilience to Future-proof Your Company -- Tauhira Ali , Executive Director of Industry Innovation, NECA
- Fabrication 101 -- Greg Fuller , President, North Mechanical Contracting, Inc.

For a full list of sessions, visit <https://www.mcaaevents.org/innovative-technologies-conference/>. Registration is required. In all, 34 sessions are available for view.

Innovations from Other Industries

If there was a single session that captured the overall theme of the conference, it was the closing general ses-

sion, *Innovations From Other Industries That Can be Applied to Construction*, presented by James Benham, CEO of JBKnowledge. The project is essentially its own prototype. For innovations to work, they must be adaptable, rugged and intelligent.

Virtual conference showcased the value of a cross-disciplinary approach.



James Benham speaks at the MEP Innovation Conference.

JBKnowledge, a technology solutions provider for the insurance and construction industries.

Benham posited that with \$1.7 Trillion spent worldwide annually on R&D, amazing innovations have been made in science and technology that might not originally be thought to apply to construction. While some of these discoveries might be very far off in the distant future, others like robotics, artificial intelligence and virtual reality are making their way to the construction industry today.

The challenge that the construction industry faces is that job sites are not controlled environments, and each

Benham then took a step back to make two important points about innovation. First, that innovation can't just be about technology, it has to be about people, processes *and* technology. Second, that innovation is about improving efficiency *and* effectiveness. It is possible to become highly efficient at things that are totally ineffective, what Benham referred to as, "sucking at a high rate of speed."

But by looking to other industries construction companies can find best practices, proven solutions, and inspiration that can create real innovations that will have a big impact on their businesses. He then took examples

from several industries in turn.

Space Exploration has been a real driver of innovation. If you look just at GPS, it has changed human civilization as we know it. The space suits used by Elon Musk's SpaceX program have important lessons for safety equipment makers in the construction industry. They are designed as extensions of the spacecraft, with the user experienced a primary consideration. To that end they are less bulky, provide excellent visibility, and are easier to take on and off.

Also, they look good—and frankly, people want to look good, even when they're on the job site.

Benham turned again to the user experience with a look at the SpaceX cockpit, and compared it to that of the Apollo program and the Space Shuttle. The dramatic simplification allows users to make better use of muscle memory when operating the craft, making for more consistent, responsive operation. It also made training faster and simpler. Imagine that same thinking applied to a piece of construction equipment.

Reusability and automation have helped change the nature of space exploration. By reusing rockets, by automating systems (including heavy equipment and data capture), the space industry has been able to lower costs and remove barriers to affordability for its customers.

SpaceX also made strides in vertical integration, seizing control of its own supply chain when it became difficult to obtain parts. In much the same way, fabrication can give people in the construction industry that same independence.

Academia can serve as a model for cross-disciplinary collaboration. The convergence of construction science and computer science, of economics and industrial engineering, is all happening right now on university and college campuses

Manufacturing is, naturally, way ahead of most of the prefab facilities being used in construction. A lot more is being done with robotics and automa-



Even the healthcare industry has something to teach construction about innovation.

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ISH Digital: Hygiene, Efficiency, Sustainability

► **Continued from page 1**

Federal Minister for Economic Affairs and Energy, discussed the foremost challenges of climate policy and emphasised in particular the great significance of one of them, the European Green Deal. Volker Bouffier, Minister President of the State of Hesse, and Markus Frank, Head of the Economic Affairs Department of the City of Frankfurt am Main, also underscored the importance of sustainable solutions and technologies.

The Green Deal was one of the important future-oriented themes in the Energy section of ISH digital 2021 with presentations of heating solutions and systems that make a decisive contribution to achieving climate targets. The current political framework in the heating market was discussed in detail in the ISH Technology and Energy Forum. Another important topic was the vital contribution of ventilation and air-conditioning systems against the background of the on-going corona pandemic. These subjects were also covered in the Air Conditioning Forum. Great interest was also shown in the Building Forum, which offered up-to-the-minute information about funding programmes and building regulations.

The Water section, which this year

focused on drinking-water hygiene and the growing trend towards greater bathroom hygiene, also proved extremely popular. Thus, dirt and bacteria-resistant surfaces, touch-free operation and hygienic electronic bidets demonstrated how the sanitation in-

tional echo. We were always well aware that a digital fair cannot be compared with a physical fair, let alone replace it.

Nevertheless, the international market leaders took part as exhibitors and thus confirmed the status of ISH as the world's leading trade fair for the sector even under the difficult circumstances prevailing at present. On the visitor side, the installation trade was, as always, the largest group. However, many planners, engineers, architects and the trade took advantage of the facilities offered by ISH digital.

The significance of the fair and its products and themes was underlined by the impressive political involvement. In addition to the prominent politicians at the opening ceremony, numerous representatives of Germany's national political scene – from secretaries of state to members of parliament from all parties – took part. The biennial cycle of ISH trade fairs was maintained and with it the powerful image of the ISH brand.

ISH digital was a highly educative experience for all of us and we will employ this knowledge for ISH 2023, which will be rounded off by a variety of digital modules. We are confident that the next edition of the fair will once again be held in the exhibition halls of Messe Frankfurt."

A total of 373 companies presented their innovative products at the first all-digital version of the international trade fair.



The Technology and Energy Forum at ISH 2021.

dustry is reacting with smart solutions to increasing expectations in terms of hygiene. Particularly popular were the discussions in the 'Pop up my Bathroom' trend show, which took the form of a physical installation in the 'Forum' building of Frankfurt Fair and Exhibition Centre, and presented three bathroom-design trends under the motto 'Inside I Outside': .Smart Bathroom, .Living Bathroom .Green Bathroom.

All participants – visitors, exhibitors and speakers – gave ISH digital 2021 a positive rating. Wolfgang Marzin, President and Chief Executive Officer of Messe Frankfurt, said he was extremely pleased with ISH digital: "Naturally, a digital event cannot offer the strength of a physical ISH. However, we never intended that ISH digital should do so. We wanted to launch a high-grade networking platform and depict the sector's most important themes in a concentrated way. I think we succeeded in this and Messe Frankfurt has been able to set a benchmark for Germany and Europe with the first digital edition of ISH."

The patrons of ISH also gave the event a positive rating: "We are all more than satisfied with ISH digital 2021. Our themes generated an interna-



ISH

ISH digital 2021 in figures

The overall focus of the event was on connectivity, knowledge transfer, high-grade content, a comprehensive programme of events and the latest solutions and innovative products of the exhibitors. A total of 290 hours of content was broadcast during the live event from 22 to 26 March 2021. There were 277 live and digital events, which were watched by more than 47,000 viewers. Altogether, some 69,000 participants, 42 percent from outside Germany, made active use of ISH digital 2021. Additionally, the platform was supplemented by ISH Radio, which was able to boast around 29,000 enthusiastic listeners.

The networking continues and personal appointments can be made with exhibitor representatives until 1 April 2021. Furthermore, the platform remains open to all participants until 30 April 2021, thus giving them the opportunity to watch recorded content and make contact with potential customers or suppliers.

The next ISH will be held at Frankfurt Fair and Exhibition Centre from 13 to 17 March 2023.



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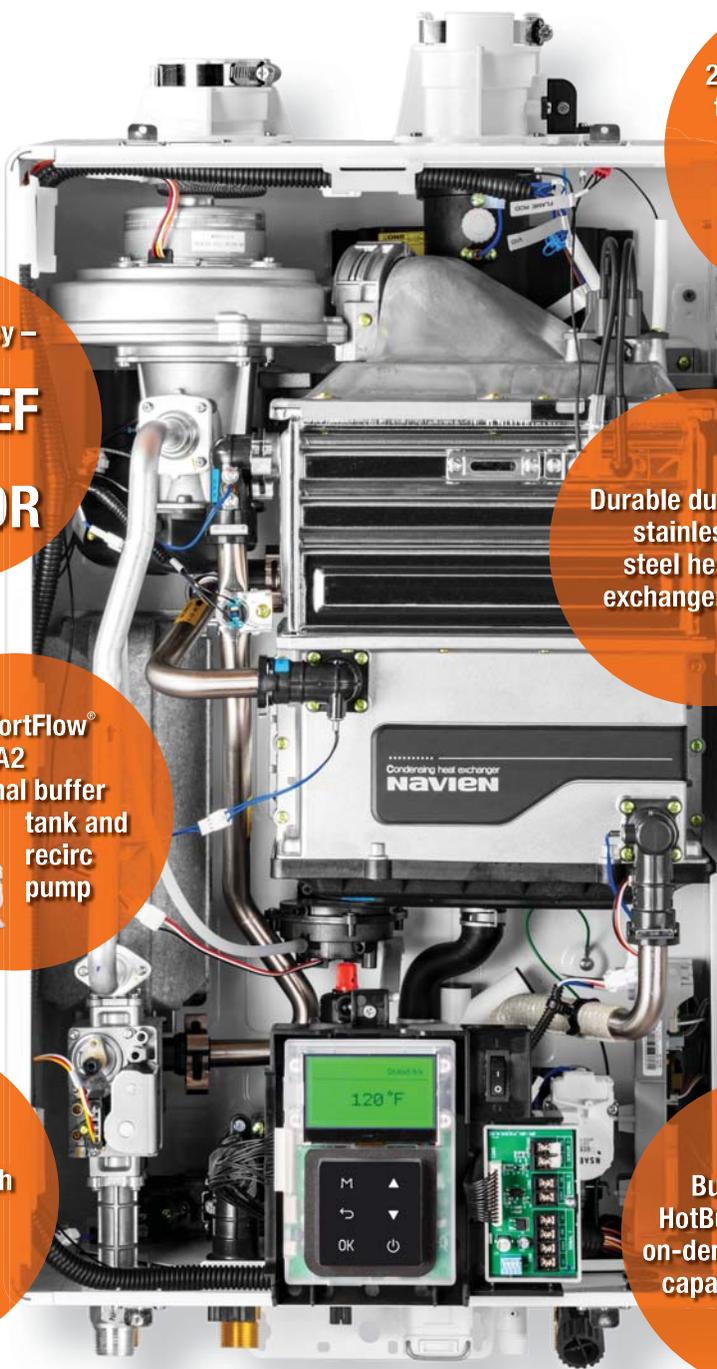


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IAPMO Code Change Monographs Now Available

ONTARIO, CA – The International Association of Plumbing and Mechanical Officials (IAPMO) has made the 2021 Uniform Plumbing Code (UPC®) and Uniform Mechanical Code (UMC®) Technical Committee (TC) meeting monographs available for download. These monographs will be used at the upcoming TC meetings in May.

Attendees will be required to register in order to participate. Guests wishing to address the TC shall notify the staff liaison in writing at least seven days before the webinar meetings. If you wish to address the TC, please notify the staff liaison at codes-dept@iapmo.org with your name, representation, and proposal item number.

The Uniform Plumbing Code (UPC) Technical Committee virtual meeting is scheduled for May 3-7, starting at 8 a.m. PDT and ending at noon each day, Monday-Friday. Register in advance for this webinar:

https://iapmo-org.zoom.us/webinar/register/WN_YGcDdqeTcGeriB6JUmGvQ

The Uniform Mechanical Code (UMC) Technical Committee virtual

meeting is scheduled for May 17-21, starting at 8 a.m. PDT and ending at noon each day, Monday-Friday. Register in advance for this webinar:

https://iapmo-org.zoom.us/webinar/register/WN_tiXpmRBTSp2DKyxkmA4hlQ

The chairperson reserves the right to extend the times as needed to complete the required minimum number of proposals.

All individuals anticipating an active role in the ANSI-accredited consensus development of the Uniform Codes will want to download these documents in Adobe PDF format from the following URLs:

UPC: <https://codes.iapmo.org/docs/2024/UPC/2021%20UPC%20TC%20Meeting%20Monograph.pdf>

UMC: <https://codes.iapmo.org/docs/2024/UMC/2021%20UMC%20TC%20Meeting%20Monograph.pdf>

Hardcopy versions will not be available.

The monographs contain every code change proposal submitted for the 2024 editions of the UPC and UMC as part of the American National Stan-

dards Institute (ANSI)-accredited consensus code development process employed by IAPMO.

Topic areas for proposed changes to the UPC include:

new referenced standards for plumbing fixtures; introduction of new novel products; temperature limitations of fixtures; condensate waste; seismic provisions for plumbing piping; material requirements for water supply and distribution systems; freeze protection; water softeners and water treatment devices; material requirements for drain, waste and vent piping and fittings; backflow prevention devices; sewer cleanouts; rehabilitation provisions for building sewer and sewer lateral piping; fuel gas provisions; storm drain material requirements; gray water provisions; engineered roof drainage provisions; circuit venting provisions; healthcare facilities; professional qualification requirements; legionella risk management provisions; onsite blackwater treatment systems; onsite stormwa-



**International Association of
Plumbing and Mechanical Officials**

ter treatment systems; private sewage disposal systems; non-sewered sanitation systems; new provisions for tiny houses; composting toilets and urine diversion systems; and requirements for normal operation, interruption to normal operation and reopening of plumbing system.

Topic areas for proposed changes to the UMC include:

Installation requirements for listed appliances; requirements for roof installations of equipment and appliances; clearance requirements for equipment and appliances; condensate control; various ventilation and exhaust system requirements; smoke control systems; environmental and product conveying air ducts; Type I and Type II hoods; various provisions for air ducts such as fibrous glass ducts, fabric air dispersion system, and plastic ducts; air balancing and air filtration requirements; legionella risk management provisions; decorative appliances; air conditioning systems; refrigeration systems (including A2L); various hydronic system provisions; fuel gas piping material and fitting requirements and test pressure; various fireplace provisions; ventilation requirements for health care facilities; district geothermal energy systems provisions; cannabis and horticultural facilities; professional qualifications; and requirements for normal operation, interruption to normal operation and reopening of cooling towers.

For specific information about the UPC TC, please contact Enrique Gonzalez at (909) 230- 5535 or e-mail your question to enrique.gonzalez@iapmo.org. For the UMC TC, contact Zalmie Hussein at 909/218-8122 or e-mail your question to zalmie.hussein@iapmo.org.

Global Construction Industry Set to Grow 5.2% in 2021

► **Continued from page 3**

the COVID-19 crisis, the global industry has borne a huge cost in terms of foregone revenue; compared to GlobalData's pre-COVID-19 predictions for construction output value, the output total in 2020–2021 is close to US\$1.1 trillion lower than it would otherwise have been.

According to GlobalData's report, 'Global Construction Outlook to 2025, Q1 2021 Update', there is still great uncertainty over how the COVID-19 crisis will play out. On the one hand, positive news is stemming from the successful rollout of vaccines in many markets. On the other hand, there are concerns over the reports of new variants and challenges in getting vaccines supplies to developing markets. However, the forecast for the global construction output is predicated on the assumption

that governments and public health authorities will not reintroduce strict lockdown policies and that construction

Report from GlobalData reflects optimism as well as uncertainty.

sites will be able to continue to operate with minimal disruption.

Danny Richards, Lead Economist at GlobalData, comments: "In markets where the construction industry has managed to return to relatively normal level of operations since the crisis engulfed the world in Q2 2020, activity has rebounded positively, with signs that in some markets there has been a marked effort to get projects back on track quickly."

The recovery in many markets in

late 2020 surprised on the upside. This means the full-year outturn in 2020 was not as bad as previously expected –

GlobalData estimates that global output contracted by 2.5% last year (compared to the previous estimate of 2.9%), and excluding China, the contraction stood at 5.1%.

Richards continues: "With activity levels trending upwards in the absence of restrictions on site works, there are likely to be record high rates of year-on-year (Y-o-Y) growth in major markets in the coming quarters, given the comparison to periods last year when construction sites were closed or when activity was severely disrupted. There are also positive signs for the coming quarters when assessing leading indicators, such as building permits approvals." 

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Granholm Announces Winners of the Solar Decathlon

► Continued from page 1

professionals to design and construct high-performance, low-carbon buildings powered by renewable energy. The 72 competing teams representing 12 countries designed resilient and energy-efficient, homes, schools, offices, and retail spaces; nine of which were constructed and presented in the first-ever Solar Decathlon Virtual Village on the National Mall in Washington, D.C.

Watch Sunday's awards ceremony and Secretary Granholm's remarks https://www.youtube.com/watch?v=C4YWps_AADw&t=4534s

"Our fight against the climate crisis is a lot like a decathlon, with all kinds of individual contests we need to get through—and we can't win unless we do well in them all," said Secretary Granholm. "Today's decathletes are tomorrow's architects and engineers who are going to help us achieve President Biden's ambitious and achievable clean energy goals and build our net-zero future. I can't wait to see their big ideas come to life in neighborhoods across the country and around the world."

According to DOE analysis, today buildings account for approximately 74% of electricity use, 39% of total energy use, and 35% of carbon emissions in the United States. There are more than 125 million buildings in the nation that need to be retrofitted in order to achieve the Administration's goal of net-zero emissions by 2050—which President Biden's American Jobs Plan proposes to address. The Solar Decathlon supports a key strategy to bring that vision to life, by building a pipeline of energy-savvy workers who are prepared for millions of future jobs in design, construction, retrofitting, weatherization, and more.

The full list of the winners is below:

2020 Build Challenge

Overall Winners

- 1st Place, University of Colorado (Boulder, Colorado)
- 2nd Place, University of Waterloo (Waterloo, Ontario)
- 3rd Place, University of Nevada, Las Vegas (Las Vegas, Nevada)

2021 Design Challenge

Grand Winners

- Commercial Divisions, University

of Oregon (Eugene, Oregon)

- Residential Divisions, North-western University (Evanston, Illinois)

2020 Build Challenge Contest Winners

Energy Performance

- 1st Place, Weber State University (Ogden, Utah)
- 2nd Place (tie) University of Colorado (Boulder, Colorado)
- University of Nevada, Las Vegas (Las Vegas, Nevada)
- 3rd Place, University of Illinois at Urbana-Champaign, Urbana (Champaign County, Illinois)

Engineering

- 1st Place, Hogeschool Utrecht University of Applied Sciences Utrecht (Utrecht, Netherlands)
- 2nd Place, University of Colorado (Boulder, Colorado)
- 3rd Place, Weber State University (Ogden, Utah)

Financial Feasibility & Affordability

- 1st Place, University of Waterloo (Waterloo, Ontario)
- 2nd Place, University of Colorado (Boulder, Colorado)
- 3rd Place, Kansas State University (Manhattan, Kansas)

Resilience

- 1st Place, Universidad Técnica Federico Santa María (Valparaíso, Chile)
- 2nd Place, University of Waterloo (Waterloo, Ontario)
- 3rd Place, University of Colorado (Boulder, Colorado)

Architecture

- 1st Place, University of Colorado (Boulder, Colorado)
- 2nd Place, Hogeschool Utrecht University of Applied Sciences Utrecht (Utrecht, Netherlands)
- 3rd Place, Kansas State University (Manhattan, Kansas)

Operations

- 1st Place, University of Nevada, Las Vegas (Las Vegas, Nevada)
- 2nd Place, University of Colorado (Boulder, Colorado)
- 3rd Place, Hogeschool Utrecht University of Applied Sciences Utrecht (Utrecht, Netherlands)

Market Potential

- 1st Place, University of Colorado

(Boulder, Colorado)

- 2nd Place, Kansas State University (Manhattan, Kansas)
- 3rd Place, University of Waterloo (Waterloo, Ontario)

Comfort & Environmental Quality

- 1st Place, University of Illinois at Urbana-Champaign, Urbana (Champaign County, Illinois)
- 2nd Place, University of Waterloo (Waterloo, Ontario)
- 3rd Place, University of Colorado (Boulder, Colorado)

Innovation

- 1st Place, University of Colorado (Boulder, Colorado)
- 2nd Place, University of Nevada, Las Vegas (Las Vegas, Nevada)
- 3rd Place (tie) University of Waterloo (Waterloo, Ontario)
- Universidad Técnica Federico Santa María (Valparaíso, Chile)

Presentation

- 1st Place, University of Nevada, Las Vegas (Las Vegas, Nevada)
- 2nd Place, Weber State University (Ogden, Utah)
- 3rd Place, University of Colorado (Boulder, Colorado)

2021 Design Challenge

Division Winners

Suburban Single-Family

Housing Division

- 1st place, Ferris State University (Big Rapids, Michigan)
- 2nd place, Missouri University of Science and Technology (Rolla, Missouri)
- 3rd place, Appalachian State University (Boone, North Carolina)

Urban Single-Family Housing Division

- 1st place, Northwestern University (Evanston, Illinois)
- 2nd place, The University of Arizona (Tucson, Arizona)
- 3rd place, Ball State University (Muncie, Indiana)

Attached Housing Division

- 1st place, Marywood University (Scranton, Pennsylvania)
- 2nd place, Indian Institute of Technology Bombay (Mumbai, India)
- 3rd place, Monash University (Melbourne, Australia)

Mixed-Use Multifamily

Building Division

- 1st place, The University of British Columbia (Vancouver, Canada)
- 2nd place, The University of Arizona (Tucson, Arizona)
- 3rd place, University of Missouri-Columbia (Columbia, Missouri)

Elementary School Division

- 1st place, University of Oregon (Eugene, Oregon)
- 2nd place, Ryerson University (Toronto, Canada)
- 3rd place, Ball State University (Muncie, Indiana)

Office Building Division

- 1st place, Virginia Polytechnic Institute and State University (Blacksburg, Virginia)
- 2nd place, Ryerson University (Toronto, Canada)
- 3rd place, Harvard University (Cambridge, Massachusetts)

Retail Building Division

- 1st place, Illinois Institute of Technology (Chicago, Illinois)
- 2nd place, Thomas Jefferson University (Philadelphia, Pennsylvania)
- 3rd place, Sathyabama Institute of Science and Technology (India)

About the Solar Decathlon

The Solar Decathlon is a collegiate competition that challenges the next generation of building professionals to design and construct high-performance, low-carbon buildings powered by renewable energy, while promoting student innovation, STEM education, and workforce development opportunities in the buildings industry. Since 2002, more than 20,000 students have participated in the Solar Decathlon, many of whom have gone on to become architects, engineers, and researchers. This year's competition marks the 19th anniversary of the Solar Decathlon.

The Design Challenge is a one- to two-semester, design-only competition, while the Build Challenge is a two-year design-build competition.

Applications for the Solar Decathlon 2022 Design Challenge and 2023 Build Challenge will open this summer. Additional details are available on the Solar Decathlon website. [G](#)

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Manhattan Mechanical Services Marks Two-Year, Zero OSHA-Recordable Record

UNIVERSITY PARK, IL – Manhattan Mechanical Services, a merit shop industrial mechanical contractor based in East Chicago, IN, recently celebrated its second consecutive year with zero OSHA-recordable injuries. This safety achievement spanned both 2019 and 2020, with Manhattan Mechanical already in steady stride towards the third year.

The official celebration took place on Wednesday, April 21, at Manhattan Mechanical's first maintenance site: a large University Park chemical plant recognized as a global leader in materials, chemicals and solutions. This particular maintenance contract holds an impressive safety record as well — seven consecutive years injury-free.

OSHA requires employers to record any serious work-related injuries and illnesses to help evaluate risks and hazards within the workplace, assessing safety to identify and prevent future injuries, illnesses, and fatalities. OSHA defines recordable injuries as any injury or illness requiring medical treatment beyond first aid or resulting in loss of consciousness, time off work or restricted work, and/or transfer to another job.

A "recordable" also includes any work-related, diagnosed case of cancer, chronic irreversible diseases, fractured or cracked bones or teeth, punctured eardrums, as well as work-related fatalities.

At the April 21 safety event, a team of Manhattan Mechanical craftsmen gathered for the luncheon to celebrate the company's accomplishment. Corporate safety manager Nate Hassett addressed the group, recognizing the top-notch performance of team members after several visits to this site.

"I really appreciate everything you guys have done to help us achieve this Zero OSHA-Recordable Record. Keep that up and keep engaged. Keep identifying all the risks and hazards every day when you come in. We want to go home the way we came in."

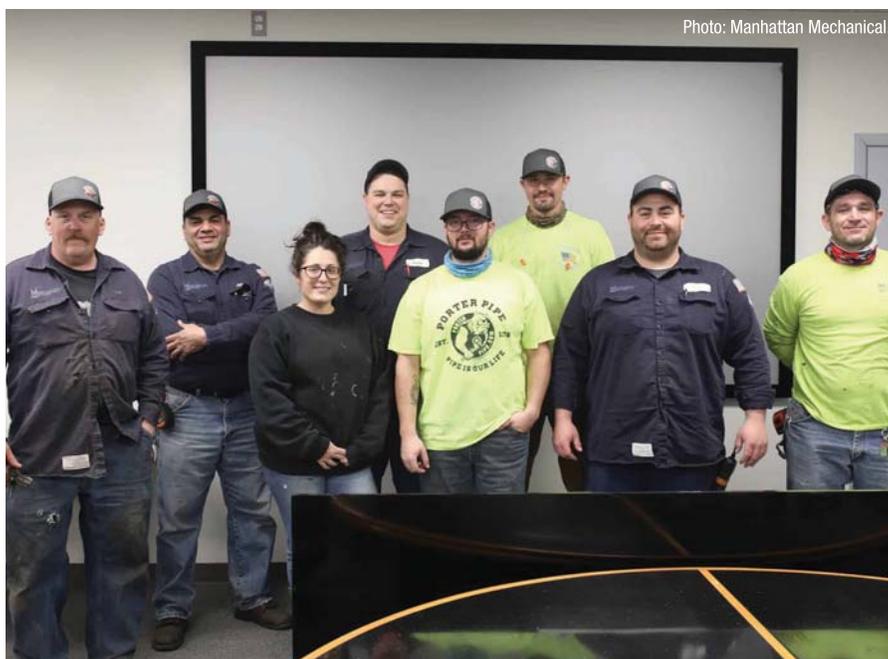
With an eye on a new safety mile-

stone of three years, Manhattan Mechanical supervisor Jake Gillette advised his team: "Be diligent and

Proactive approach critical to success

Manhattan Mechanical Services prides

Leading merit-shop, industrial mechanical contractor celebrates achievement.



The crew at Manhattan Mechanical celebrates their two-year achievement.

focus on effective communication. Everybody knows what they're supposed to do and when to do it. That's always key."

Extensive preliminary and ongoing training

Manhattan Mechanical's belief that safety is paramount reflects the extensive safety training team members undergo before stepping foot on site. Onboard training; fall protection; site-specific, OSHA-10 training; in-house training (heights, lock out tag out, confined space entry, etc.) are all among the numerous mandatory training programs craftsmen must complete. These training programs ensure that team members will have a well-rounded knowledge and understanding of safety hazards and risks.

itself on its proactive and preventive approach to identifying and avoiding potential loss. Leading indicators and their integral role in Manhattan Mechanical's Loss Prevention Observation Card ensure that the company's trained craftsmen stay attentive on job sites, identifying potential issues before incidents can occur.

Before starting a project, the requirement of job safety assessments, or JSAs, assures the necessary mitigation of daily risks on site. This information provides a proactive risk assessment and identifies key aspects of safety, such as safety showers, alarm systems, and more. Completing important paperwork drives a collective understanding of safety among team members and makes certain that safety remains the top priority on site.

The proactive safety team dissects

this information, providing the necessary tools to avoid injury. These tools include, but are not limited to, weekly safety meetings, toolbox talks, and job-site visits.

Employee rewards to promote safety

Manhattan Mechanical Services rewards its craftsmen for contributing to ongoing efforts to promote safety. From trophies to monetary bonuses, Manhattan Mechanical recognizes the commitment made by team members by offering incentives and designing programs to encourage active participation towards safety goals.

As Manhattan Mechanical's strong reputation attracts new clients and steadily increases incoming projects, the team continues to grow. This inevitably brings the added challenge of acclimating new team members to the company's rigorous safety culture. With thorough onboarding and in-house training, plus the collective efforts and support by existing team members, recruits are mentored closely to ensure safety knowledge and measures reflect the Manhattan Mechanical safety culture.

"We have our safety techs and managers on-site to actively work with new recruits," explains Support Services Manager Ralph Yelder. "But we also want everyone else in the company to mentor them. It's imperative to mentor the new employees at the outset."

Along with an impressive safety record, Manhattan Mechanical Services has been recognized and awarded for its safety efforts by the Associated Builders and Contractors, the Three River Manufacturing Association, EXXONMOBIL, and the Four Corners Construction Group.

Manhattan Mechanical's safety culture and its ongoing performance with zero OSHA-recordable injuries embodies the company's motto: "If it can be done, it can be done safely." According to Yelder, leadership is confident that "a third consecutive year with Zero OSHA-Recordables is well within reach for our team." 



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Redwood Services Names John Conway COO

MEMPHIS, TN — Redwood Services (“Redwood”), a home services firm focused on investing in leading residential HVAC, plumbing and electrical services companies in growing U.S. markets, announced today that John Conway, a recognized leader in the industry, has joined Redwood as its Chief Operating Officer to help guide and direct Redwood’s strategy of identifying, acquiring and growing partner companies.

Conway was most recently a part of the member-owned Nexstar Network, one of the industry’s most successful best-practices-sharing groups, where he spent the past six years as a recognized HVAC coach and resource. At Nexstar, Conway dedicated his time to coaching HVAC



John Conway



service providers across the country while developing a network of HVAC owners and operators committed to providing efficient, customer-focused service to their customers in their respective markets.

“As a recognized and well-respected leader in the industry, John’s personal relationships with some of the best HVAC owners and operators in the country, as well as his depth of knowledge, should help us continue to attract and provide unmatched

ongoing support to Redwood partner companies,” said Richard Lewis, CEO of Redwood Services. “In addition to his experience as both a successful operator and strategic leader, John shares a passion for people –

Conway was most recently a part of the member-owned Nexstar Network.

ASCE Statement on Biden Admin’s Infrastructure Priorities

WASHINGTON, DC. – *The following is a statement by Tom Smith, Executive Director, American Society of Civil Engineers (ASCE):*

The American Society of Civil Engineers (ASCE) is encouraged that infrastructure remains at the top of the priority list as part of President Biden’s first joint address to Congress. Infrastructure is the backbone of the American economy and key to healthy, prosperous, and resilient communities.

The priorities laid out in tonight’s address and detailed in President Biden’s proposed American Jobs Plan, in addition to the GOP’s recently proposed infrastructure framework, indicates that the Biden administration and members of Congress are ready to work together on much-needed bipartisan infrastructure legislation to jumpstart our nation’s economic recovery.

ASCE’s 2021 Report Card for America’s Infrastructure found the nation



We are at a critical moment in time, and have before us a historic opportunity

earned a ‘C-’, up from 2017’s cumulative GPA of ‘D+’. However, progress has been incremental and 11 of the 17 categories received scores in the “D” range, demonstrating that much work needs to be done to modernize the overall infrastructure network and position our nation for the future. In 2021 alone, we have seen power outages displace Texans and drinking water infrastructure fail Mississippians. America is in dire need of a bipartisan solution to

these issues.

We are at a critical moment in time, and have before us a historic opportunity for bipartisan legislation that can modernize our surface transportation network, safeguard drinking water systems, repair high-hazard dams, connect the grid to renewables, and prepare communities to be more resilient in the face of a rapidly changing climate.

With momentum building towards significant, impactful infrastructure legislation, ASCE believes it is paramount that the Biden administration and members of Congress continue to advance the infrastructure components of an economic recovery package until a bill is finalized.

Congress must not miss the opportunity to deliver on legislation that could generate jobs, keep Americans safe, and guide the nation towards economic recovery.

the cornerstone of Redwood’s focus. We are very excited to welcome him to the team.”

Conway has been involved in the HVAC and plumbing industries for more than 27 years. He has a proven ability to take small service businesses and help them grow into successful, profitable businesses.

Conway began his career in Memphis working for his father’s small HVAC company in 1994. In 1998, he purchased the business, growing it to \$10-million-dollar in sales by 2010. After selling the business in 2010, Conway remained with the company as general manager and grew annual revenues to over \$20 million.

“I am thrilled to join Redwood Services and help deliver on the dream of building a network of passionate, people-focused companies,” said Conway. “We see so much opportunity to attract likeminded owners and operators to join us in delivering a better service experience for their customers. Redwood can provide the capital and expertise for our partners to expand their markets by providing quality customer focused service with trained technicians and state of the art equipment.”

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Rheem.com/SmartElectric

Weil-McLain Partners with 4950 Sales

BURR RIDGE, IL — Weil-McLain, a leading North American designer and manufacturer of hydronic comfort heating systems, is partnering with plumbing and mechanical firm 4950 Sales to represent the company's full line of residential and commercial boilers in the Alaska region. Based in Palmer, Alaska, the company, which serves the commercial, industrial and plumbing and mechanical and construction sectors, is led by Charles Benshetler and Nick Benshetler.

"We are very excited to partner with Weil-McLain and offer its premium line



The plumbing and mechanical firm will represent the company's full line of boilers in the Alaska region.

of residential and commercial boilers in the Alaska market," said Charles Ben-

shetler, who has more than 30 years of heating and plumbing experience.

"Working with an industry leader like Weil-McLain will tremendously benefit our many clients in the state."

"We couldn't have found a better fit and more experienced partner than 4950 Sales to represent our products and strengthen our sales channel in Alaska," said Michael Langen, director of sales for Weil-McLain. "We look forward to working with Charles and Nick to provide our premium boilers to residential, commercial and industrial clients in the region."

4950 Sales will offer Weil-McLain's full-line of commercial boilers including the Weil-McLain Stainless Vertical Firetube™ (SVF) commercial condensing boilers with industry-leading thermal efficiencies up to 96.8%, the SlimFit® boiler designed for limited spaces, Evergreen® Pro and the full line of Weil-McLain cast iron boilers.

Residential boilers offered will include the new ECO® Tec high-efficiency premium residential boiler, the Evergreen® stainless steel condensing boiler, the Ultra™ corrosion-resistant boiler, GV90+® high-efficiency cast iron boiler and the AquaBalance™ combi or heat-only boiler.

Charles Benshetler has worked more than three decades in the process piping, heating and plumbing industry representing industry leading manufacturers. Nick, a graduate of the University of Mary, is passionate about plumbing and heating and learning from leaders in the industry.

To find a Weil-McLain regional sales office visit <http://www.weil-mclain.com/en/weil-mclain/about-us/locations/>.

EMCOR Group, Inc. Acquires Dallas Mechanical Group, LLC

NORWALK, CT - EMCOR Group, Inc., a Fortune 500® leader in mechanical and electrical construction, industrial and energy infrastructure, and building services for a diverse range of businesses, announced that it has completed its acquisition of Dallas Mechanical Group, LLC ("DMG"), a leading full-service provider of mechanical construction and maintenance services, headquartered in Dallas, TX. DMG will be part of EMCOR's Building Services segment.

DMG provides single-source, energy-efficient installation, maintenance, and repair services for a wide range of heating, cooling, and ventilation systems across North Texas. They serve a variety of market sectors, including: commercial, industrial, education,

healthcare, entertainment, retail, hospitality, and municipal and federal government.

"We are excited about the capabili-

ties, synergies, and customer relationships that Dallas Mechanical Group brings to the organization," said Michael P. Bordes, president and CEO of EMCOR Building Services. "We look forward to offering clients an even greater array of innovative, value-added services in the Dallas and

North Texas market."

"Dallas Mechanical Group has a strong track record and reputation of performance and client service that

Acquisition continues growth and expansion of EMCOR Building Services segment.

we believe is a perfect match with EMCOR's culture," said John Smith, President and Founder of DMG. "Joining EMCOR will strengthen our capabilities to meet our customers' growing needs as well as provide great opportunities and development for our valued team of professionals."

Franklin Electric Acquires Water Treatment Company

FOR WAYNE, IN — Franklin Electric Co., Inc. (NASDAQ: FELE) announced today that it has acquired Puronics, Inc. and its wholly owned subsidiaries, headquartered in Livermore, California, in an all-cash transaction. Puronics is a residential and commercial water treatment products and services provider operating four company-owned service centers and serving approximately 133 independent water quality dealers with approximately

260 locations in 31 states. Puronics' consolidated annual sales are approximately USD \$24 million.

Don Kenney, President of Franklin Electric's global Water Systems business, commented, "We have identified water treatment as a strategic adjacency to our leading ground water pumping position globally. We are pleased to add Puronics' strong market presence, quality focus and customer-service oriented approach to our water treatment busi-

nesses. Puronics has a rich 70-year history as a leading provider of premium residential and commercial water treatment systems, and the acquisition will expand our channel, product, and geographic offerings in the United States. I would like to thank Scott Batiste, the retiring Chairman and CEO of Puronics, for his strong support during this transition, and would like to welcome the Puronics employees to the Franklin Electric family."



Franklin Electric is a global leader in the production and marketing of systems and components for the movement of water and fuel. Recognized as a technical leader in its products and services, Franklin Electric serves customers around the world in residential, commercial, agricultural, industrial, municipal, and fueling applications.

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PMI Codes and Standards Course Update Open to Members and Non-Members

McLEAN, VA — Perfect for new learners and for those needing a refresher, the updated, two-part Plumbing Manufacturers International (PMI) Codes and Standards Course includes changes to the 2021 International Plumbing Code (IPC) and Uniform Plumbing Code (UPC), as well as new information about various timelines, requirements, standards and more.

Individuals or teams wishing to take the on-demand course at their convenience can register for either part or both parts now at safep plumbing.org/codes. PMI members and non-members are welcome to take the course, with PMI members receiving discounted rates.

PMI Technical Director Matt Sigler updated the course content to meet the needs of today's plumbing manufacturing professional, with PMI Education Coordinator Stephanie Lass working with PMI's learning management system vendor to develop the course's presentation. "The presentation has a fresh look, as well as new 'knowledge checks' throughout each module to help participants retain what they've learned," Lass said. Those completing each part with a final exam grade of 80% or higher will receive a certificate of completion.

In addition to including changes to the 2021 IPC and UPC, the course brings participants up to speed on up-



Course includes changes to the 2021 International Plumbing Code (IPC) and Uniform Plumbing Code (UPC).

dates to timelines for the UPC Code Cycle, National Standard Plumbing Code Cycle, and International Code Council Code Development Cycle. Course takers learn about the state of conformity assessment requirements in North America.

Recent revisions to the Reduction of Lead in Drinking Water Act, the Lead and Copper Rule, and NSF 61 are also covered.

Part 1 provides a primer on standards, regulations, codes and conformity assessment

The first part of the PMI Codes and Standards Course provides the basics of standards, regulations, codes and conformity assessment for plumbing

manufacturers. Those completing this part will learn how to:

- Describe product standards and their role in the plumbing industry
- Understand the various regulations that impact the plumbing industry
- Identify the model codes used in the plumbing industry
- Define conformity assessment and identify third-party certification agencies and marks of conformity

Part 2 covers standards and topics in plumbing

Part 2 is designed for plumbing manufacturing professionals with technical experience who would like

a deeper dive into standards and other important topics. This course material includes a discussion on how a water supply system can become contaminated with Legionella; how the weighted average lead content is determined in NSF 372 (Drinking Water System Components – Lead Content) for plumbing products such as faucets; and accessibility requirements that impact plumbing product manufacturers. In addition, the course covers:

- Backflow and its causes, and the standards that pertain to backflow prevention
- Standards that regulate water temperature and the various valves used
- Minimum water quality standards and conservation requirements
- Accessible design and the fundamental provisions for design and installation
- Regulations affecting manufactured housing
- Legionella and water supply systems
- Background information on the major U.S. standard development organizations

The bundled price for the entire two-part course is \$199 for PMI members and \$299 for non-members. Parts 1 or 2 alone cost \$119 for PMI members and \$169 for non-members. Those previously taking the course can sign up for a refresher two-part course priced at \$98 for members and \$198 for non-members, with refreshers for either part priced at \$49 for members and \$99 for non-members. Discounts are available to groups of five or more. Contact Stephanie Lass, PMI education coordinator, at sslass@safep plumbing.org to receive a promo code for the refresher courses before purchasing.

"We're excited to bring this updated course to professionals in the plumbing manufacturing industry," said Sigler. "Codes, standards, timelines and requirements have been changing rapidly; taking this course will make sure you're current with everything that's happening." 

Rheem Launches Plumber-2-Plumber (P2P) Training Program

ATLANTA, GA – Rheem®, a leading global manufacturer of water heating and HVAC solutions, recently launched the P2P training program that is designed to deliver in-depth product trainings that are led by plumbers and developed specifically for their colleagues in the field. These sessions are led by Rheem's nationwide team of Plumbing Support Managers (PSM's), each of whom are certified master plumbers with previous experience managing plumbing businesses across the country. With their collective 300+ years of plumbing experience, Rheem's team provides a depth of knowledge and hands-on experience.

Available online to plumbers, installers and distributors, Rheem's P2P training program offers convenient, hour-long training sessions that focus on a specific product, such as "Tankless Tuesdays." These free sessions are designed to be easily accessible and interactive, with the goal of increasing working knowledge of Rheem's portfolio of water products such as hybrid heat pump water heaters, tankless water heaters and other specialty water heating solutions.

"Our P2P trainers are not only versed in Rheem's products, but they speak plumber, as they were all former plumbers, so they understand the different applications in which the products may

be used," says Tom McConahay, Rheem National Plumber Support Manager and Master Plumber. "Although the P2P program is designed specifically for plumbers to enhance product knowledge and improve service efficiency, our hope is these benefits will also improve the experience of our plumbers' customers."

In addition to Rheem's weekly sessions, the P2P program also offers customized training based on specific topics or products that the plumber's request and can be facilitated at a convenient time for the plumber. Plumbers can email PlumberBusinessSupport@Rheem.com to connect with a P2P team member and schedule their training. 

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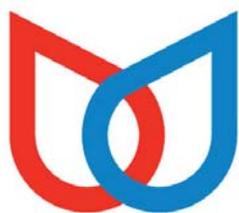
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Chris Jenkins

Moen Launches NFT Auction to Help Combat Ocean Plastic Pollution

NORTH OLMSTED, OH — More than 5 trillion particles of plastic cover the ocean’s surface, causing serious problems for our Earth. Moen, the leader in water experiences in the home, is using an innovative approach to help address this huge environmental challenge – auctioning off five NFTs of artwork inspired by the five major ocean gyres located across the globe as part of its Mission Moen sustainability commitment. “When you own something, you care more for it. You want to protect it. To do right by it,” says Mark-Hans Richer, chief marketing and innovation officer, Fortune Brands Global Plumbing Group. “As the industry leader, we at Moen already feel a responsibility to care for our planet, which is what inspired Mission Moen, our promise to help protect and preserve our world’s most precious resource—water. By putting



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the ocean into the hands of consumers, we’ll give them a chance to have a unique personal stake in improving our world.”

Proceeds from the auction will benefit 5 Gyres, a leading non-profit organization focused on stopping the flow of plastic pollution through science, education, and advocacy, to fund their work focused on stopping plastic pollution at the source. Moen also has taken steps to render its NFTs carbon negative to further protect and preserve the environment. The auction for these one-of-a-kind pieces of art will be open April 22-28 at opensea.io/collection/mission-moen.

The auction builds upon Moen’s aggressive sustainability goal, known as Mission Moen, which also includes a new commitment being revealed this year—to recover and repurpose 2,000 tons of ocean-bound plastic by 2030. Moen is launching this effort by incorporating recycled ocean plastic into packaging on one of its most popular products—with plans to integrate recycled ocean plastic into products and packaging on an even larger scale moving forward. By both helping stop pollution before it starts, and repurposing existing ocean plastic, Mission Moen will have a full circle impact on fighting plastic pollution.

The ocean-plastic initiative adds to the first commitment of Mission Moen, revealed on Earth Day 2020, which is a promise to use Moen’s products and innovations to save 1 trillion gallons of water over the next 10 years.

“Whether it’s capitalizing on smart technology, aligning with strategic partners or using creative approaches to help solve problems, Moen continues to focus on creating unforgettable experiences with water, all while protecting our most precious resource,” adds Richer. “From the 1.5 trillion gallons of fresh water that flow through our products each year, to the more than 300 million cubic miles of water in our world’s oceans, we feel a responsibility as the industry leader to help make a difference for every drop.”

For more information about Moen, visit moen.com.

KNAACK To Sponsor The World's Strongest Man Competition

ITASCA, IL — KNAACK, a leader in tool storage and jobsite security, announced that it is an official sponsor of the 2021 SBD World's Strongest Man (WSM) competition, happening June 15-20 in Sacramento, California. Over the years, fans have watched competitors carry things from cars to refrigerators, from pulling airplanes to participating in the infamous Hercules' hold. This year, participants will compete in a Deadlift event with KNAACK jobsite boxes.

"We are very excited to be a sponsor of the 2021 World's Strongest Man contest. There is a determination in trade professionals akin to the competitors in the WSM competition. In fact, several of the competitors in this year's competition are hard working professionals themselves," said Stacy

Gardella, Vice President – Brand Marketing, WernerCo. "Our partnership with WSM will allow us to show support for the athletes in the competition and to keep encouraging hard work on jobsites across the world."

For more than 40 years, WSM has been the world's premier strongman competition. Throughout the multi-day event, contestants test their strength and fortitude through a series of extreme physical and mental challenges, including lifting, pushing, pulling, carrying, and throwing heavy weights such as refrigerators, logs, large trucks, etc.

In addition to the sponsorship, KNAACK will activate a digital campaign called "Tools of the Strongman," highlighting the road to the final event hosted this year in Sacramento.

The series will be featured across WSM and KNAACK's social media channels and will feature brand ambassadors from this year's WSM competition, including Jerry Pritchett, a welder, who has competed in four WSM contests. KNAACK will also be using the #CantCrackKNAACK hashtag across its social networks that will feature workplace competitions on select jobsites. Be sure to follow along for some intense strength, durability, and security content.

WSM athletes were announced on March 31st. For the full list of competitors you can visit the World's Strongest Man website. The complete list of events for the competition will be announced later this month. The World's Strongest Man competition will air



Oleksii Novikov of the Ukraine breaking the world deadlift record during the World's Strongest Man competition.

on CBS Television Network and CBS Sports Network at a later date.

To learn more about World's Strongest Man, visit <http://theworldsstrongestman.com>. For more information about KNAACK jobsite storage products, visit www.knaack.com. 

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— Phil Kean, Principal, Phil Kean Design Group



Phil Kean

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Women in Construction Forum Members Share Their Journeys

UPSTATE, SC—The Women in Construction Forum (“WCF”), an Upstate, S.C.-based group of female industry professionals in residential, commercial, and industrial construction, recently held a two-part interactive learning session at Anderson Districts I and II’s Career and Technology Center (“ACTC”) to encourage and educate female students coming into the trade industry.

as the Work Based Learning Coordinator for ACTC.

WCF member Racquel Collier shared, “I am so honored to have the

Clemson University’s Tommi Jones, who serves as Senior Project Manager for Capital Projects offered, “Considering that women account for a small

able to answer their questions about all the possible careers, internships, and how to get started,” said Natasha Sexton, President, Sexton Design and Development

WCF recently held a two-part interactive learning session.



Photo: ACTC

The Women Construction Forum.

Speaking to a group of approximately twenty female students enrolled in construction, engineering, aerospace and marketing programs at ACTC, each of the Forum’s representatives shared their professional construction career journey, answered questions from the group, and staged an interactive learning session on “How to read a Ruler.”

The Forum’s speakers, as well as the attendees, echoed the significance of the sessions:

“The WCF was one of the most powerful, impactful, and interactive presentations our female students have had the opportunity to be a part of,” commented Kelli Lancaster, who serves

chance to offer advice that I wish was given to me when I was in their shoes; that’s how we ensure our culture moves in the right direction!”

“Planting seeds in a young girl’s life is always fruitful,” said Christi Powell, WBE/MBE Market Manager & Commercial Sales, 84 Lumber.

Rachel Veltri, who serves on the Women Construction Forum’s leadership team, and is the Business Development Manager for Morgan-Keefe Builders, added, “If young women see professionals giving their time to encourage and mentor others, then hopefully, many of them will grow up to be leaders who give back to *their* communities.”

percentage of women in construction, it was exciting to meet a group of enthusiastic young women who are exploring the idea of entering the field.”

“I enjoyed speaking with the young ladies at ACTC to help them explore fields in construction. A common problem the industry faces is a lack of knowledge about all the different job opportunities within the field. I hope our outreach helps break this misconception and attract new talent into the industry,” explained Aubrey Davis, Assistant Project Manager, Langston Construction

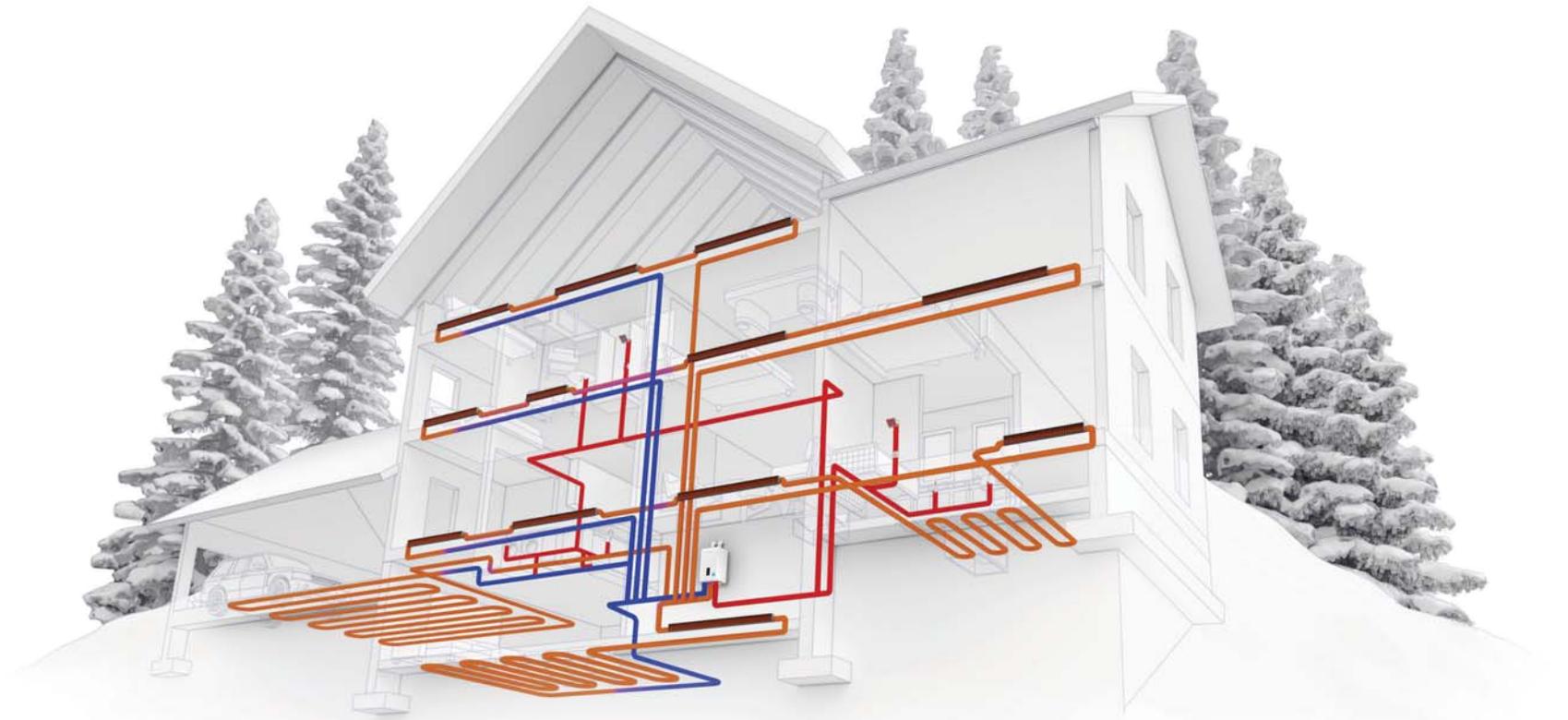
“We are changing the landscape of our industry. It was exciting to be

“Being surrounded by the ACTC young women inspires me to work harder to make sure that they have it easier. When these young women come into the workforce, they will not have it easy in male-dominated fields, but with every year that goes by, women continue to prove that we belong in those fields. As much as WCF women are considered anomalies in their organizations, so will these students, but we are all stronger together and the construction industry is better for it,” offered Tori Wallace-Babcock, Project Manager, Mashburn

“Each of our women are sparking change of who you typically see on a construction site, and we want to educate and inspire the younger generation about all the possibilities a career in construction offers,” said Angela Gardner, Director of Business Development and Marketing for Hill Electric who also serves on the Women Construction Forum’s leadership team. “I felt a deep sense of gratitude for the opportunity to share our stories with the next generation of leaders in construction, and for these young students being able to take advantage of so many insightful educational and career tips.”

The Women Construction Forum is an organization that provides education, experience and personal connection for women in fields surrounding both residential and commercial construction, including contractors, architects, project managers, business owners and many more. Founded in 2019 in Upstate South Carolina, the forum meets monthly, with the vision to “help build up women and their voices in the construction arena by empowering, engaging, and mentoring women entering the industry.” Learn more about the Women Construction Forum by contacting Rachel Veltri or Angela Gardner. [G](#)

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NIBS Names BIM Program Steering Committee Members

WASHINGTON, DC, April 20, 2021) – The National Institute of Building Sciences has announced the built environment leaders who will serve on the National BIM Program Steering Committee.

The NIBS BIM Council began the launch phase for the U.S. National BIM Program in March, when Salla Eckhardt, Director of Transformation Services with Microsoft, was named chair of the National BIM Program Steering Committee.

Lakisha A. Woods, CAE, President and CEO of NIBS, said it is important to establish a structure that broadly engages diverse stakeholders.

“We need a coordinated program to improve performance, advance collabo-



The committee's first order of business will be developing the launch plan for the initial three to five years of the U.S. National BIM Program.

ration and foster innovation in the building industry,” Woods says. “The first step was to engage our partners. The goal is a solution to enable digital processes that will streamline industry practices and

procedures on a national scale.”

The National BIM Program Steering Committee members are:

- Salla Eckhardt (Chair), Director of Transformation Services, Microsoft

- Sandra Benson, Worldwide Head of Engineering, Construction and Real Estate, Amazon Web Services
- Angel A. Dizon, III, Managing Director for Program Development, Coordination and Support, Bureau of Overseas Buildings Operations, U.S. Department of State
- Jason Fairchild, CAD/BIM Community of Practice Leader, U.S. Army Corps of Engineers
- Michael Kennerly, Design Bureau Director, Iowa Department of Transportation
- Hannu Lindberg, Director of Virtual Design and Construction, DPR Construction
- Paul Audsley, Chief Information Officer, NBBJ
- Luciana Burdi, Director of Capital Programs and Environmental Affairs, Massachusetts Port Authority
- Will Sharp, PE (NE, IA), PTOE, Senior Vice President, Director of Highways, HDR
- Jagannath Mallela, Ph.D. Senior Vice President, Director, Research & Innovation Solutions, WSP
- Katherine Petros, Team Leader, Infrastructure Analysis and Construction Team, Office of Infrastructure Research and Development, Federal Highway Administration
- Charles G. Hardy, AIA, CCM, Chief Architect (Acting), U.S. General Services Administration, Public Building Service
- Russ Manning, Ph.D., LEED AP, CRL, CEFP, Executive Director, National Facility Operations and Maintenance Center of Excellence, Kaiser Permanente

The U.S. National BIM Program kicked off early February with a BIM Executive Roundtable. Nearly 40 business leaders discussed how a national program would help the industry by accelerating the effectiveness of the supply chain, providing predictable processes, improving project outcomes, driving efficiency, and fostering innovation. [G](#)

NCCER Launches Digital Credentials

ALACHUA, FL — After 25 years of credentialing, NCCER is launching a new era of credentials via digital badges. NCCER's online credentials are a modern way for craft professionals to display their industry knowledge and skills. Individuals who successfully complete NCCER modules, levels and crafts will earn industry-recognized credentials and can now share them digitally on social media platforms and display them on websites, online portfolios and email signatures.

“These badges are an innovative way for students, trainees and craft professionals to build their career paths visually,” Jennifer Wilkerson, vice president – innovation and advancement at NCCER, said, “In addition, contractors can quickly identify the abilities they are looking for by referencing an individual's digital portfolio of skills. We are excited to partner with Credly for the opportu-



National Center for Construction Education and Research

NCCER's online credentials are a modern way for craft professionals to display their industry knowledge and skills.

nity to bring our industry these online credentials.”

Through Credly, the digital credentialing leader, NCCER's credentials are transformed to a secure, digital representation of the knowledge and achievements trainees, students and craft professionals have earned. Credly's platform empowers individuals to establish their verified skills and certifications and to connect with learning and career opportunities.

“Skilled craft professionals are con-

sistently among the most in-demand roles in the labor market, and finding qualified talent is ranked a top priority for employers across the construction industry,” said Jonathan Finkelstein, CEO of Credly. “NCCER is a key component of the industry's workforce development efforts and is long regarded as the standard-setter for training, assessments, and certification. Their new digital credentials will help qualified talent connect with opportunities at scale and provide contractors a more thorough understanding of the range of competencies available on their job sites.”

Displaying these credentials helps professionals show that they are dedicated to their craft and their skills are up to date. The program is made possible in part through the generous support of the Strada Education Network and JFF. For more information about NCCER's digital badges, visit www.nccer.org/badges. [G](#)

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Noritz teams up with Sunbelt Marketing

FOUNTAIN VALLEY, CA — Noritz America recently announced that Sunbelt Marketing, Inc. (Austell, GA) will help cover the Southeast tankless water heater market, effective March 11, 2021. The master distributor and buy/sell manufacturer's representative will work alongside Noritz's sales team staff in that region.

Formed in 1976, Sunbelt Marketing is "a well-established leader among independent sales representatives in our industry," notes Jason Fleming, Executive Vice President and General Manager at Noritz America. "They have a special expertise in water heating, having worked with both storage-tank and tankless manufacturers over the years. Their in-depth product and application knowledge, and their numerous industry relationships will be an outstanding complement to our existing sales



Scott Smith (Sunbelt Marketing), Chris Martin (Noritz), Aidan Hall (Sunbelt Marketing), Tim Ramsey (Sunbelt Marketing), John Wood (Sunbelt Marketing), Tyler Sims (Sunbelt Marketing), Drew Armstrong (Sunbelt Marketing), Richard Goldsmith (Sunbelt Marketing), and Kenny Strickland (Sunbelt Marketing).

team in that part of the country."

Representing the complete Noritz line of residential and commercial tankless water heaters and residential combination boilers, Sunbelt personnel will serve as a commission-based rep for the brand to the

entire plumbing and heating chain of distribution, calling not only on wholesalers, but also contractors, builders, and inspectors, as well as specifying engineers.

Richard Goldsmith, Marketing Manager at Sunbelt Marketing adds:

"We are certainly excited to have this opportunity to keep promoting tankless technology in our region—one of the largest tankless markets in the country — working with a pioneer in the field and a prominent and focused player in the water heating industry. Like Noritz, we are dedicated to contributing to the growth of energy-efficient, hot-water solutions."

Atlanta-based manufacturer's representative will work with Noritz sales team, promoting tankless in Georgia, Florida, Tennessee and the Carolinas.

Rinnai Launches Strategic Business Development Initiative

ATLANTA, GA – As part of its aggressive growth strategy in North America, Rinnai America Corporation has created a Strategic Business Development team to pursue acquisitions and partnership opportunities that expand its product offerings in new and existing categories.

"Rinnai Corporation, Rinnai America's Japanese parent company, has identified the North American market as the growth vehicle for the global organization in the coming years," said Frank Windsor, President, Rinnai America Corporation. "While we have made significant investments in internal innovation capabilities and domestic manufacturing, we are also aggressively pursuing opportunities to expand through acquisitions of other organizations and technologies. We anticipate that potential acquisitions will fit into our brand promise of *Creating a healthier way of living*®."

The company began its domestic manufacturing strategy in 2018 with the opening of a facility in Griffin,

Rinnai®

Ga. Later in the year, the company announced its new innovation department combining both engineering and product management. In 2020, Rinnai announced the opening of its new state-of-the-art Innovation Center of Excellence located in Peachtree City, Ga. Since then, Rinnai has continued to elevate its positioning with a groundbreaking for a new factory located on a 60-acre Greenfield site, also in Griffin, and scheduled to open later in 2021.

Rinnai's Strategic Business Development team is pursuing opportunities to acquire or partner with organizations or technologies in similar or adjacent categories.

"Rinnai Corporation fully supports our initiatives and has committed the resources and financial support to help us achieve our vision for growth," said Ray VanAssche, VP of Innovation,

Rinnai America Corporation. "We anticipate and have planned a very aggressive innovation and technology expansion that hopes to propel the market forward." Elliott Willey, Rinnai America Corporation's Senior Manager of Business Development is also bullish given trends in company markets, "Specifically, we are expanding our continued strength in vertical segments enabled by the anticipated rebound later this year, as well as expanded service offerings within our trade network coupled with increased consumer emphasis on comfort and health."

Willey, VanAssche, and Perry McGuire, Rinnai America Corporation's VP and General Counsel, make up the core Business Development Team.

Rinnai has developed several relationships with industry partners, consulting and advisory firms on a non-exclusive basis to assist with identifying and evaluating opportunities that fit the organization's strategic mission. To learn more, visit www.rinnai.us. 

A long-time member of the Association of Industry Manufacturers' Representatives (AIM/R), Sunbelt Marketing is led by Tom Menefee, President. The employee-owned company has more than 160 associates, including 40 outside salespeople covering parts or all of 13 different states, from Virginia to Texas, for various plumbing, piping and HVAC manufacturers. The Sunbelt sales team has more than 250 years of combined industry experience.

With six different office-warehouse locations, Sunbelt maintains contractual, buy-sell relationships with numerous industry manufacturers, including NIBCO and IPS Corp. The company also serves a master distributor for a wide range of product categories, with major focus on Piping Products and HydraPro. These marketing activities currently extend into 30 different U.S. states. The agency's home office and primary distribution center in metro Atlanta is equipped with a fully functional, live-burn training laboratory.

For more information on the full line of Noritz tankless water heating products, visit www.noritz.com. 

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Oregon Adopts 2021 UPC and 2017 WE•Stand

► **Continued from page 3**
(WE•Stand) in its 2021 *Oregon Residential Reach Code*.

Andy Skinner, chief plumbing inspector for the Oregon Building Codes Division, said the 2021 *UPC* was chosen in order to promote the state's unique and diverse economy, which ranges from timber to farming to technology. The 2021 *OPSC* went into effect April 1, following a process that included delays and logistical difficulties due to the COVID-19 pandemic.

"Oregon's adoption process is transparent and provides the industry with several opportunities for input," he said. "This adoption cycle had many challenges and was not an easy lift, but with the help of the industry, IAPMO and a lot of hard work, Oregon was successful in adopting the 2021 *OPSC*. This new code provides

flexibility, fiscal savings, and sustainability for all Oregonians."

The *OPSC* includes Appendix M,

methods, and materials for effective and efficient plumbing systems. Specifically, the added use of Appendix

Oregonians and industry professionals can utilize the most up-to-date technologies, methods, and materials for effective and efficient plumbing systems.

Peak Water Demand Calculator, and allows for local jurisdictions to adopt Appendix N, Impact of Water Temperature on the Potential for Scalding and Legionella Growth.

Thanks to the adoption of the most current edition of the *UPC*, Oregonians and industry professionals can utilize the most up-to-date technologies,

M will allow for professionals plumbing homes and buildings to update the ways piping systems are sized, which will improve overall water quality, reduce energy usage, and reduce waterborne health risks for the public.

IAPMO's Peak Water Demand Calculator (WDC) determines pipe sizes based on flow rates and probabilities

of water use, depicting a more realistic need for the plumbing systems. The WDC helps reduce material costs by 10-15% and improves sustainability as water travels more efficiently through the systems — delivering hot water faster to the user and resulting in less water waste — and improves water quality by preventing water stagnation, thus mitigating the risk of harmful pathogens and contaminants spreading in the system.

The state also adopted the 2021 *Oregon Residential Reach Code*, which included the 2017 *WE•Stand* and "shall apply [portions of *WE•Stand*] where applicable to the building or dwelling unit." This tool for residential water usage will allow for Oregon residents to utilize water-saving provisions such as onsite graywater reuse, more efficient landscape irrigation systems, and safe use of composting toilets, all of which will reduce strain on drinking water resources and promote energy efficiency. Depending on the water-consuming plumbing fixtures, appliances and water reuse systems used, water savings of 50% or more are achievable over baseline plumbing code provisions.

"I have been working on changes to building codes, policy and regulations for equitable and sustainable water, water reuse, nutrient recovery and food systems for the better part of my career," said Pat Lando, executive director of Recode Oregon. "Working with IAPMO *WE•Stand's* collaborative environment has brought the best of the industry, trades, technical experts and regulators together to create a standard that serves as a pathway for the future. I am honored to be a part of this body of work."

IAPMO Field Services Manager Jed Scheuermann said in becoming the first state to adopt the 2021 *UPC*, Oregon showed the value and importance it places upon water.

"Oregon leads the nation, recognizing that protection of public health, coupled with cutting-edge technology and sustainability, are harmonious goals," he said. "These outcomes are now realized in Oregon with the adoption of the 2021 *Oregon Plumbing Specialty Code*, based upon the 2021 *Uniform Plumbing Code*." 

HomeX Raises \$90M in Capital

CHICAGO, IL and NEW YORK, NY — <u>HomeX</u>, a home services platform for homeowners and service providers, announced today the completion of a \$90 million capital raise, led by New Mountain Capital, a leading growth oriented investment firm with over \$30 billion in assets under management. Founded in 2017, HomeX delivers personalized physical and virtual solutions for homeowners, as well as software and services that enable contractors to drive and manage demand more efficiently.

HomeX is transforming the classic home services industry approach from "rolling a truck" to a customer's home, to identifying the right solution at the right time for a homeowner's problem through both virtual and physical services. The company's latest advancements in natural language processing, machine reasoning and knowledge engineering provide Artificial Intelligence-backed diagnosis of home issues, creating more transparency and efficiency for both customers and providers.

"Home services is a \$500 billion market, but it remains highly fragmented and needs meaningful innovation. Similar to how telemedicine has trans-



formed the healthcare space, HomeX is using technology and service excellence to provide greater access, flexibility and connectivity to both homeowners and service providers," said Michael Werner, Founder and CEO of HomeX. "This new partnership allows us to rapidly expand our offerings and reach new audiences, continuing to alleviate the headaches of homeownership, while helping contractors secure operational efficiencies and qualified appointments, not just leads."

Werner continued, "New Mountain was the right leading partner for us given its experience working with founder-owned businesses, deep knowledge of the home and commercial services end markets, and extensive track record of growing businesses through investments in technology and people."

With hundreds of thousands of users and existing clients supported by HomeX's platform, New Mountain's investment comes as the Company continues to accelerate its growth and

expand its services across North America. Notably, HomeX Remote Assist, which virtually connects homeowners with HomeX's licensed technicians to diagnose and repair common home issues, has experienced more than 400% growth in less than a year.

"We are excited to support the growth of HomeX, a business that is primed to reshape the home and commercial services industry. The market is massive and the need for change and innovation is substantial — HomeX is at the forefront of this opportunity and we are eager to partner with the management team to help position the Company for continued success," said Harris Kealey, Managing Director at New Mountain Capital. "We constantly strive to build great businesses in carefully researched 'defensive growth' industries, and HomeX was the right choice as an early investment within our first partnership oriented, non-control investment fund."

Morgan Stanley & Co. LLC served as HomeX's placement agent for the transaction and Dentons served as legal advisor to HomeX. Ropes & Gray LLP served as legal advisor to New Mountain Capital. 

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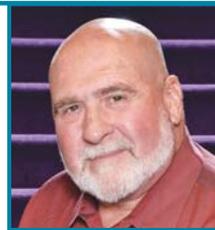
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by Al Schwartz
PLUMBING CONTRACTOR



Rising

The basic premise of this column is the condition of the trade in 2021, and moving forward. Getting into, and staying in, the plumbing/pipe fitting business today is a real exercise in patience, fortitude and perseverance. Still, the spirit of optimism, rising to the occasion and success are powerful draws. Notwithstanding these questions: Do you know the trade well enough to make a living at it? How are you going to find and retain qualified help? Can you find, and hire, qualified journeymen if you do well and want to expand? To answer some of those questions, it is necessary to realistically look at the climate in which you intend to make a living.

What with every pundit (knowledgeable or not) and commentator expressing the view that the trade, as we have known it, is either dying or already dead, it is good to note that as of now that simply is not the case. In my last column, I mentioned a comment by an “expert” saying that a fully trained and experienced journeyman will be the exception rather than the rule in the coming years. While there are a lot of people who sagely nod their heads and agree with such pronouncements, many of us who have been in the trades for a lot of years don’t agree with that assessment.

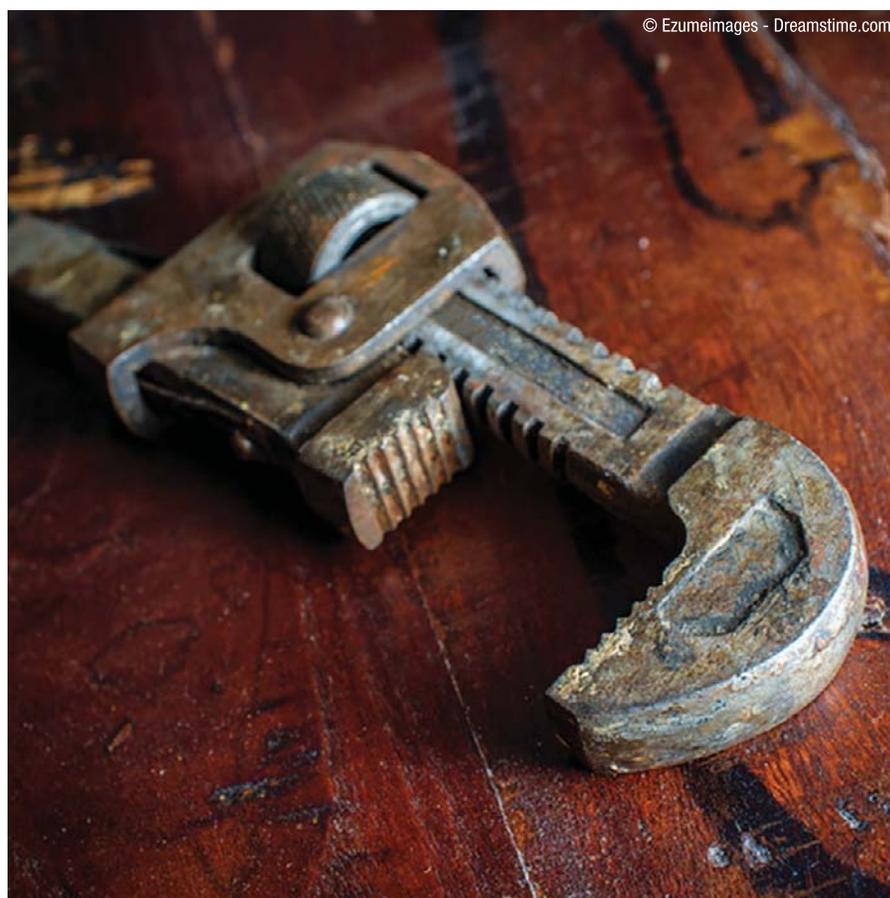
I know, the current mind set and work ethic of the available labor pool from which we draw our new apprentices is not ideal... or anywhere near ideal. Trying to find people who not only want to learn a trade, and who will actually show up for work for more than a couple of weeks is an exercise in futility (most of the time). Having said that, the mechanical trades at large are now gaining momentum toward vocational education programs that are enticing young people away from useless college degrees into the construction industries. It almost seems possible that the trade some are declaring on life support may actually rise, Phoenix-like, from its own ashes.

As pressure rises for construction workers across the nation, the critical need for skilled, well- and fully-trained professionals is becoming more apparent. Trade education and apprentice-

ship programs at the local, state and national levels are being revived and reinvigorated. Private companies are

come his own boss. Whether by design or circumstance the person who puts themselves out there to do business

Getting into, and staying in, the plumbing/pipe fitting business today is a real exercise in patience, fortitude and perseverance.



opening up for profit trade schools and they are not having a lot of trouble filling their programs. This could be the proverbial light at the end of the tunnel for our trade... or it could be a freight train. It’s too soon to tell. The thing is, it has been a long time coming, and one wonders if it is too little too late, or if the new efforts will bear fruit in time to revive the trades.

In any case, the idea that the day of the small one -or two-man plumbing shop are over is premature, in my opinion. There is always going to be that guy (or “person” to be more politically correct) who just knows in his bones that he can make it on his own and be-

will succeed, or not, on their own. The drive and industriousness that made this nation what it is today is still alive in the trades. It is just looking for ways to express itself. Even with the mortality rate of new business startups at 90 percent, there are those who still think the risk is worth the reward.

The dawning of the digital age and it’s offspring, AI, has had a profound effect on how the trades are practiced and business conducted. What it has not done, to any appreciable degree, is to change the work itself. Sure, there is more prefabrication going on and more compartmentalization of jobs, new methods of planning and produc-

tion (BIM), but the work itself has not changed much. New materials and installation methods have been brought into the field, but the knowledge and skills needed to properly install the systems remains. Every task, no matter the material, has a beginning, a middle, and an end. Just like always.

Think about it. The pundits have declared that fully trained journeymen and masters will soon fade away, so who or what will take their place? For every journeyman who can do the job from start to finish, the nabobs are suggesting using, what? Four, five, six or more workers who can only do parts of it? Who gets to finish the project and make sure it all goes together the way it is supposed to, adjusting and adapting as needed to fit specific job conditions? What happens when a part, or parts, break down or don’t work? Their answer is simple: hire more people and just train them to do one or two things.

It seems, to me at least, that one well-trained journeyman can take the place of any number of “techs” who know just enough and no more. If you balance the scales with a whole trade trained journeyman on one side and a small army of partially trained “techs” on the other that the journeyman would be worth more, and cost less.

The problem, as I see it, is that there are too few skilled journeymen available right now. The use of partially trained people to perform work that fully trained tradesmen normally perform is one industry answer to this shortage. If the push for vocational education gathers momentum, it will not be very long before that shortage goes away and trade craft, once more, becomes something to be proud of and admired. **C**

The Brooklyn, N.Y.-born author is a retired third generation master plumber. He founded Sunflower Plumbing & Heating in Shirley, N.Y., in 1975 and A Professional Commercial Plumbing Inc. in Phoenix in 1980. He holds residential, commercial, industrial and solar plumbing licenses and is certified in welding, clean rooms, polypropylene gas fusion and medical gas piping. He can be reached at allen@proquilldriver.com.

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by Jim Kendzel
ASA DIRECTOR OF CODES AND STANDARDS

ASA Engaged in and Impacting Model Codes

We are in the midst of a new code development cycle and ASA is actively engaged in submitting and commenting on proposed changes to the codes impacting our members and the entire PHCP and PVF supply chains. This article is intended to help our members gain a better understanding of how the process works and gain an appreciation for how ASA is engaged in that process in service to its members.

State and local authorities turn to the use of model codes in setting regulations that have a direct impact on ASA members from the products they produce and distribute in the marketplace, as well as the buildings they use to store those products. There are two key bodies in the U.S. that develop model codes, the International Code Council (ICC) and the International Association of Plumbing and Mechanical Officials (IAPMO). These organizations develop model codes covering: buildings, plumbing, mechanical, fire safety and “green” codes. In addition, other standards bodies such as the National Fire Protection Association (NFPA) and ASHRAE develop standards and model codes that are often referenced or directly embedded in the model codes developed by ICC and IAPMO.

Model codes developed by both ICC and IAPMO are published for use by state and local authorities to adopt in their jurisdictions. Typically, a state or local jurisdiction will review the two sources of model codes and make a determination which model codes best fit their needs and then adopt those model codes in to regulation.

The main benefit of using these model codes is to provide a level of consistency in regulations across the U.S., as opposed to each state and local jurisdiction developing code regulations from scratch. Of course, each jurisdiction has the ability to modify the model codes based on their local needs, so it is also critical for ASA to monitor state and local adoption of model codes to be sure that any potential modifications do not have a negative impact on our members.

The model codes are developed using a consensus process bringing together

a diverse group of stakeholders including producers, wholesaler/distributors, contractors, architects and regulatory

tee meetings will take place through April and early May 2021.

2nd Public Comment Period

ASA is actively engaged in submitting and commenting on proposed changes to the codes.



agencies. Representatives from each of these stakeholder groups are selected to serve on balanced technical committees having the responsibility of voting on proposed changes to the model codes. In addition, the development process allows for public input along the way where those having an interest can supply proposed changes along with comments on proposals being submitted to the technical committees.

Model codes are revised every three years to ensure the code requirements are kept up to date to new technology and public health/safety priorities. Both model code-developing organizations use a similar code development process with the following key steps:

1st Public Comment Period – interested parties submit proposed changes to the model codes.

Technical Committee Review and Public Hearing – the technical committee reviews the proposed changes and receives comments in favor of or in opposition to the proposed changes from the public and votes on if the proposal should be accepted or rejected. Virtual hearings and commit-

tee decisions are published and comments from the public are solicited in favor of or in opposition to the decision made by the technical committee. Opportunity is also given to modify proposals rejected by the technical committee to resolve the reason for rejection. Comments will be due by July 2, 2021.

Final Technical Committee Review and Public Hearing – Technical Committee reviews public comments received, both written and in-person, and votes to determine its final position on the proposals. The committees will meet in September 2021 to review the public comments.

Appeal – submitters of proposals have the right to formally appeal a decision made by the technical committee.

Final publication of the revised model code.

A2L refrigerants

The current model code cycle actually began in 2020 with proposals for changing the codes needing to be submitted in January 2021. ASA, through its partnership with HARDI, worked

diligently in 2020 with AHRI and industry representatives in developing proposed changes to both the mechanical codes and fire codes covering A2L refrigerants. These refrigerants are considered a low greenhouse gas emitter, but also have a slight level of flammability not present in the higher greenhouse gas emitting refrigerants currently used. The proposals submitted address changes to the mechanical, building and fire codes related to refrigeration equipment and the use of A2L refrigerants, and also to the fire code related to the storage of the refrigerants, which have the most impact on our members.

The storage requirement proposal supported by HARDI, ASA and AHRI was accepted by the ICC Fire Code Action Committee, which is a committee brought together by ICC to develop and review proposals prior to formal submittal to determine if the proposal should be considered favorably by the Technical Committee. This is a good start to the potential adoption of the proposal into the code.

In early 2021, ASA created three working groups of member representatives to evaluate the proposed changes to the model codes and determine if ASA should take a position on any of the proposals during the code committee hearings.

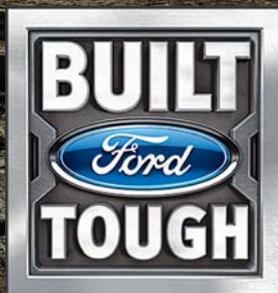
The three working groups formed are: Plumbing Fixture and Appliance; Piping Systems; and Mechanical Systems. These three groups have been working diligently to develop ASA positions on the ICC model codes, and are in the process of evaluating the proposed changes to the IAPMO model codes.

To keep up on the progress of the 2021-2022 code development process you can go to the ASA Codes and Standards website at www.asa.net/Codes-Standards/cs-news.

When you go to the site, you will have access to all of the proposed changes, ASA positions (when they are published) and results of technical committee hearings. Also, please feel free to reach out to me at jkendzel@asa.net if you have any questions on the process or positions being taken. 

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2021 Book of Giants

by John Mesenbrink

This time last year the nation's shut-down was in full effect. Airlines were grounded, restaurants and stadiums were closed, and the steep and sudden dip in the economy — the COVID Recession — was ongoing, with more than 30 million Americans out of work. But even at that point, we were already asking some of the nation's top mechanical contractors what the “new normal” might look like.

A year has gone by and that picture has come into much sharper focus. For our Giants the pandemic has been a time both of challenges and of opportunity. By investing in their technology and committing to best practices, the nation's large MEP contractors have delivered for their clients while keeping their workers safe.



Murphy Co.

Zach Jordan (Pipefitter Apprentice). Prefabrication is helping Murphy Co. maximize productivity while improving safety.

‘It’s time for CEOs to act with courage and conviction and get their team back to their offices, in all lines of business in every city.’ — Patrick J. Murphy

Murphy Company— Moving Forward; No Looking Back

The St. Louis-headquartered mechanical contractor has weathered the COVID storm and sets its sights on growing success through determination and a commitment to safety and keeping its crafts employed.

ST. LOUIS—When I spoke with Patrick J. Murphy Jr., president and CEO, Murphy Company—an annual Book of Giants nominee—it had been almost a year to the day that everything basically “shutdown” due to COVID-19, essentially crippling the U.S. economy and striking fear into every business—small and large—across the nation. It wasn’t long thereafter that the construction trades were deemed essential, keeping the pipeline of workers, working. But there came a point along the way where Murphy Company took the bull by the horns and forged its own destiny, pandemic or not.

Not applying for any PPP money, company leadership knew that it could only rely on its team’s grit, determination and commitment to safety to battle through the pandemic. During the panic in March of 2020, Murphy Company quickly developed a succinct strategy to guide itself successfully through the pandemic by “keeping its crafts employed and working safely.”

According to Murphy, “We had conviction that this was our strongest path to retain our talented craft and salaried team and to offer valuable solutions to our highly demanding customer base in critical industries. Some cities were shutting down all businesses, including all construction. We pivoted hard and proactively had meaningful discussions with our political leaders at all levels of government along with open dialogue with

the management of our labor partners, and of course our customers. We assured all of our partners that our talented team could ‘figure out how to work safely and keep the wheels of construction moving forward.’”

Within its Colorado and Missouri offices, the approach was aligned to “keep our crafts working,” says Murphy. The management team was always present in the office along with many members of the salaried team. On May 26, 2020, the salaried team returned to the office after working remotely for two months.

“We provided a healthy and safe office environment and rallied behind ‘Better Together.’ Safety is always our highest priority—we own that mindset. It is our culture,” says Murphy. “Our salaried team’s mission is to fully support our crafts and our customers. Our crafts are doing amazing activities to support the customers while providing for their families.”

Murphy Company’s teams were very creative in the way they managed installations and placed even more emphasis on fabrication. “I feel that self-performing contractors were better suited to deal with the pandemic when compared to other industries,” says Murphy.

The company also created portable hand-washing stations to assist all crafts and keep jobsites open. “We work in an industry that is always changing. We are used to ever-chang-



Murphy Co.

Megan Seabaugh (Pipefitter Apprentice), uses a laser scanner on the job site.

ing conditions and have to adapt quickly. We cannot always find the perfect answer, but sitting, waiting or hiding until someone presents a 100% solution is not an option for successful contractors. Rather, we figure it out, find a workable solution and adapt as we learn,” says Murphy.

The executive leadership team determined that it was not going to be hide from adversity. “Our talented crafts and project management can work safely together in challenging conditions on jobsites and facilities, and certainly our salaried staff can do the

same in our healthy offices. We have a reputation of delivering a high level of service to both our internal and external customers,” says Murphy.

Murphy Company’s team supported the critical activities of health care, manufacturing, biopharmaceutical, industrial and commercial facilities. Activities included converting hospital patient floors to COVID floors, maintaining waste water treatment facilities, supporting the biopharmaceutical industry, and getting offices prepared for return to work with cleaner air and water, etc.



Murphy Co.

Sarah Harkssen (Plumbing Apprentice) out logging numbers at the job site

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2021 Book of Giants

Another thing Murphy attributes to continued company success throughout this tough past year was joining a peer group. Seven CEOs of large mechanical contractors—which tallied more than \$2 billion of combined revenue—would talk every Friday afternoon. “Being in the peer group during the pandemic was invaluable as it featured various levels of construction and it provided a fantastic sounding board of ideas, hearing other problems/solutions from around the country.”

Fast forward to 2021, and it’s all systems go. According to Murphy, “Vaccinations are leading the way out of the pandemic much quicker than most expected, yet, at this point, we need to

move past 100% vaccination and we just need to go. It’s time for CEOs to act with courage and conviction and get their team back to their offices, in all lines of business in every city,” says Murphy. “We needed to figure this thing out on our own.”

And figure it out they did, as the company, already working on its 2022 fiscal year, is seeing a 15 percent growth. Pretty impressive considering that part of Murphy Company’s business is servicing the commercial markets, which were some of the hardest hit in the plumbing, HVAC and mechanical trades—due to many companies not returning to their offices yet. Ironically, the company

saw a slight dip in small-to-medium healthcare work.

Murphy Company’s “figure-it-out” attitude, courage, competency and its “Better Together” commitment led to one of its most successful years in its 114-year history. Moving into the future, the company has built the strongest backlog in its history, added additional talented people to the team and found new market opportunities.

Recently, the newly-proposed American Jobs Plan adopted by the current administration offers a glimmer of hope for America’s infrastructure, but according to Murphy, “You can’t pay attention to it; it’s all conjecture at this point. We’ll have to see it to believe it.”

In the future, Microsoft Teams certainly will be used in many applications throughout the business; Microsoft Teams has allowed the company to better communicate with both larger and smaller groups in a timely and efficient manner. “And while we can effectively work remotely when it is necessary, it is not sustainable to our culture and our customers expect more from us,” says Murphy.

Personally, Murphy looks forward to the day without COVID trepidation. “I look forward to ‘maskless’ face-to-face events with our employees and their families, especially employee family picnics, years of service awards and the impromptu happy hour,” says Murphy.

John W. Danforth Company—Continued Long-Term Success

Danforth came through 2020, and the unpredictability that accompanied it, strong and as focused as ever.

TONAWANDA, NY — As we bid farewell to 2020, and all of the uncertainty that came with it, all eyes are on 2021 and beyond as companies hope to get back to some sense of normalcy. An example of its proactiveness, John W. Danforth Company, Tonawanda, N.Y.—a top Book of Giants mainstay—is expanding its focus on data.

“We view data as a vital product that helps drive success. As we start 2021, we are giving greater attention to developing, implementing and managing the overall process of data collection and analysis, bringing together various internal teams in that process. We want to ensure that Danforth’s overall data strategy and architecture deliver accurate, transparent and up-to-date information for decision-making, and that we are getting peak return on investment from our data collection and analysis initiatives,” says, Patrick W. McParlane, President and COO, John W. Danforth Company.

Optimistic for 2021 and what lies ahead, according to McParlane, “Several markets we serve actually accelerated their needs during the onset of the pandemic, both in construction and service, so we started the year with a strong backlog of work. Many of the other vertical markets we serve are showing signs of coming back.”

The pandemic created new dynam-

ics for businesses to re-open and operate safely. Even in an area like commercial operations, where businesses may be taking a new look at when and how they bring workers back into their office, says McParlane, there are new

considerations for how that might look. “So, we have noticed in many cases our clients have adjusted to the new normal with a clearer understanding of their financial situation and business needs. We believe there is a lot of pent-up demand for construction and service due to the dynamics of last year, and we will all start to see the results now and through the remainder of 2021,” says McParlane.

Operationally, Danforth has embraced the importance of providing

communication and guidance to every area of the company. Virtual communication has largely become the norm for the employees in the office and out in the field, and remote work and meetings have become more relevant in daily operations. These include, but are not limited to, team updates, client meetings, project kickoffs, bid meetings and project descopeing. This will never replace the dynamics of in-person interaction and collaboration, but the ability to work effectively in



A Danforth technician in the company's Buffalo welding shop.



John W. Danforth Co.

The crew from Project Eagle, the company's work at the new Amazon facility.

real-time, even remotely, helped the company remain productive without missing a beat.

Evolution of Technology & Processes

Continuous improvement has always been one of the mantras at Danforth. In keeping with that, the company is always striving to identify and embrace efficiencies and better processes that ultimately help deliver projects for clients that meet their operational and budgetary needs while meeting and exceeding their expectations. "That is the standard to which we hold ourselves. Our industry is dynamic, so, in order to deliver industry-leading experiences, our belief is that you have to remain lean and agile to react to business demands. We've always operated that way and we continue to do so," says McParlane.

Virtual Design & Construction (VDC) Services continues to be an area of difference for Danforth. The VDC process has evolved over the last 30 years with the continuous improvements in software and technology.

"Newer technology gives us, as the contractor, the ability to create fully coordinated 3D models in a much more efficient manner than in years past. Being able to troubleshoot and identify clashes with other trades or architectural and structural elements ahead of time allows us to fully implement our preconstruction procedures and maximize shop prefabrication and field installation. We are able to get ahead of certain processes, provide accurate information and details to our field teams, streamline processes and workflows, and get materials to the

field more quickly," says McParlane.

This comes with the added advantage of getting on the jobsite sooner and claiming space for pipe and duct installation prior to the disruption of other trades. "We know that the more we utilize our VDC services, the more we can then utilize our shop fabrication production. This helps drive productivity while providing a safer and more controlled environment for our team," continues McParlane.

Moving forward, the thing that excites McParlane most about the future is his team. "Our people are Danforth's greatest asset and the reason for our success. When you look at what happened throughout 2020, it was an unimaginable scenario. Yet, we came through that unpredictability as strong and as focused as ever," says McParlane.

That simply doesn't happen without an exceptional team, from top-to-bottom and across every area of the company. Processes and procedures are irrelevant without the proper team to execute. "We are 100% employee-owned company and as an Employee Stock Ownership Plan (ESOP) organization, we all have skin in the game. That strengthens our collective resolve to meet every challenge, whether it's a project or whether it's a once-in-a-lifetime scenario that challenges the global marketplace. We believe in the power of our people, and, in turn, our employees believe in Danforth. That's a recipe for continued long-term success, which is exciting," says McParlane. [John W. Danforth was named CONTRACTOR's Contractor of the Year in January of 2021.]



John W. Danforth Co.

A crane moving components for the Rosina cooling tower.

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2021 Book of Giants

J.C. Cannistraro LLC — Prioritization of Health and Sustainability

Proactive and sustainable measures put Boston-area mechanical contractor on the road to recovery and long-term success.

WATERTOWN, MASS.— Many parts of the country fared better than others at the beginning of the pandemic and subsequent shutdowns. Boston wasn't without its initial hardships, with a city-wide mandate to shut down commercial projects created uncertainty and trepidation for many businesses. As time passed, and the trades were deemed essential, companies like J.C. Cannistraro rose from the COVID darkness, and what could have been.

Motivated by the seriousness of the situation, J.C. Cannistraro's people came together during the pandemic like never before. Human resources, Safety, Operations, IT—all groups worked together to rally around our two collective goals: to protect the health of its people, and to preserve the long-term stability of the company. "We saw young managers rise to the occasion and collaboration across the board. Coincidentally, over the past

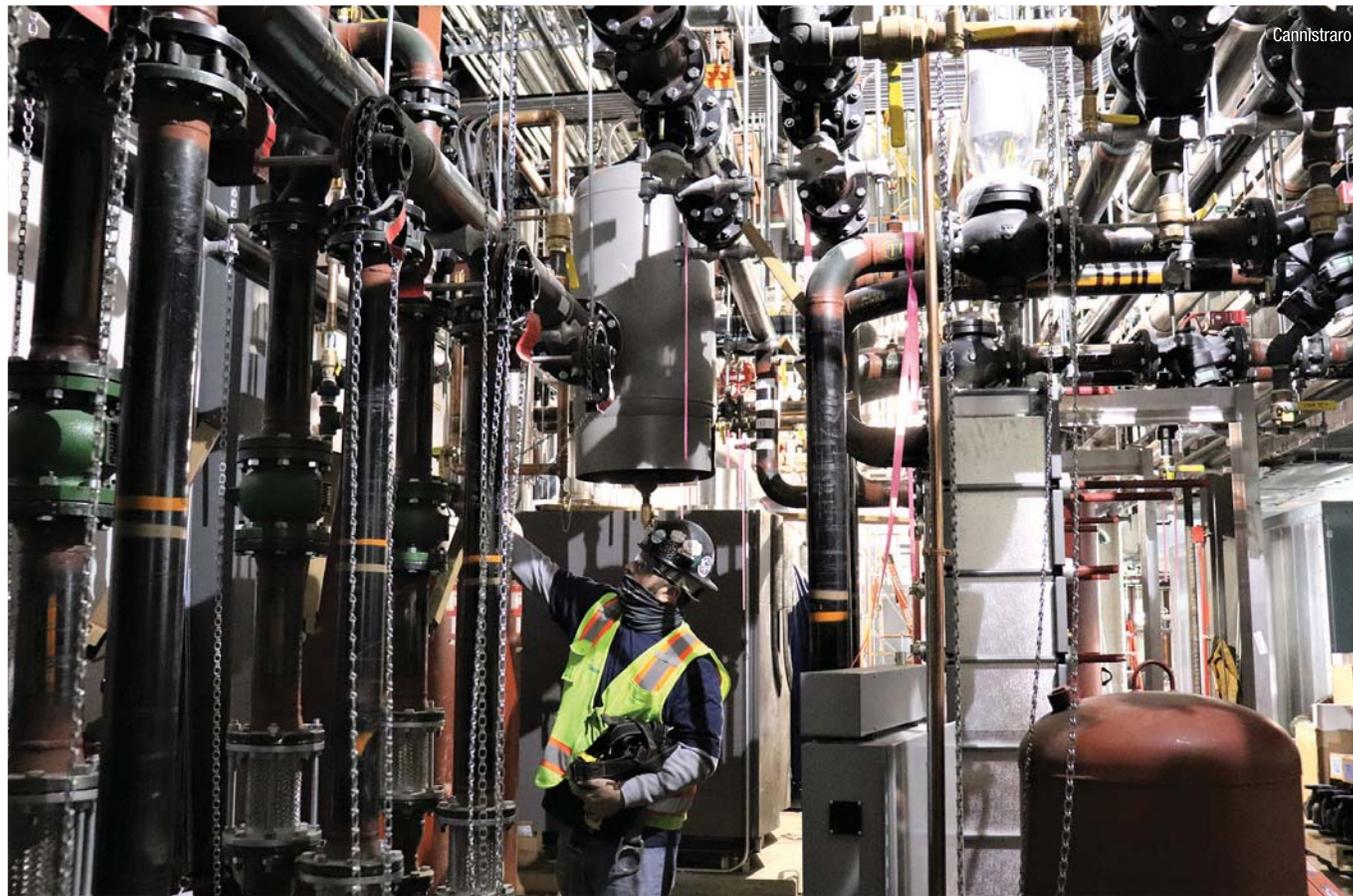
few years we have invested in improvements to our IT infrastructure, so we were able to move smoothly to remote work," says David Cannistraro, CEO, J.C. Cannistraro.

The short-term looks bright for the New England company. "Although short-term commodity pricing has increased, we have not yet seen an impact to our projects. Right now, we have a very strong pipeline of lab, healthcare and R&D projects in the local market. Boston and Cambridge, in particular, have a solid backlog of this type of work, and we will be staying busy," says Cannistraro.

Before the pandemic, J.C. Cannistraro permitted just a few employees to work from home under certain circumstances. Now, the company has embraced the "hybrid" approach as the company standard wherever possible. It remains important to support the field and shop personnel with a strong



Even in the fab shop, PPE and protective screens are still the order of the day.



A Cannistraro technician on an inspection walk.

Cannistraro is making investment not just in job site efficiency, but in the safety and long-term health of its workers.

in-person company culture, and that will not change. "But we embrace the flexibility and efficiency that remote work can bring," says Cannistraro.

J.C. Cannistraro learned that it could survive and operate without seeing people in person, "but we became acutely aware of the positive impact that in-person interaction has on our lives and on our work. Moving forward, we are grateful for flexibility. There are certain instances when a big, in-person meeting simply isn't the best approach, or when the option to 'call-in' will make it possible for certain people to 'be in the room.' This makes space for prioritizing the in-person interactions that are well worth it, and that we are very happy to see return," says Cannistraro.

According to Cannistraro, the company has embraced many technologies over the years, and it has found that there are really two questions that determine interest in these investments:

➤ **Turn to Giants, page 74**

MCAA Holds MEP Innovation Conference

► **Continued from page 8**

tion. While insisting his presentation was not going to be a long love letter to Elon Musk, Benham looked to Tesla as an example of a manufacturer whose innovations were something the construction industry could learn from.

Industrial 3D printing will, in the next decade or less, become a real game-changer. The complexity, speed and scale of what industrial 3D printers are able to accomplish are all developing rapidly. There are still issues with standards, both of operation and safety, but the potential is too great to ignore. The potential in prototypes of tools and equipment for buildings alone is amazing.

Media and Entertainment is perhaps the most unlikely industry with something to teach construction, but Benham turned to the example of



The SpaceX suits (on the right) look like something out of a sci-fi movie.

Disney/Pixar and what the combined company had been able to achieve with computational and generative design.

Disney acquired Pixar as much for its storytelling as for its computer code. The approach is “stacking,” where good software and tools allows

a business to create better software and tools (generative design) with better results all around. Just look at the progress of the Woody character from *Toy Story 1* to *Toy Story 4*; the modeling, the depth, the realism. And we all know the more realistic the render is,

the more a client will understand it. **Healthcare, Financial Services, Insurance, Transportation, Computer Science** were all fields doing exciting work, producing innovations that could or could some day be adopted by the construction industry to speed efficiency and boost effectiveness.

To wrap up, Benham offered the audience a few takeaways to keep in mind. First, that automation and Artificial Intelligence, working together, will be changing construction in important ways. The sooner you embrace them the better it will be for your business. Next, study other industries, even those way outside of your comfort zone, and pay attention to the common themes you find.

Benham then concluded by thanking the sponsors, the host associations and everyone for attending. **C**

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by **Scott Milne**
OWNER OF MILNE PLUMBING AND HEATING



When the Levee Breaks

When the levee breaks, I'll have no place to stay. Your customer will have no place to stay either.

When you think about the damage done due to gallons and gallons of water pouring into a home, it can really stop you in your tracks. I remember years ago being with my old boss at a customer house that had flooded out. The owners were staying at a friend's house because their house had no heat or water. We were there for days repairing split pipes. One day a man walked up and asked if we could look at the house next door. My boss asked if he was the owner and the man said no but he knew the owner was away. He said he knew he wasn't the owner but there was water pouring out of the front door and he thought someone should do something. We were able to shut the water off, but think about that. The water was running for so long there was a foot of water on the first floor and it was pouring out the doorway. I've had to run into a house where I should have had a rain suit or umbrella, houses that had water just pouring out of everywhere.

I once had a customer call me during freeze-up time and tell me she had no hot water. She had water but it was cold. I told her I would be over later in the day. When I got there the two hot water heaters (very large house) where both running but the water coming out was cold. The cold water was running and condensing. I checked the water meter and it was spinning like a fan in august. The

woman's son was home and I asked him if anyone was in the home? No. Are you doing laundry? No. Suddenly

customer who's pool house dishwasher had the plastic solenoid break and no noticed if for a few days. Talk about mold

Damage from broken pipes can be catastrophic.



it hit me, "Do you have an outdoor shower?" Yes, he said and brought around to the back of the house. Water was pouring out like Niagara Falls and the ice looked like a Glacier. It's amazing they could have had this happening for hours and no one heard anything. People are funny and common sense isn't very common.

Damage from broken pipes can be catastrophic. You have all seen it. Floors bucked up, sheetrock ceilings lying on the dining room tables, doors all buckled and worst of all, MOLD. We had a

damage! The hot water was streaming out of the valve for days. Did you know that most insurance companies don't include mold damage on your insurance policy? I didn't. It's a separate rider that most don't offer because it's so expensive. What many insurance companies do offer is a deduction your policy if you install an automatic water shut-off valve on your water main.

Water damage can be brutal but there are options available. Have you looked into water safety shut-off valves for the water main? We install

two different types but I know there are others. Some use a timer design, while others use sensors that you place around the home. They almost all connect to your home security system or to an app that allows you to monitor your water usage remotely.

Of the two different designs we use, the first offers sizes up to two inch. This product uses a flow monitor to time the amount of water you usually use at your home and shuts off the water to your home if you exceed the number of gallons you have set the device for. Simple idea, and it can be purchased with a remote keyboard that allows you to reset the valve if it goes off or make changes to the settings, all without going into the basement. I believe they now have a remote app that allows you access to the valve setting from your hand help device.

The other valve we have used only comes in three sizes, 1/2", 3/4" and 1". It uses remote sensors, is a little more competitively priced and also has an app to access the valve while away from the home. This product monitors your water usage daily and alerts you if the water usage exceeds the normal use. The device now has remote sensors that can be set around the house in different locations when can alert the water valve and shut off the water. The app will alert you if the valve has activated and shut off the water to your home. You can reset it remotely or wait until you return home. A lot better than returning home to a flooded house huh? Another accessory to this product is battery-powered back-up in case of prolonged power outage.

These are just a couple of products that are available for your customers to give them peace of mind and protection against water damage. The added feature of having an app that allows you to monitor your home is interesting to your younger clients as they love having that feature on their phone. So the next time the levee breaks, they'll know it right away. **C**

Scott Milne is the owner of Milne Plumbing and Heating. He and his company have been serving the greater Boston area for nearly 30 years. He specializes in high-efficiency heating systems for custom homes.

Southern HVAC Acquires Five Star Plumbing, Heating and Cooling

GREENVILLE, SC — Southern HVAC Corporation announced its recent acquisition of Five Star Plumbing, Heating and Cooling. Five Star provides heating, air conditioning, plumbing and electrical repair and replacement services to its customers throughout greater Greenville and Spartanburg, SC, and Hendersonville, NC markets as well as surrounding areas. Five Star will retain its current brand while gaining support from South-

ern HVAC's services support teams. Five Star represents Southern HVAC's ninth acquisition overall and first acquisition in South Carolina.

"It has been a pleasure getting to know Larry Sinn and the rest of the Five Star team. They are committed to building relationships with homeowners and clients through their 100% customer satisfaction guarantee," said Jarrod Brinker, Vice President of Operations & Acquisi-



tions at Southern HVAC.

Southern HVAC Corporation services approximately 300,000 households annually through their local brands. For more information about Southern HVAC visit SouthernHVAC.com or email rhaines@SouthernHVAC.net. **C**

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by Pat Linhardt

HYDRONIC MANAGER AT THE CORKEN STEEL PRODUCTS CO.



Push it Back In

There was a problem in the early days of two pipe steam heating. All the steam boilers back then were coal- or wood-fired, just like the steam locomotives of the day. A roaring fire needed to be built by hand in order to change the water to steam. That steam would then distribute through the system of radiation to heat the building. As steam would hit the cold radiators, it would condense back to water and start to flow downhill, like water is supposed to.

It is then supposed to go back into the boiler so it can turn back into steam and keep the cycle going. However, with the roaring fire comes increased pressure. Water can flow downhill to the basement, but it then encounters one of those laws of physics that we can't always see, but inherently understand. Lower pressure doesn't move to higher pressure. It's the other way around.

The train engineers figured out the problem early on and had their own mechanism, called an injector. They were operating the steam boilers on their locomotives at hundreds of pounds of pressure and needing to maintain the waterline by refilling out of a tender that was at atmospheric pressure. The injector used whatever steam pressure the boiler was operating at to push the water back into the boiler.

We aren't train engineers, so we work with much lower pressures. Our law of physics is 28" of vertical height above the waterline equals one pound of pressure. That means if the boiler is operating at one pound of pressure, water stacks up above the waterline in the dry return of a two-pipe system to a height of 28" before the water starts sliding back into the boiler. Two pounds of pressure equals 56". Much higher and the water starts backing up into the horizontal mains, where it's not supposed to be, causing problems like spitting vents and uneven heat.

A roaring fire that is quickly building up pressure is not easily slowed down. Fire control was down with the draft doors. Less air equals less fire which equals less pressure, but the regulators

used back then weren't necessarily reactive enough. A device like a steam injector was needed. The industry

The one in the photo is mechanical. There is a float inside that rises as the water rises because the pressure in the

These devices were basically obsolete soon after they were essential.



A Trane return trap with tab.

stepped up to the challenge with multiple products, with names like "equalizing loop", "boiler return trap", "differential loop", "direct return trap", and "alternating receiver".

They all performed the same function of pushing the water back into the boiler by using the steam pressure of the boiler. Some were mechanical with floats and valves, while others were non-mechanical with no moving parts. Somehow, they all claimed to be a better system than the competition, (some things never change).

boiler is rising. When the float hit a predetermined level, the valve it is connected to opened to allow steam from the boiler to enter at the top of the device. This pressure then pushed the water down. This system worked with a pair of check valves in the horizontal piping below. One check closed to keep the water from pushing back into the return, while the other check opened to push the water into the boiler.

A good customer in Dayton, Ohio called to ask if it was necessary to keep this in the system during the new gas boiler install they were working on. I told him it served no real function anymore and the common advice of the industry is to remove it. He said it had a nice brass tag on it and asked if I wanted it, since he knows I have a collection of steam components. Yes, the date is 1918.

The smaller ones I use for show-and-tell during classes. It keeps the techs awake making them pass things around the classroom, one of the tricks of the teaching trade. I knew I already had this particular model, but like any collector, I want more. Mine has the gauge glass option so you could see the water level in the return trap, but no tag, just a model number and patent date in cast iron. Yes, that is the same Trane Company that we know today. They used to be big in the steam business.

Today, with our automatically fired gas- or oil-burners, the pressure is controlled by shutting off the burner with an operating or high limit pressure control. As the pressure rises, the control opens the burner electrical circuit to shut off the fuel. With no combustion, the boiler's pressure starts to fall as the steam moves into the piping. No need for using the steam pressure to push the water back into the boiler. Let the stacking effect of the return water push the water back in.

The problem with coal fired boilers was the residual heat, even after the draft doors cut off the air. The coal kept burning, keeping the pressure rising. To combat that, the devices of the olden days kept the water level of the boiler where it should be to prevent dry fire accidents from low water conditions while keeping the water out of the mains. With automatic fired boilers, both conditions are controlled electrically.

Back in 1918, electricity and gas in the home were just starting to become commonplace. In ten years, both were common and used for steam heating. These devices were basically obsolete soon after they were essential. When you find them in a system today, pause to respect the job they did years ago, then retire them to an appreciative collector.

For a more detailed explanation of boiler return traps, check out page 100-101 of my field guide, available as a free download at steamupairout-waterback.com.

Next month, per the Kid's request, since it's his birthday, I'll discuss the risks and rewards of converting a steam system to high efficiency hot water. Be safe out there. 

Patrick Linhardt is a thirty-seven-year veteran of the wholesale side of the hydronic industry who has been designing and troubleshooting steam and hot water heating systems, pumps and controls on an almost daily basis. An educator and author, he is currently Hydronic Manager at the Corken Steel Products Co.

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Minnesota “Forever Home” Turns to PEX-Based Plumbing, Radiant Heating

SPECIAL TO CONTRACTOR

AFTON, MN — Justin Johnson and his wife, Jessica, had been planning their “forever home” for five years when they decided in late 2019 that they were finally ready to begin construction. Johnson has worked as a union pipefitter in the plumbing and HVAC industries on a variety of commercial, industrial, and residential projects since the mid-1990s. Now, the 25-year industry veteran would have the opportunity to install many

and in-floor radiant heating applications. While on a residential job site for MMC in early 2019, Johnson shared

son. “The elimination of dust and dry air through in-floor heating simply just makes for a healthier home.”

Veteran pipefitter Justin Johnson chooses Wirsbo hePEX™ and Uponor AquaPEX® to boost the health, comfort, and energy efficiency of his new home.

“Slab on grade is growing in popularity, especially in our residential development,” continues Johnson, explaining he wanted a single-level house with no stairs. “My other motivation was the in-floor radiant heating itself: Burying the tubing right in the concrete slab is the most efficient approach.”

Radiant: Seven comfort zones

Created by Scott Hellendrung, lead design technician for the Uponor Construction Services team, the heating design called for segmenting Johnson’s floor plan into seven zones, each with its own manifold. The entire layout included 27 heating circuits. (There can be more than one PEX loop in a given zone.) The design featured the following zones in the home:

- Zone 1: Garage
- Zone 2: Bedroom #2, including bath, pantry, and hallway
- Zone 3: Bedroom #3
- Zone 4: Dinette, kitchen, foyer, office, great room
- Zone 5: Mud room
- Zone 6: Master bath, walk-in closet
- Zone 7: Master bedroom (#1)

Working with Hellendrung, Johnson shared his floor plan, the mapped-out heating zones, and all his heat-loss calculations. “Uponor Construction Services gave us everything we needed, including the accessories, and made it the easiest process,” Johnson says. “I felt well-prepared for the installation after that.”

The in-floor radiant installation process, involving nearly 5,500 feet of Wirsbo hePEX tubing, spanned two days, with Johnson and an MMC colleague doing all the work. On the first day, they completed the main floor of the home, which measured approximately 2,450 sq. ft.; the second day included the 1,800-sq.-ft. garage.

They arranged the tubing in the usual serpentine fashion and stapled it to 2” R-10 polystyrene foam. Once in place, they air tested the PEX and then filled the system with a 50% glycol solution heated to a set point of 117°F



A radiant heating system was the plan from the beginning.

of the same comfort-enhancing and energy-efficient systems inside his new, 4,600-sq.-ft. home.

Construction began in the late spring of 2020. After an incredibly smooth building process, managed by Johnson—who also served as lead installer on the plumbing and heating systems—the couple moved in right before Thanksgiving in 2020.

In his current role with Metropolitan Mechanical Contractors, Inc. (MMC) of Eden Prairie, MN, Johnson has frequently installed Uponor PEX systems for plumbing, hydronic distribution,

plans for his new home with several Uponor North America (UNA) representatives, including associate product manager Brian Bollenbeck. Shortly afterward, the collaboration formally commenced, with UNA offering not only to provide product, but also to assist in the design and layout of the plumbing and heating systems.

“After using in-floor radiant heating on any number of projects for MMC and experiencing the comfort, efficiency, and health advantages of these systems, I had to have radiant for our new home, no matter what,” says John-

Johnson also knew — in somewhat of a departure for a home built in the northern United States — that he wanted the construction to be slab on grade, not the typical basement or crawl-space foundation. The radiant system featured Wirsbo hePEX™ tubing from Uponor — equipped with an oxygen barrier to prevent corrosion of ferrous system components. The install involved loops of tubing stapled down to foam insulation on the concrete slab. In addition, the heating system incorporated multiple zones throughout the structure, including the garage.

HYDRONICS & RADIANT

by a wall-hung, 110,000-Btu condensing boiler equipped with a 50-gallon storage tank.

Johnson feels so strongly about radiant technology and its benefits, he added it to other areas on his property as well. The glycol solution runs through a heat exchanger to heat a snow-melt system outside the home, and his detached, 2,000-sq.-ft. barn features a separate radiant heating system.

Supplementing the radiant system are two furnaces — one on the main floor and one directly above the garage — for those exceptionally frigid Minnesota winter days. Both units feature humidifiers, and an air exchanger is nearby as well.

The setup serves as a dedicated outdoor air system, designed to bring outdoor air into the home and remove contaminants, allergens, viruses, etc. According to Johnson, “I leave the fan on at low speed just in case the humidity levels need to be corrected.”

Plumbing: Benefits of recirculation

The Johnson residence uses a well water system, equipped with a booster pump to maintain pressure of 60 psi. Johnson chose to install a variable-speed well pump, a little different from the pumps usually seen on a well system. The variable-speed pump provided additional efficiencies the family wanted, and its quiet operation added to the benefits.

A small expansion tank with a pressure transducer monitors household water pressure. The pump changes speed in response to pressure changes, which are a function of water demand in the home. For example, if the family is using multiple faucets at once, the pump will accelerate to maintain the desired pressure of 60 psi. In general, the more outlets operating, the more likely the pump will run.

Kou Vang, also a lead design technician with Uponor Construction Services, designed the plumbing system in a trunk-and-branch layout. The design involved approximately 800 feet of Uponor AquaPEX® in diameters from $\frac{1}{2}$ " to $1\frac{1}{4}$ " and featured hot-water recirculation, which was another priority amenity for Johnson.

Once again, extra comfort, efficiency, and health were the drivers.

The recirculation system consisted of a single circulator with two balancing valves to control the gallons per minute (GPM) to each circuit for the hot water re-circulator and a pair of $\frac{1}{2}$ " re-circulation lines: one serving the east side of the house and the other serving the west side. A timer governs the recirculation system to move warm water to the various outlets on either side, based on household usage patterns. The water circulates seven hours daily in three time slots: 4 to 8 a.m., 3 to 5 p.m., and 10 to 11 p.m.



One of seven stainless steel manifolds controlling a total of 27 heating circuits throughout the Johnson Residence.

“With the half-inch recirculation line, it’s always instant hot water,” says Johnson, explaining the benefits. “The fact that hot water is not constantly circulating means increased efficiency, because no heat is wasted.” Hot-water recirculation also reduces waste on potable water — as well as the energy used to heat it — while waiting for hot water to arrive at the tap.

One of the advantages of PEX is the option to design the pipe with higher flow velocities than copper and CPVC pipe. This allows plumbers to replace size for size despite the smaller inside diameter (I.D.). The smaller I.D. in PEX generates faster water delivery: 15% faster than a same-sized CPVC system and 30% faster than copper. According to the calculations by Uponor Construction Services, Johnson’s trunk-and-branch system would save roughly three-quarters of a gallon of water using PEX versus CPVC and 1.7 gallons versus copper. In other words, that’s how much less water would be lost down the drain every time the fixtures farthest



The manifold in zone four provides radiant heating and maximizing comfort in the dinette, kitchen, foyer, office, and great room.

from the water heater called for hot water.

However, Johnson’s decision to go with hot-water recirculation brought even more dramatic water savings. The same PEX trunk-and-branch system, now with hot-water recirculation, cut hot-water delivery time by another 98%. Going from three-and-a-half minutes to five seconds ultimately saved a little over four gallons of water with each activation.

“Besides offering a higher flow velocity compared to CPVC or copper, a PEX system holds a smaller volume of water than the same-sized system using either of these materials in the same pipe diameters,” explains Justin Churchill, residential segment manager, at Uponor. “As a result, Johnson’s household should cycle through that water more quickly. Faster cycling means less water sitting in the line for extended periods. That, in turn, reduces the chances for contaminants and bacteria growing in the system.”

Or, as Johnson sums it up: “This is another key part of the healthy ‘forever home’ we were aiming to build.”

A forever home

What is Johnson’s favorite part about his new home? “Where do I start?” he asks.

Well, how about comfort?

“Coming home, slipping off your boots, and walking across the warm floor after a long day’s work is the best. All of our Minnesota neighbors take immediate note of that, too,

when they are visiting.”

Another cherished aspect is better health: “Knowing that our home has cleaner air is a big positive,” he continues. “In my experience, this is becoming a major homeowner demand. They want better indoor air quality. Different and thicker filtrations and cleaner air are high values in home building right now, and radiant systems can help supply it.”

Project Profile | Johnson Residence Location

• Afton, Minn.

Project highlights

- Lab-on-grade construction
- Total area under roof: 4,593 sq. ft.
- 100,000 Btu/hr heating load | R-40 ceiling, R20 walls, R10 floor
- Radiant installation: Staple down for both the home and the garage
- Plumbing installation: Trunk and branch
- Well system uses a booster pump to generate water pressure of 60 psi
- Recirculation line installed with a recirculation pump to reduce hot-water delivery times, eliminate water waste, and prevent water stagnation
- All hot-water and recirculation lines insulated to meet ASHRAE 90.1

Products used

- Plumbing: 800 feet of Uponor AquaPEX® ranging from $\frac{1}{2}$ " to $1\frac{1}{4}$ " with 148 fittings featuring Uponor ProPEX® connection system
- Radiant heating: 5,462 feet of Wirsbo hePEX™ | 186 fittings | 7 stainless-steel manifolds controlling 27 heating circuits 

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by Kim Bliss
CONTENT DEVELOPMENT MANAGER AT UPONOR

Radiant Floors Provide Indoor Air Quality Benefits

When the global pandemic forced lockdowns across the country and many employees were mandated to work from home, it brought a new focus to the need for sustainability and indoor environmental quality (IEQ) in structures. This trend is bringing energy-efficient solutions, such as radiant floor heating, along with renewable energy sources, such as geothermal and solar, to the forefront.

While hydronic radiant heating has been around for hundreds of years and has been the main form of heating homes throughout Europe for decades, the United States has lagged behind in adopting this technology, with only about four percent of homes using hydronic radiant heat.

In addition to its extreme thermal comfort that keeps warmth close to the body, hydronic radiant heating is also exceptionally energy efficient and helps promote a cleaner indoor environment with better air quality.

Cleaner Indoor Air

In a hydronic radiant heating system, warm water flows through flexible plastic tubing embedded in a concrete slab or placed on top or underneath the subfloor. The warmth from the flowing water through the tubing radiates up from the floor to bring comfort to people in a space.

Because hydronic radiant heating systems use pumps to move water instead of fans or blowers to push air, the system does not circulate viruses, allergens, or odors throughout the indoor space.

In addition to the air-quality benefits, hydronic radiant floor heating systems do not require ductwork, so it provides greater architectural freedom for building design, including expansive ceilings with open spaces.

Quieter Home Environments

Traditional forced-air HVAC systems and the ductwork associated with

them are noisy. Most people are familiar with the loud sounds of forced-air equipment turning on and running to accommodate interior climate com-

fortable with a radiant floor heating system at a lower thermostat setting, such as 68°F, than with a forced-air system at a higher thermostat setting like 72°F.

Radiant floors bring energy-efficient, low-maintenance comfort to homes while promoting a cleaner indoor environment.

fort. There is also the sound of the ductwork expanding and contracting as the hot air blows through the system and then cold air enters when the system is off.

Hydronic radiant floor heating is quiet. The water running through the tubing in the floors silently distributes warmth throughout a space without any noise. The mechanical-room parts, such as a boiler, pumps, manifolds, and actuators, also work quietly.

Best of all, radiant systems are practically maintenance-free. With the exception of occasional boiler maintenance, the rest of the system does not require any annual work. Traditional HVAC systems, on the other hand, need regular replacement of air filters and equipment tune-ups that can really add up over time.

Sustainability Advantages of Radiant Heating

Water has the capacity to transport energy 3,500 times greater than air. That means a hydronic radiant heating system that uses water to heat a space rather than air will be much more energy efficient. This is especially important because heating and electricity generation accounts for nearly 25 percent of all greenhouse gas emissions.

Radiant is also more energy efficient because the heat stays near the floor where people are located. In a traditional forced-air HVAC system, the hot air blows into a room and quickly rises to the ceiling.

Additionally, people are more com-

These four degrees can make a big difference in energy use over time.

Another benefit of radiant heating systems is the fact that they are installed in zones. This means occupants have a separate thermostat for each radiant-heated space. Not only does this provide custom comfort control when people are in a space, but it also makes the system even more energy efficient because people can keep the heat low in spaces that are not in use.

Best of all, hydronic radiant floor heating systems can become even more energy efficient when paired with sustainable heat sources, such as geothermal and solar. These types of systems can potentially provide a structure with free heat, which is the best form of sustainable comfort.

Hydronic's Superior Home Comfort

Speaking of comfort, hydronic radiant floor heating systems are the most comfortable form of heat available. The reason radiant heat is so comfortable is because it most closely aligns with the ideal heating curve for the human body.

In fact, people in a radiant-heated space will actually feel warmer and more comfortable at a lower thermostat setting than people in a forced-air space at a higher thermostat setting. This is because forced-air HVAC systems are the most divergent from the ideal heating curve for the human body.

And, as stated previously, when forced-air heat enters a room, it quickly

heads to the ceiling, so people can't keep an even heat near their bodies. Radiant heating, however, provides a consistent, even comfort that stays near the floor at all times.

Installing Radiant Floors

There are many different methods for installing a radiant heating system. For commercial applications, the tie-down method to wire rebar or the staple-down method to foam-board insulation is a typical installation for embedding the tubing in concrete slabs.

For residential applications with floors that have joists below, there are aluminum heat-transfer plates that fasten to the underside of the floor. The radiant tubing simply snaps into the plates and the aluminum is an excellent heat-transfer medium to warm the floors above.

For the tops of subfloors, there are several different methods, including stapling to the wood subfloor or fastening wood panels with a groove down the center for the tubing and an aluminum sheet on the underside to help transfer heat.

There are also knobbed mats that adhere to concrete floors. These knobbed mats make it easy to simply "walk" the tubing into the mats for a quick, easy method that doesn't require a lot of bending down.

Many radiant tubing manufacturers offer online or in-person training to learn more about the design and installation of these systems. It is very important to understand how to create a proper design of a radiant heating system before doing an installation.

For more information about radiant floor heating systems, research the various radiant tubing manufacturers across the United States or visit radiantprofessionalsalliance.org, heatinghelp.com or healthyheating.com.

Kim Bliss is the content development manager at Uponor. She can be reached at kim.bliss@uponor.com.

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by Patti Feldman
COMPUTER AUTHORITY



Streamlining Business Operations

ClearlyInventory (www.clearlyinventory.com, 800/300-0160) is a cloud-based inventory management system that enables online asset tracking and stock maintenance of equipment and items at a company's warehouses, shops, vans, offices, and jobsites. Suitable for companies where the number of users of given inventory typically ranges from one to 100 (though it can support more), it comes with a mobile app downloadable free at The App Store and Google Play.

The software, utilizing an interface that resembles a spreadsheet, is barcode friendly—you can pair the app with a SocketMobile scanner (www.socketmobile.com) or can use your smartphone camera to read barcodes. Up to four images uploaded from a PC or taken and uploaded with the mobile app can be associated with each item.

Management has total control over the information users (including vendors to whom access is given) can see or do (e.g. permission by item, location, event type).

ClearlyInventory has a limited time offer to organize, for free, a company's data and configure it for asset tracking by the software. It can handle serial numbers, expiration dates, lot numbers, and other data specific to individual units of items. Reports can be created and saved on current inventory and inventory events.

Pricing: free for up to 100 items and 5 locations, up to 250 records, then fee-based tiers scaled by the number of items, locations, and records monthly.

Dataforma Service and Project Management Solution (www.dataforma.com, 866/764-9992), is software suitable for commercial and residential HVAC and plumbing contractors. Featuring a mobile app and designed to help enable running a completely paperless service department (from initial call from a customer through to invoicing), it offers drag and drop scheduling with instant notifications for field employees, CRM and lead tracking, and project management. GPS tracking of locations of field technicians and their customers facilitates real-time "intelligent" routing based off traffic data.

The mobile app gives access to site histories and users can upload photos (automatically resized, without losing reporting metrics and lists, etc. Dataforma can be customized to export data to QuickBooks and other

Reviews of a cloud-based inventory management system, an app for running a paperless office, and two apps that increase the functionality of QuickBooks Online Advanced.

Select for Cart	Image	Events	Quantity	Unit of Measure	Item Name	Item Description	Location	Exp. Date	Order #	Asset Number	Low Qty. Threshold	High Qty. Threshold
			1	unit/s	3991WXR	Block, Size 4, "T"-Shaped, Orange, Metal	On Order	2/12/2019			13	52
			8	unit/s	3991WXR	Block, Size 4, "T"-Shaped, Orange, Metal	Aisle 6, Shelf 5, Bin 244	2/12/2019			13	52
			1	unit/s	1234RWL	Block, Size 4, "T"-Shaped, Red, Wood	On Order	4/15/2019			18	64
			0	unit/s	1234RWL	Block, Size 4, "T"-Shaped, Red, Wood	Aisle 20, Shelf 2, Bin...	9/23/2019			16	64
			1	unit/s	1291LFR	Block, Size 3, "L"-Shaped, Green, Metal	On Order	4/15/2019	OR3407		19	57
			32	unit/s	1291LFR	Block, Size 3, "L"-Shaped, Green, Metal	Aisle 3, Shelf 4, Bin 169	3/21/2019	OR3407		19	57
			1	unit/s	3161RFW	Block, Size 5, "C"-Shaped, Yellow, Plastic	On Order	6/28/2019			15	60

A block inventory screen from ClearlyInventory software.

resolution, before uploading to the database), add labor and materials, capture customer signatures, and create and perform mobile inspections.

The solution includes an inventory module that informs users how much material is in each warehouse, email integration for invoicing clients, and the ability to generate daily job reports from the field.

An optional mobile timecard add-on captures hours (down to cost code) and can address regular time, overtime, and double time and account for automatic breaks for lunch and other time frames.

The optional client portal enables clients to generate, track and review service requests, with access to associated documents, photos, and invoices.

All data in the relational database is encrypted for security. Fields are perpetually customizable for clients, allowing the addition of new trades, new

accounting packages without re-entry of information.

Pricing for Dataforma, including document storage up to 100 GB: one-time installation fee, including database set-up, customization, and virtual training, plus user fees per month or per year. Additional fees for optional services including template customization, additional on-site training, the client portal, and the mobile timecard app.

Here are two apps that integrate with QuickBooks Online Advanced, a scalable, customizable financial and business hub that addresses business transactions including tracking income and expenses, capturing and organizing receipts, the estimating process, invoicing, and managing and paying bills (<https://quickbooks.intuit.com/online/advanced/>).

DocuSign eSignature Connector

for QuickBooks (https://quickbooks.intuit.com/app/apps/appdetails/docu-sign_esig/en-us/?premiumApp=true) integrates with QuickBooks Online Advanced. It enables small and mid-size businesses to send estimates and other documents to collect e-signatures directly from a QuickBooks account, expediting the signing process and providing a permanent statement of record in the cloud.

The solution allows users to easily track who opened and signed a document and features automatic reminders and notifications designed to help keep agreements on track. Pricing: scaled yearly fee. Connect Bill Pay for QuickBooks Online with QuickBooks Online - Intuit

Bill Pay for QuickBooks Online (<https://quickbooks.intuit.com/app/apps/appdetails/billpayqbo/en-us/>) is a digital business payments solution, suitable for small businesses, which allows companies to pay bills to vendor, lenders, suppliers, and employees and to accept customer and client payments directly from inside QuickBooks. It includes professionally designed invoices.

How it works: When an invoice is dropped into Bill Pay, the software automates the invoicing process. You can receive vendor invoices by email or drag and drop them into Bill Pay and can receive and approve payments any time on any device.

Users can send a single payment or invoice, schedule when payment or invoice is sent, and set up recurring invoices and payments. The software can send automated reminders and can have payments sent directly from within the company bank account via ACH or credit card. Bill Pay maintains a complete audit trail for each payment in or out.

Pricing: annual plan (Bill Pay for other accounting software, including XERO and Sage Intacct, is also available.)

Patti Feldman writes articles and web content for trade magazines and manufacturers of building products. She can be reached at productpad@yahoo.com.

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by Matt Michel
MARKETING AUTHORITY



Win the Plumbing Game in 2021

The pandemic is ending, if not over. Still, 2021 will pose its own set of challenges. Here is how you can compete and win the plumbing game this year.

Do Not Be Surprised by Inflation

Inflation seems inevitable. Commodity metal prices are soaring. The demonization of fossil fuels by our government leadership and announced executive actions restricting hydraulic fracturing have caused oil prices to increase dramatically. This is unlikely to be a short-term price spike. Not only does spiking oil prices mean an increase in transportation costs, oil is used in thousands of other products, including many that you sell. Rising energy prices means rising prices across the board.

In all likelihood your suppliers have already raised prices. If you have not increased your prices enough to pass the new costs along while maintaining your margins, you are leaving money on the table. In essence, you are subsidizing your customers. Can you afford to subsidize your customers?

And remember, it is not just the products you sell that cost more. Basic costs of business, such as gas prices, are higher.

Check with your suppliers. Find out their expectations for future price increases. Many manufacturers have announced mid-year price hikes,

which the supply houses will inevitably pass along. Adjust your pricing in advance of the increases.

eliminated room for error. Problems upstream in the supply chain cascade downward and multiply. As a result,

Count your blessings every day that you do not run a restaurant or other non-essential business.



© Piotr Adamowicz | Dreamstime.com

If your prices seem high to some consumers, do not back down. These are not your customers. If you try to serve everyone, you cannot afford to serve anyone well. Let some customers go and focus on the ones who appreciate your service.

Expect Supply Chain Problems

Covid exposed the fragile nature of the global supply chain, which had adopted just-in-time principles that

the Wall Street Journal reported that 44% of small businesses faced some form of shortages in March.

Eventually, the supply chain issues will be worked out, but unpredictable shortages are likely to persist through 2021. Accordingly, plumbers should stock more products than is customary. This has the dual impact of protecting the company against supply chain disruptions and inflation. Just make sure the excess inventory is protected

Step Up Your Recruiting

Despite somewhat high unemployment, companies across the board in industry after industry find it a challenge fill job vacancies. In part, this is the result of the government's lucrative unemployment policies that make it profitable to stay home and maybe, earn cash off the books. With the current Covid bonus, unemployment pays \$600 to \$700 per week in most states. As bad as that is, the president is proposing to bump this by another \$100 a week. A top shelf plumber may make considerably more, but this still serves as a disincentive at the apprentice or helper level.

The ability of any plumbing service company to make money depends on the ability of the company to but butts in trucks. Company owners should devote more time to recruiting and pair an apprentice with a journeyman or master plumber wherever possible. As the apprentices develop, the company is protected against a plumber leaving in the worst case and ideally, setting the stage for growth.

To recruit better, the company needs to have good pay, good benefits, good training, and good working conditions. The latter means late model vehicles in good repair, company supplied uniforms, and a place to relax at the shop. This also needs to be communicated well. If the company does not have a recruiting brochure for prospective job candidates, the owner is not serious about recruiting.

Remember That Plumbing Remains a Great Profession

Count your blessings every day that you do not run a restaurant or other non-essential business. When the world shut down in 2020, you were able to keep working. When problems arise in 2021, you will be able to work through them. You protect the health of the nation. People need your service. Press on. Do not let them down. **C**

If plumbing seems too hard, you are not doing it right. Get the help you need to make business more fun and profitable at the Service Roundtable. Visit www.ServiceRoundtable.com or call 877/262-3341 for more information.

Rinnai Products Approved for Use with Hydrogen Gas

ATLANTA GA – Creating a healthier way of living® is Rinnai's brand promise, and there's no better way to uphold it then to invest in research and improvements resulting in cleaner and more efficient energy sources. Rinnai, whose previous product inventory leveraged industry norms like propane or natural gas, tested the use of Hydrogen-Enriched Natural Gas (HENG) across its tankless water heaters, boilers and direct-vent wall furnaces.

This low-carbon energy source — a combination of natural gas with hydrogen — decreases carbon intensity

and improves combustion in end-use products. After thorough research and testing, Rinnai's products have been approved for use with HENG and depending on the product can use up to 30% hydrogen. End users benefit by preserving fuel, improving the products cost efficiency and most importantly, reducing carbon dioxide emissions to better the environment.

"We want to honor our promise of Creating a healthier way of living® by offering customers a greener energy that fosters a healthier environment," said David Federico, Brand Director.

"With our products approved for use with HENG, we can help reduce the carbon footprint of Rinnai water and space heating appliances without sacrificing quality."

The demand for clean energy has been on the up and on for quite some time and the importance to customers continues to rise. With those user preferences in mind, HENG makes it possible to lower the carbon intensity of natural gas, delivering a cost competitive solution for protecting the environment.

To learn more about Rinnai, visit www.rinnai.us. **C**



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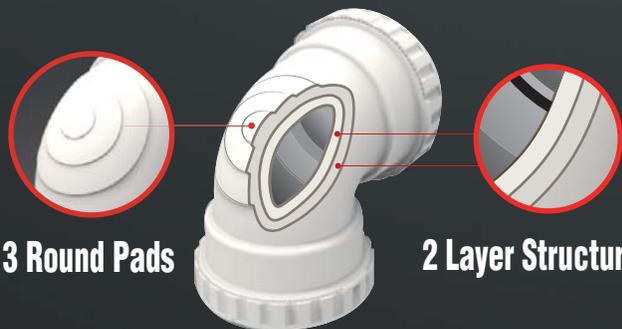
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by Rodney Koop
FOUNDER AND CEO OF THE NEW FLAT RATE



I'm Paying You to Talk Smart, So Quit Stalling, and Talk Smart!

In 1987, I passed the Georgia State Unlimited Electrical Contractor's License exam; later that year, I flunked the North Carolina Unlimited Electrical Contractor's exam.

I was so ashamed. But that's another story. I worked so hard to learn the National Electrical Code that I ended up teaching it for over 20 years and was a paid expert by the State of Georgia State Examining Board.

I think we all know that no great success comes without great failure.

I was teaching a class on preparing for the State Electrical Exam, when one student made the comment up above in the headline. I was taking a few minutes to warm up the class with my humor when he stopped me flat by saying, "I'm paying you to talk smart, so quit stalling and talk smart." I laugh now, but I was quite taken aback and never forgot how valuable someone's time is when they are paying you to teach them something that they desperately need.

When I was asked what wisdom that I've gained or learned over the last decade, well, it goes back to foundational points:

1. Never let an instructor move to another subject until he/she has adequately taught you the present subject. They are being paid to teach you, so until you have learned it and know it, they haven't done their job. Make them teach you. This has been one of the foundations of my life. I make them teach me. I speak up, or stand up, or raise my hand and yell, but I get my questions answered, and you should, too.

2. Respect other people who are trying to learn from you. Stop, listen to their questions and show, demonstrate, explain, and ask how much they understand. Give them everything they need to fully comprehend what they need to get from you.

3. From Ross Perot, I learned, and think of at least once a week, "Money, after the bills are paid, is the most over-rated thing I know of." I've never been that good with money, unless you

count how well I can spend it. But I refuse to worship it.

4. Take the time to smell the roses.

worked). But I bought boat gas before I worried about the light bill most of my life. I said I wasn't great with money,

didn't have enough help to actually do the job. But he always said the same thing: "Rodney, get the job, we will find the men to put it in, but get the job Rodney. Get the job!" It's great advice that I have never forgotten.

6. Treat your employees like family. This means if you have a boat, tell them it's theirs also. Let them use it anytime. If they need a car to go on vacation, give them yours. They are the reason you even have a car. Help them. Be their friend, and be their friend even when they leave you and go somewhere else.

7. This is the big Kahuna — the big fish, the whale — the one thing that has made my life easy, running a business easy, and it has made the money side of business easy: "Get paid what you are worth." But you will likely never do it by selling. You must learn how people buy, why they buy, and get out of the way to let them buy.

Here are my three undisputable rules of selling:

Undisputable Rule No. 1: Everybody hates it when you try to sell them something.

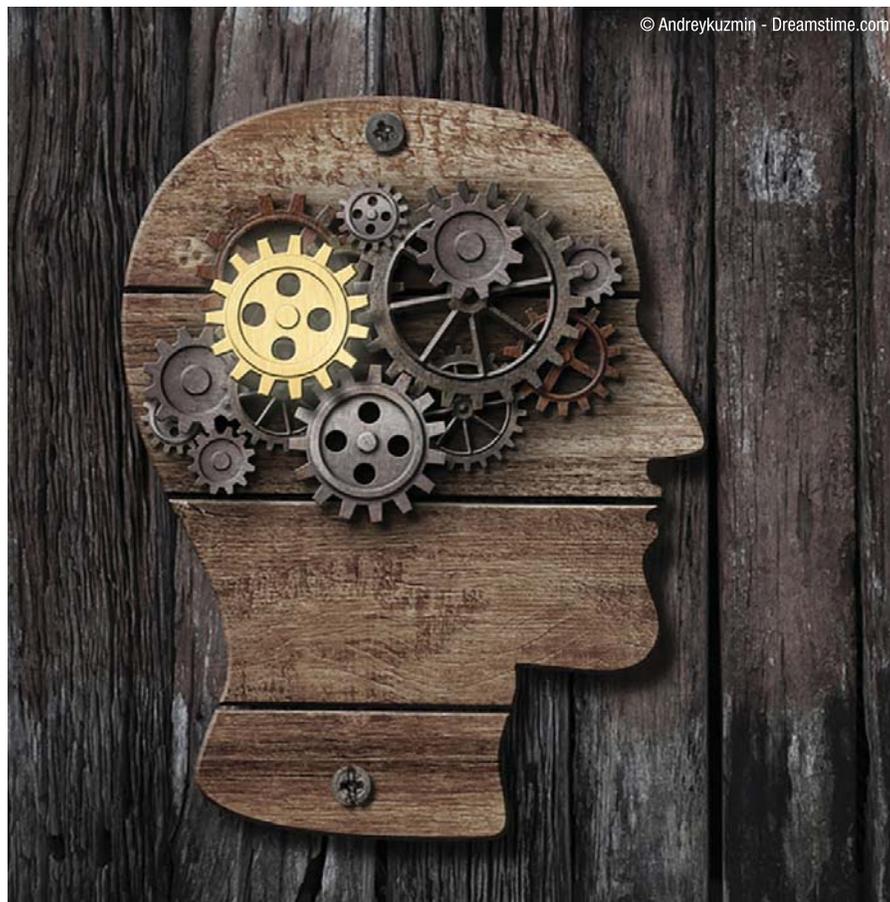
Undisputable Rule No. 2: If you try to educate the customer in an attempt to sell or upsell, their sales resistance will immediately turn on, and you will be the bad guy who doesn't get the sale.

Undisputable Rule No. 3: People will always buy more than you could possibly sell them. Understanding how to present your product or service in menu form will change your life.

I suppose, like you, I have learned much over the last decade or so by hard research, trial and error, dumb luck, or huge error. But learning is what makes tomorrow more fun. **CB**

Pricing enthusiast Rodney Koop is the founder and CEO of The New Flat Rate, a home service menu-selling system designed to put profit directly into the hands of plumbing, electrical, and HVAC contractors. He can be reached at rodney@menupricing.com or by calling 706/581-0622, anytime.

When I was asked what wisdom that I've gained or learned over the last decade, well, it goes back to foundational points...



I have made so many mistakes in my life. I have worked three jobs, it seems, most of my adult life. But — I am so glad to say this — I refused to stop playing. My wife and I have raised nine kids. We have struggled, and we have been hungry. But we took those kids to the lake at least once every week of the year for most of the time they were growing up. They learned to water ski, wake skate, knee board, wake surf, and wake board. I even bought a parachute to pull behind the boat (that never

but I am so glad we played with our kids. To this day, I love seeing the small contractor, often the one-man truck, on a Saturday morning pulling his boat to the lake. That is a man who may never have a big company but will always enjoy life. That, to me, is huge. Find time to play, and if you don't have time, then play anyway; the work will find a way to get done.

5. When I started my business in 1990, my first employee would watch me worry about bidding a job when I

by Mark Layden, CLU
FOUNDER OF MARK LEYDEN & ASSOCIATES



Strategies to Mitigate Tax Increases

As a candidate for President, Joe Biden made no secret of his plans for tax increases once in office. Government spending on COVID-19, in addition to existing debt obligations, has all but assured legislation will be advanced to raise taxes later this year.

The policies contemplated target affluent individuals, many of them owners of closely held companies. In preparing for tax increases, many business owners are turning to a number of strategies, including the use of cash value life insurance as an effective tool to replace lost liquidity for their companies and their families.

Proposed Tax Policies

Recent tax increases proposed by President Biden and Congressional Leaders target high-income or affluent individ-

uals and business owners include:

- Increasing the top ordinary income tax rate on income over

tax rate to 55%, or even 77% for the ultra-wealthy.

- Eliminating the step-up in basis of

There are steps business owners can take today in anticipation of future tax increases.

\$400,000 from 37% to 39.6%.

- Moving the long-term capital gains tax rate from 20% to 39.6% for taxpayers with more than \$1,000,000 in income.
- Reducing the combined federal exemption from \$11,700,000 per person to as low as \$3,500,000 with some proposals de-unifying the gift tax exemption to \$1,000,000 per person.
- Increasing the top estate transfer

property inherited at death and replacing it with a carry-over basis.

- Boosting the corporate tax rate from 21% to 28%.

Your Business

Mark Flinchum, a CPA and Partner with Katz, Sapper & Miller in Indianapolis specializes in strategic tax planning, business analysis and structuring and says there are steps business owners can take today in anticipation

of the proposed tax policies. "Given that tax rates are likely to increase with any new tax legislation, deferring deductions to the tax year of higher tax rates and accelerating income, to the extent possible, into a lower tax rate year makes sense."

Another tax strategy Flinchum suggests is for business owners to examine their approach to depreciation. "If higher taxes are expected, electing out of bonus depreciation and writing off assets using the longer MACRS depreciation method class lives would potentially allow the taxpayer to spread depreciation deductions into tax years subject to a higher tax rate. Therefore, not electing out of bonus depreciation in a lower tax rate year could result in paying more tax if rates increase in a later year."

➤ **Turn to Strategies, page 72**



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by Sarah Nicastro
FIELD SERVICE EVANGELIST, IFS



Resilience Gives Way to Dominance

In a year fraught with such fear, turbulence, and complexity as 2020, it has sometimes taken effort to see the positives. As someone who cares deeply about this industry, one of those positives for me has been witnessing how the leaders I'm speaking to have risen to the challenges of this year with grit, resilience, and fortitude. They've shown true compassion for their coworkers and customers alike, bonded together by a deepened sense of empathy.

Beyond the individual level, however, the challenges of this year have forced growth upon service organizations that I am excited to see bear fruit. Elements of increased open mindedness, greater creativity and agility, a collective surrender of comfort zones, and recognition of the criticality of both people and digital tools will spur these companies forth as 2021 takes hold. Here are three predictions for how:

Prediction #1: Digital Innovation Spikes

Our world quickly turned virtual as COVID struck, and the leaders I've spoken to fall into two camps: those who had made significant traction in digital transformation and were relieved they had, and those who had lagged behind for one reason or another and felt the pain of lacking tools that would aid greatly in business continuity and decision making.

The moments of service that matter most, the ability to react nimbly to quickly changing business criteria, and the capacity to expand and evolve service offerings all rely on a strong, cohesive digital infrastructure. In 2021, we'll see digital innovation and investment spike among service organizations. Those who've already made progress on their digital transformation journeys will be looking to build upon their strong foundation—and those who have lagged will work hard to catch up. An IFS study of more than 3,000 executives from six regions across the world who weighed in on their organization's plans to invest in digital transformation technologies in automation, artificial intelligence (AI), IoT and more—expressed that, globally, over 50 percent plan to in-

crease spend on digital transformation initiatives.

In data released in October, 2020,

3 predictions for how service emerges stronger than ever in 2021.

Gartner stated^[1] that, "Top performing enterprises are accelerating digital innovation and leveraging emerging technologies to come out stronger on the other side of the COVID-19 pandemic, which has arguably been the most significant 'turn' in 2020, according to Gartner, Inc.'s annual global survey of CIOs. 2021 will be a race to digital, with the spoils going to those organizations that can maintain the momentum built up during their response to the pandemic."

Gartner, with findings of a survey^[2] conducted online from June through July 2020, polling 402 respondents across the U.S., U.K., Germany, Australia, Singapore and India, points to increased investment in IoT, stating that, "Despite the disruptive impacts of COVID-19, 47 percent of organizations plan to increase their investments in the Internet of Things (IoT)." Another Gartner, Inc. poll^[1] of roughly 200 business and IT professionals on September 24, 2020 revealed that 24 percent of respondents' organizations increased their AI investments and 42 percent kept them unchanged since the onset of COVID-19.

IDC, a leading provider of global IT research and advice, explores how laggards, which it refers to as digital resisters, are catching up, saying that, "The pandemic was a wake-up call for the digital resisters." The firm's study^[2] "shows 64 percent of organizations will either be early adopters of new technology or aggressively seek out emerging technology, a departure from past recessionary behavior. It is the digital laggards who are expected to make the boldest moves as they play catch up. In all, 53 percent of dig-

ital resisters, the least digitally mature organizations, are planning to seek out emerging technology compared to



the average of 29 percent.

Prediction #2: Servitization Journeys Speed

Servitization has been the industry buzzword for the last few years, but has real progress taken place? I believe so, and I believe 2021 will speed servitization journeys. The concept of servitization on paper—that product manufacturers compete on service offerings rather than commoditized products—sounds simple, but in reality, it is a monumental shift in how a business thinks, sells, performs, and delivers. And monumental shifts take time. IFS customer Munters, for example, who is on the journey to servitization, shares insight on both the potential but also the complexities.

However, COVID has brought together several forces that collectively will make strides toward servitization. First, it has created greater customer intimacy—companies have learned more about not only what their customers want, but how they operate. This greater understanding inevitably leads to the discovery of additional opportunities to provide value. Many manufacturing companies I've spoken with have seen a heightened interest

in service offerings, with customers wanting to maximize the lifespan of their current equipment to avoid capital expenditures. As such, they have become increasingly open to subscription models and premier service offerings, which paves the way for servitization progress.

I'm not saying that we'll see the full potential of servitization realized in 2021, but I believe we'll see a quicker pace of progress than we have the last few years as these factors, and others, play out. This Forbes article discusses some other reasons contributing to the move toward XaaS business models for manufacturing in a post-COVID world, including revenue resiliency and employee safety.

Prediction #3: Field Service Becomes Anywhere Service

Remote service capabilities have been the most sought after as a result of the pandemic, providing business continuity as travel bans and quarantine restrictions were put in place. But the value of remote service spans far beyond surviving COVID and, in 2021, our concept of field service will be replaced with one of "anywhere service." As remote service takes hold and becomes the standard first line of defense for organizations, we'll realize that the initial service visit can be done from anywhere.

Organizations will recognize the benefit of leading with a remote-first approach that provides far faster response times, increases the odds of remote resolution, and improves first-time fix rates when field service is necessary because of the insight gleaned in advance. Remote service empowers the customer by engaging them in the service process aiding in quicker resolution, and it empowers technicians by eliminating unnecessary trips and travel time allowing them to better leverage their expertise.

In no way do I believe that field service will disappear. Rather, the use of "anywhere" remote service to diagnose issues and resolve problems that don't require a technician's time or skills onsite will contribute to the progress toward more strategic service and allow for far more optimal use of

➤ **Turn to Resilience, page 71**

by Juta Gurinaviciute
CTO AT NORDVPN TEAMS



Is the Construction Industry the Next Big Cybercrime Target?

The construction industry may not appear to be an obvious target for cybercrime, but it garners unwanted online attention just like other sectors. According to the Cost of Data Breach Report 2020 by IBM, the average cost of a data breach in the industrial sector was \$4.99 million.

GlobalData, a data research company, predicts that the industrial sector's value will soar to \$12.9 trillion by 2022. After rising consistently by 3.6 percent since 2018, it has now caught the eye of cybercriminals. Over half of all construction executives believe their firms will be hit in the future, yet worryingly, 68 percent of firms have no security measures in place.

68 percent of construction executives have no cybersecurity measures in place.

Growing attacks on industrial control systems (ICS)

The industry's vulnerabilities were exposed on both digital and operational levels recently, as cybercriminals attempted to compromise water treatment plant networks and poison the water supply in Florida. Most devices had a basic network connection, meaning heavy machinery could've been commandeered, leading to disastrous consequences.

IBM's X-Force Threat Intelligence Index 2021 has observed a 49 percent annual increase in industrial control system (ICS) attacks.

Other cybercriminals may aim for digital assets transferred or stored insecurely. Workers are increasingly dependent on digital tools in everyday operations. Innovative building firms employ Building Information Modeling (BIM) as a central database

for blueprints, designs, and other assets. BIM is also used for collaboration with stakeholders from different building-related areas. Using devices

and construction tools that are connected, workers can update BIM in real-time, improving communication and efficiency. Though, the amount

of end-point devices mean the risk of exposing sensitive information is extremely high.

➤ **Turn to Cybercrime, page 71**

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by Rose Morrison
FREELANCE WRITER



Backflow Prevention: Why Every Plumber Should Get Certified

Plumbing is one of the most profitable subcontracting careers out there. According to Money magazine, it's the sixth highest-paying job that doesn't require a degree and provides reliable job security. Backflow prevention training and certification can take these benefits further.

Backflow happens when the flow of water shifts within a piping system, causing non-potable fluids to flow back towards clean water. This can contaminate the water people use for cleaning or drinking, leading to a wide range of problems. It's a preventable issue, too, but it takes a certified expert to install and test the necessary equipment.

Because preventing backflow is one of the most basic elements of system design and installation, many plumbers may forgo certification, deeming it unnecessary. But this may cause them to miss out on a world of opportunity. Here's why every plumber should pursue backflow prevention certification.

Backflow Is Common

Plumbers, and contractors as a whole, have the opportunity to become certified in a range of specialties. Many of these can seem like small niches, which may improve business in some areas but could be unnecessary. Backflow prevention is not a niche. Instead, it addresses a surprisingly common issue.

Backflow comes from cross-connections. These are areas where a water supply could contact non-potable

liquids, gases, or solids. These cross-connections are everywhere, including garden hoses, which happen to be the most common source of backflow in the U.S. Since these connections are so commonplace,

Plumbers may forgo certification, deeming it unnecessary, and causing them to miss out on a world of opportunity.



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backflow is a prevalent problem across the country.

More than 1,000 backflow incidents can occur in a single state every year. As long as there are cross-connections in water systems, this will be an issue that requires certified professionals. Plumbers can be confident they'll put their certification to use.

Backflow Poses Health Risks

Another reason all plumbers should pursue backflow prevention certification is that this issue is a potentially dangerous one. When contaminated fluids enter clean water supplies, it can create considerable health problems. The CDC (Centers for Disease Control) recorded 57 waterborne disease outbreaks from backflow across 17 years, leading to more than 9,700 cases of illness.

Even in a nation with as much clean water as the U.S., there are 7.15 million waterborne illnesses a year. While backflow doesn't account for all of those instances, it is a substantial contributor. Plumbers with the appropriate certification can help fight these diseases. Certified plumbers can install backflow prevention measures during the construction phase of a building. That way, they prevent these health risks from arising from the start. Otherwise, issues could arise in the future, and another plumber

will have to come to fix the situation, hopefully before anyone becomes ill.

Backflow Prevention Can Be Profitable

On a less severe note, plumbers may want to pursue this certification for business reasons. Plumbing is already a potentially profitable profession, earning a median wage of \$55,160 a year. Becoming certified in backflow testing and prevention can increase earnings due to a couple of factors.

First, this certification increases the services a plumber can provide, giving them a bargaining chip for a higher wage. Preventing backflow also involves installing new equipment in a pipe system, not just addressing a problem within the pipes themselves. The workers who do this can charge their clients more to account for the extra expenses.

Second, backflow equipment requires regular testing and maintenance to ensure it's working properly. That means every time a plumber installs these systems, there's a good chance they'll get repeat business from that client. These equipment checks provide a steady, consistent source of payment in addition to a plumber's regular work.

Backflow Prevention Certification Can Attract Customers

Backflow certification may also help plumbers reach more potential clients. Considering how frequent an issue backflow can be, many customers will look for appropriately qualified professionals in their area. If plumbers advertise their certification, these clients will find them faster and provide more work.

Customers may not be aware of the need for certification in this area, but that doesn't negate its advertising power. A quick Google search of "backflow prevention" or "backflow testing" will pull up certified professionals in the area. Being able to advertise these services helps plumbers appear in these searches and reach new clients.

Backflow certification can stand out even to people who don't have any related issues. Certifications, in general, demonstrate commitment to the profession (<https://www.entrepreneur.com/article/346287>) and build trust with potential clients. This showcase of a plumber's knowledge and trustworthiness can help them stand out from any competitors.

How to Get Certified in Backflow Prevention

Plumbers who want to obtain backflow certifications have a few options.

As with many other types of certifications,

➔ **Turn to Backflow, page 73**



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Is the Construction Industry the Next Big Cybercrime Target?

► **Continued from page 69**

“The construction industry is heavily interconnected. Several building sites need to exchange data with headquarters and routinely access cloud services. Most workers use laptops and other end-point devices, with architects, engineers, and sub-contractors contributing online. The building industry isn’t manual labor anymore — it’s a sophisticated and digitally-managed trade, using high-end innovations and tools”, says Juta Gurinaviciute, the Chief Technology Officer, NordVPN Teams.

Data breaches primarily affect company processes, resulting in prolonged downtime and operational disruption. Verizon recently found that only 5 percent of data breaches are caused internally, whereas external factors cause 95 percent. Security teams should implement segmented network solutions such as virtual private networks (VPN) to strengthen their corporate IT infrastructure.

Protecting corporate networks and data

Secure the mobile workforce. Remote-working is relatively commonplace for builders shifting between different construction sites. If workers need assets from the cloud or a corporate network, make



sure they’re accessing them via an encrypted and secure VPN connection.

Establish a protected network. Building projects rely on teams constantly communicating with each other. All manner of different assets pass through networks that are often unprotected. A business VPN puts all workers and building sites within a secure software-defined perimeter and safely protected from outside threats.

It should also be established whenever construction ceases. Connecting smart sensors to a VPN will hide the network and protect it against cyberattacks.

Check third-party stakeholders. Building de-

velopments involve contractors, sub-contractors, architects, consultants, and clients — all parties communicating regularly.

“The more contributors to the project, the higher the risk of cyberattack. Only one compromised device is needed to hijack the systems of others. Before providing a third-party with access to your corporate network, make sure robust cybersecurity measures are in place. A standard VPN connection is a good option”, says Gurinaviciute.

Ensure general cybersecurity. Some business VPNs provide custom gateways for different teams and branches. It enables access to cloud resources or company serv-

ers but directs traffic from other building sites separately. Contractors are also responsible for installing and setting up smart control systems on their network. It’s their responsibility to maintain security, regularly update default passwords, and lead by example for the rest of the industry. **C**

Juta is an IT professional with over 20 years of experience in cybersecurity and systems engineering. Currently, she is a Chief Technology Officer at NordVPN Teams. Prior to NordVPN Teams she held senior UNIX System Administration positions at Telia Company and Barclays. Juta is also a certified RedHat Systems Engineer.

Resilience Gives Way to Dominance

► **Continued from page 68**

resources. Freeing up the time and energy of technicians by eliminating service work that can and should be done remotely will give them an opportunity to focus time in the field on value-add work, sharpening their skills as a trusted advisor, which is precisely what will propel the company forward in its service objectives.

Service organizations should press home their advantage in 2021

I’ve been writing for more than 12 years about how service is becoming more strategic—about the immense potential it holds for businesses across a variety of industries. But to seize that potential takes an immense amount of change — a full departure from “the way it’s always been.” Until 2020, many organizations simply weren’t ready to commit to the cultural, technological, and operational changes necessary to see the potential come to life. In 2021, we’ll see how navigating the challenges of 2020 results in a leap forward to exponentially speed the service evolution

in the coming years. And that’s something I am eager to witness. **C**

Sarah Nicastro has extensive experience covering the trends, technologies and business drivers that most impact service organizations. Prior to joining IFS to create Future of Field Service, Sarah spent more than a decade as the Editor-in-Chief of Field Technologies Online. Sarah is passionate about helping service leaders share their trials and triumphs through interviews on the Future of Field Service podcast, but also about bringing the community together to collaborate and share best practices.

^[1] Gartner Press Release, “Gartner Survey of Nearly 2,000 CIOs Reveals Top Performing Enterprises are Prioritizing Digital Innovation During the Pandemic,” Oct 20, 2020.

^[2] Gartner Press Release, “Gartner Survey Reveals 47% of Organizations Will Increase Investments in IoT Despite the Impact of COVID-19,” Oct 29, 2020.

^[3] Gartner Press Release, “Gartner Survey Reveals 66% of Organizations Increased or Did Not Change AI Investments Since the Onset of COVID-19,” Oct 20, 2020.

^[4] IDC Blog, “A Renewed Focus on Tech Innovation”, Sept 2, 2020.

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Strategies to Mitigate Tax Increases

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Your Employees

For over 50 years, cash value life insurance has been an efficient tool for businesses to informally fund compensation benefits to their key employees. Today, business owners expecting higher corporate tax rates who have been funding these benefits with taxable investments will see costs rise, leading to challenges in recruiting, rewarding and retaining their most valuable employees. Switching to life insurance as the funding asset not only can have a current positive impact on a corporate balance sheet via tax-deferred cash value growth and the ability to meet executive benefit liabilities through income tax-free withdrawals and policy loans but also to recover all benefit plan costs from the death benefit which can also be received by the company income tax free.

Your Wealth

Preparing their company for higher taxes is addressing only half of the picture and steps must be taken for busi-



ness owners to protect what they have earned and their ability to grow it.

High-earning individuals facing increased taxation of investment income can use cash value life insurance to provide tax-efficient wealth accumulation

and supplemental income via a policy's tax-deferred growth, income tax-free access to cash value via withdrawals up to cost basis and policy loans.

Your Estate

One technique to combat estate taxation is to make use of the federal estate tax exemption to significantly lower the value of a future estate. In 2021, each taxpayer is allowed to exempt \$11.7 million from their estate either during their lifetime or at the time of their death. Therefore, gifting assets to an irrevocable trust, especially highly appreciating ones, today and having them grow outside of one's estate can result in major savings, especially when estate taxes could rise to as much as 77%.

In addition, there are strategies which involve the discounting in value of closely held business interests so that these interests can be gifted to a trust while utilizing as little of the federal estate tax exemption as possible.

SLAT Strategy

One recommendation estate planning attorneys are making to their clients who are preparing for higher taxes is the use of a Spousal Lifetime Access Trust ("SLAT"). "A SLAT permits married couples to utilize their estate tax exemption by each forming a trust to

benefit the other and where some access to the assets in each SLAT is allowed," says John Olivieri, a Partner in the Indianapolis and New York offices of Barnes & Thornburg, LLP, whose practice focuses on estate and business succession planning.

Each taxpayer is allowed to exempt \$11.7 million from their estate.

Each spouse gifts up to their maximum exemption amount of up to \$11.7 million to a SLAT for the benefit of the other spouse during that spouse's lifetime. Assets in each SLAT would not be included in either spouse's estate at death.

A problem arises with the death of either spouse when the surviving spouse is cut off from half of their combined trust contribution. This can be addressed by each SLAT purchasing a life insurance policy on the life of the other spouse. Then, when a spouse dies, the access cut off to a SLAT for the surviving spouse is offset by life insurance proceeds.

"Each SLAT would provide that after both spouses died, the remaining property in each SLAT will be divided into equal shares for their children," notes Olivieri.

Act Today

Higher taxes are likely coming soon and by taking a few, simple steps over the next several months to get ready, one's business and personal interests can be protected from any of the proposed tax policies. **C**

Mark Leyden, CLU® is the CEO & Founder of Mark Leyden & Associates, an Indianapolis-based firm specializing in assisting businesses and families in the acquisition and management of life insurance assets. He can be reached at Mark@mlassoc.com or by calling 317/566-2191.

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Johnson Controls Awarded \$91M Contract

MILWAUKEE, WI — Johnson Controls announced that it has been awarded a \$91 million project with the U.S. General Services Administration (GSA) to improve facilities and energy efficiencies of landmark buildings. As part of the National Deep Energy Retrofit (NDER) program, the GSA is upgrading building technologies in the pursuit of net zero energy consumption while achieving energy goals prescribed in various federal Energy Acts.

Johnson Controls portfolio of smart building systems provides the physical components for the upgrades as well as OpenBlue software solutions that support systemic management of building operations, providing memory, intelligence and unique identity to spaces. This infusion of physical systems with award-winning artificial intelligence that helps systems learn over time automates changes that drive maximum energy and resource efficiency.

Buildings receiving facility improvements over the next three years include the Ronald Reagan Building and International Trade Center (RRBITC), the

New Executive Office Building (NEOB), the Eisenhower Executive Office Building (EEOB), Jackson Place, the Winder

ergy efficient is an honor, and we look forward to upgrading more buildings around the U.S. in the coming years to

Contract is to improve energy efficiency of U.S. General Services Administration National Landmark buildings.

Building and the Civil Service Building. Johnson Controls Federal Systems' team will perform much of the work associated with the project. Execution of these projects is anticipated to begin on May 1, 2021.

"Sustainability, energy efficiency and working toward the goal of net zero are top of mind for government leaders across the United States. This is reflected in the Biden-Harris Administration's recent infrastructure bill as well as our nation's re-joining of the Paris Agreement," said George Oliver, chairman and CEO at Johnson Controls. "Partnering with the GSA to make these historic buildings more environmentally friendly and en-

create healthier places and do our part to support a healthier planet."

Overall project objectives include:

- Reducing energy and water consumption
- Improving efficiency of lighting, water and HVAC systems
- Transforming building automation systems
- Implementing cost-effective retrofits with paybacks of 25 years or less
- Completing construction with minimal disruption to tenants
- A comprehensive, integrated whole-building approach to energy conservation measures

"We are proud to help the GSA achieve energy resilience in the Nation's Capital through Johnson Controls legacy of building expertise and our intimate understanding of the agency's technology and security needs," said Nate Manning, President of Building Solutions North America at Johnson Controls. "It is a privilege to work with GSA on infrastructure projects that deliver transformational sustainability solutions for iconic landmarks. These buildings are critical locations for the federal government and include parts of the White House Complex and a National Historic Landmark used by the Executive Office of the President including the Office of the Vice President, Office of Management and Budget, and the National Security Council."

The NDER program demonstrates GSA's commitment to driving energy savings beyond that of an ordinary energy savings project without a detrimental effect on occupant comfort and agency mission. GSA's NDER program is achieving greater than 34 percent energy savings over its portfolio of buildings included in the program. The cornerstone of success in NDER projects is the holistic and interactive consideration of energy conservation measures. For the RRBITC and the NEOB projects alone, energy conservation measures are projected to reduce combined energy consumption by 42% and water consumption by 50%.

This initiative leveraged the Department of Energy's Indefinite Delivery/Indefinite Quantity (IDIQ) Energy Savings Performance Contract (ESPC) in conjunction with GSA's innovative NDER program to achieve transformative infrastructure outcomes. By following an ESPC approach, the GSA was able to more quickly finalize the contract and award the work to Johnson Controls with minimal up-front capital costs or special appropriations from Congress. This approach to contracting simplified finalization of agreements, paving the way for facility improvements to begin and energy savings to be realized as soon as possible.

To read more about Johnson Controls commitment and accomplishments around sustainability, visit: <https://www.johnsoncontrols.com/corporate-sustainability/environment>. 

Backflow Prevention: Why Every Plumber Should Get Certified

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multiple organizations offer training and licensing, so plumbers can choose whichever seems best to them. Generally speaking, larger organizations will be a better choice, as potential clients may be more likely to recognize their names.

Within each organization, there may be multiple certifications a plumber could pursue. These often differ by their specific field, so contractors should decide which best fits the work they want to perform. What the process looks like from there can vary depending on the organization and specific certification.

Some organizations, like the American Backflow Prevention Association (https://www.abpa.org/page/Tester_Cert), only require a test, not a specific training course. Still, if a plumber hasn't trained in this area, they won't likely

be able to pass the exam. Other certification programs include classes and hands-on training before testing a plumber's skills.

With most, if not all, certification boards, a plumber's credentials will expire eventually. They will then have to re-test to renew their certification to keep advertising and providing these services. This renewal may require retaking the same test, but some organizations, like the Institute of Cross-Connection (<https://backflowinstitute.com/training/>) provide different re-certification courses and tests.

Every Plumber Should Consider Backflow Certification

Backflow prevention certification can push any plumber's career forward. It increases the scope of work they can perform, attracts new customers, raises

wages, and helps them prevent health hazards. The certification process is also relatively straightforward and short, providing these benefits without a significant investment.

As the nation's water infrastructure ages, these issues could become increasingly prominent, further raising the need for certified backflow workers. With the right credentials, plumbers can make an already in-demand and profitable business even more successful. 

Rose Morrison is a freelance writer who covers construction, home improvement, and contracting topics. She is also the managing editor of Renovated.com, a site dedicated to the latest trends in the home industry. She has a passion for innovative technologies that are making the home industry sustainable and efficient. Check out Renovated.com to see more of her work.

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Does it increase efficiency on the job-site? And, does it improve the health, safety and welfare of our workers? “If so, we’re interested,” says Cannistraro.

One reliable construction method for Cannistraro, especially during COVID, is prefabrication. “Prefab has

always been a key aspect of our construction strategy. Three years ago, we opened a 150,000 square foot fabrication facility in Boston, a few miles from all our major projects and with every one of our trades under one roof. This shop (The FID) allowed us to decrease crew sizes in the field, while

keeping up the demands of project schedules in a controlled and safe environment,” says Cannistraro.

Moving forward, the company is really excited to see, well, people again. More importantly, “we are excited to see the prioritization of health and sustainability that this pandemic has

necessitated. Replacing fossil-fuel driven equipment and systems with electric. Making healthy building improvements to more and more facilities that we work on. Covid or not, improving indoor-air quality in our schools and in our offices is a win for everyone,” says Cannistraro.

TDIndustries — Celebrating 75 Years of Servant Leadership

The company prides itself on being able to support the needs a building’s entire life-cycle.

DALLAS, TX — In April, TDIndustries, Inc. marked 75 years of excellence through servant leadership and trusted partnerships as a premier mechanical construction and facility services contractor. Founded as Texas Distributors in Dallas, TX in 1946 by Jack Lowe, Sr. the founder’s son Jack Lowe, Jr. joined Valerie Sokolosky for a special segment podcast, “Doing it Right!” as a kick-off to TD’s 75th anniversary.

“TDIndustries is celebrating 75 years, and I know without a doubt that dad would be so proud of the Partners who have helped make this brand feel like home,” shares Jack Lowe, Jr., former TDIndustries CEO and Chairman of the Board. “Though our roots are planted here in Dallas, it’s incredible to see how much we’ve grown to a vast portfolio of geographies – all thanks to our wonderful customers who have trusted us over the years to support them with critical building services.”

For 75 years, TD’s employee-owners have provided services that support a building’s total life-cycle needs, from engineering and construction to service, maintenance and integrated facilities management; with safety and quality as company priorities. Serving various industries, including aviation, commercial/office buildings, education, entertainment/hospitality, government facilities, healthcare, life sciences, manufacturing, sports, data centers, multi-family and essential institutions, TD operates throughout the Southwest.

Projects include: DFW Airport- Terminal A, UT Southwestern Medical Center, Houston Community College, Arizona State University-Block 12, Globe Life Field and Globe Life Park, Houston First, Texas Scottish Rite for Children Orthopedic and Sports Medicine Center, Memorial Hermann Heart & Vascular Institute, Yuma Regional



Technician Manuel Blancarte working at the Dickies Arena.

Medical Center Emergency, Cook Children’s Medical Center, Insys Therapeutics, American Airline Center, Dickies Arena, Mercedes-Benz Stadium, AT&T Stadium, Baylor’s McLane Stadium, ExxonMobil Campus, The McKenzie and more. To view a comprehensive list of TD projects, visit tdindustries.com/projects.

With a motto of “At the Heart of Your Building”, TD also works to be at the heart of its community. Charitable partnerships with United Way and Jack Lowe Sr. Elementary in Dallas, TX (named for TD’s Founder) are two of several organizations that employees have been supporting for decades. In addition, TD geographies in other ar-



TD has been making a strong investment in BIM.

reas of Texas and Arizona support Meals on Wheels, American Heart Association, Arizona Child Crisis Center, Ronald McDonald House and Bike Build just to name a few.

TD has earned numerous industry awards, safety and culture awards, including recognition for 21 consecutive years as FORTUNE Magazine’s “100 Best Companies to Work For®.” TD’s foundation of servant leadership is supported by building and maintaining trusting partnerships, a fierce safety culture, the celebration of diversity and the passion for pursuing excellence. [TDIndustries was named CONTRACTOR’s Contractor of the Year in 2020.]



A TD worker at the Dallas prefab facility.

University Mechanical Contractors — Investing in High-Tech

UMC is expanding its business model with a new high-tech offering.

SEATTLE/MUKILTEO, WA — UMC launches its new line of business: “Reality Capture + Equipment”. The Reality Capture team offers clients leading edge laser scanning services to perform quality assurance/quality control, construction verification, and deviation reporting. It allows documentation of large sites in a fraction of the time it would take utilizing traditional methods.

Leveraging their long history in

model-based design and BIM management, UMC is using that knowledge to customize reality capture methods to the specific needs of the client. The result is trusted data and forward-thinking use cases for the models produced with these new tools.

Reality capture is a service that has a need in both the world of new construction and the existing built environment. Clients are increasingly

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Harris Group President David J. Nangle to Retire

CLEVELAND, OH -- Lincoln Electric Holdings, Inc. (the "Company") (Nasdaq: LECO) announced today that David J. Nangle, Executive Vice President, President, The Harris Products Group (HPG) will retire effective October 1, 2021 and will be succeeded by Gregory Doria. As part of the transition, Doria has been promoted to Senior Vice President, Chief Operating Officer, The Harris Products Group. He formerly served as Vice President, Marketing, Lincoln Electric.

Nangle joined Lincoln Electric in 1979 and during his distinguished 42-year career with the Company, held various sales management leadership positions before being named President of the Company's Harris Calorific subsidiary in 1999, followed by President of the Company's retail subsidiary, WCTA LLC in 2003, and



David J. Nangle, EVP, President of The Harris Products Group.

President of J.W. Harris Co. in 2005.

As Executive Vice President, President of The Harris Products Group, Nangle has achieved fifteen years of record sales and profitability growth in the segment through transformational commercial and operational initiatives. In addition, his commitment to operational excellence and sustainability has positioned HPG as an operational leader at Lincoln Electric, as reflected in the many "Chairman Environmental, Health & Safety Awards" earned under Nangle's leadership. In addition, HPG was awarded Industry Week's "Best Plant Winner" for their Mason, Ohio facility.

"The Board of Directors and our Executive Team congratulate Dave for his exceptional career and thank him for his significant contributions to Lincoln Electric," said Christopher

L. Mapes, Chairman, President and Chief Executive Officer. "Dave's passion extended beyond the Company to our customers and his remarkable industry leadership, which helped drive innovation and expand strategic alliances, which we will continue to advance as part of our 2025 Higher Standard Strategy," Mapes continued. "We all wish him a happy retirement and appreciate his support in ensuring a smooth transition."

"It's been an honor and privilege to represent Lincoln Electric for over forty years in such a great industry, and lead such an exceptional team at Harris," said Nangle. "I am tremendously proud of what we have accomplished together and the strategic goals we are working to achieve," Nangle commented. "While I will certainly miss my family of colleagues, customers and industry partners, I feel this is the right time for a leadership change and Greg will successfully lead the team forward and drive continued success."

"I am confident that Greg's global commercial and application expertise will help advance HPG's strategic initiatives," stated Mapes. "Greg's track record of leading successful change management initiatives will reinforce HPG as a high-performance organization ready to capitalize on future growth opportunities."

Doria joined Lincoln Electric in 2000 and during his twenty year career with the Company has held several leadership positions in sales and marketing, including Director, Global Industry Segments, Director of Global Sales & Application Engineering for Indalco, and West Regional Sales Manager (USA). Since 2019, he has served as Vice President, Marketing with oversight of Lincoln Electric's global industry segment strategy and marketing program, as well as applications engineering. He received a bachelor's degree from the University of Western Ontario and an MBA from the University of Phoenix. He has also completed Lincoln Electric's Management Development and Leadership programs. [G](#)

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looking for ways to visualize and document the physical assets of the real estate portfolio. By having virtual models of their portfolio, asset managers can understand what they have across multiple sites by treating their entire portfolio like a database that can be searched and analyzed.

"There is a void in expertise on how to efficiently utilize reality capture in the construction and real estate world," said Steve Brooks, president. "UMC has chosen to dive in and become the technical and practical expert in applying the emerging tech-



One of the company's new laser scanners on the job site.

nology of high-resolution scanning to the construction trades."

UMC is an authorized dealer of Leica scanning and total station equipment.

Having direct access to industry leading technology allows UMC to provide hardware and software solutions and ongoing consultation for clients looking to adopt this technology into their business.

Laser scanning and the associated equipment are becoming faster and more advanced daily. The speed and reliability UMC's scanning teams provide, coupled with cloud-based analysis, rapidly decreases the cost to clients. Simply put, this technology allows projects of all sizes the benefits of speed, accuracy, detail, and quality. [G](#)

Milwaukee Tool to Expand Manufacturing Presence in MS

MILWAUKEE, WI — Milwaukee Tool will, once again, expand their footprint in the United States (US) with the announcement of a new manufacturing facility in Grenada, Mississippi. Anticipated to open in late 2022, this new facility will accommodate increased capacity for the company's growing power tool accessories and power tool business. With this facility, Milwaukee

has committed to creating 1,200 jobs in the region.

"Our new Grenada facility, as well as our ongoing investments in U.S. operations and manufacturing, will allow us to continue to serve our distribution partners and users with the speed, agility, and unparalleled levels of innovation that they've come to expect from Milwaukee Tool," said Steve Richman,

Milwaukee Tool Group President.

Milwaukee will invest \$60 million in advanced technology and manufacturing equipment to support the operation of their new 500,000-square-foot manufacturing facility in Grenada. In the last five years alone, Milwaukee has invested \$368 million in domestic expansion projects and now employs 5,500 people in the U.S. [G](#)



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Niagara Debuts Over 100 New Toilet SKUs

FLOWER MOUND, TX – Niagara is launching a full line of products today with four new toilet product suites dedicated to the traditional wholesale channel and designed specifically with features and benefits for builders, remodelers, and plumbing professionals. The new product lineup is the first in the industry to carry a 15-year warranty. Specific characteristics that make this new product line attractive to pros include:

- Three Flush Technologies including Stealth®: Niagara's new full product line features three different types of technology to allow for a wide breadth of applications. Two lines contain Niagara's patented Stealth Technology® which has won several EPA WaterSense® awards for re-engineering the flush for its high-power, low-maintenance, water-efficient toilets. This innovative technology has a vacuum-assist pull and a noise-cancelling tank for a



whisper-quiet flush.

- Superior Performance: A powerful, clean flush that is virtually clog-free while achieving industry leading water efficiency. Plumbing professionals will find that – once installed – proper performance is guaranteed. The new Niagara offering surpasses all industry drain line carry standards at 0.8, 1.0, 1.1 and 1.28 GPF flush rates.
- Convenience: Builders and plumbing professionals will find the convenience of Niagara's pre-assembled tank extremely useful. Because there is no tank assembly, pros can install toilets quickly and efficiently, leaving little room for error. Niagara models also offer an extra-large footprint, easily covering old tile and making installa-

tion quick, fast and efficient.

- Confidence: Every product in Niagara's new line includes high-quality components such as Fluidmaster® fill valves, zinc powder-coated handles and solid brass bolt sets. All products boast an industry leading, 15-year warranty on tank trim, a lifetime warranty on vitreous china and a dedicated team of customer service professionals for the wholesale plumbing channel available to answer questions.

“With continued growth in new housing construction and remodeling, we've taken the time to listen closely to the building pros who install, repair and specify toilets,” said Jeff Pratt, vice president of sales at Niagara. “Using that knowledge, we



Toilet from the new Shadow line.

have developed a full lineup of products for pros to choose from that not only delivers advanced technology, but powerful performance and easy installation.”

More than 100 new SKUs comprise Niagara's new product line, which includes four categories of products:

The Liberty Product Line: Niagara's Liberty line is a cost-effective option for the budget-minded professional. The Liberty line installs quickly, has an extra-large footprint and uses standard flapper technology that is familiar to plumbers.

The Sabre Product Line: Sabre is the expansion of Niagara's famous Stealth Technology® into the 1.1 and 1.28 GPF Rates.

The Shadow Product Line: Niagara's Shadow line with Stealth Technology is the best solution for those wanting high design, performance and efficiency. Offered in 0.8 and 1.28 GPF, the high design of the tank and bowl will upgrade the appearance of any bathroom.

The Barron Product Line: Niagara's Barron products are made for the light commercial industry, carrying a powerful pressure-assist vessel. The Barron line is offered in 1.0 and 1.28 GPF, round and elongated bowls, as well as a back outlet option.

Niagara's new line will be sold exclusively through wholesalers across the United States. Wholesalers will be able to preorder the new product line in May. For more information visit <https://niagaracorp.com/>.

PHCC—National Association Shocked and Saddened by Tragic Loss

► **Continued from page 3**

cal condition with multiple gunshot wounds until he passed away April 10.

PHCC — National Association President-elect Joel Long is a co-owner with his brother Steven Long of GSM Services, a PHCC Contractor-member located in Gastonia, North Carolina, who in an April 8 statement issued by the PHCC of North Carolina, stated that “These were two of our best!” Joel Long later told the Gaston Gazette that a GoFundMe account had been established to benefit the Lewis and Shook families. On April 20, he issued a heartfelt thank you message to PHCC members.

CNN affiliate WSOC-TV reported that Lewis, 38, was a single father of three children who “was killed doing the job he loved, making a living for the family he adored.” His mother Linda Tucker told WSOC-TV: “He

helped anybody, he was a kind guy, a great dad...” Shook was a husband and father of three. His cousin Heather

Two GSM Services technicians victims of recent mass shooting.

Thompson told USA Today that “He walks this earth and puts those work boots on every day for those three kids and his wife.”

The message from PHCC of North Carolina Board President Rob McClintock shared that “Joel [Long] and the entire GSM Community also wanted to express [their] gratitude for the outpouring of love and support they have received in this difficult time.”

This is a heartbreaking incident,” said PHCC — National Association President Hunter Botto. “Our hearts

go out to the families of Mr. Lewis, Mr. Shook, the entire GSM Services organization, as well as the Lesslie's.

We are grateful for these GSM technicians: honorable people who, while providing essential services to protect public health and safety, became innocent victims of such a horrific tragedy. The entire PHCC family extends our deepest sympathies for the loss of Mr. Lewis and Mr. Shook.”

PHCC — National Association Executive Vice President Michael Copp remarked, “Though we look down in deference with bowed heads, our eyes will slowly rise to see a way forward through the thick haze of hurt to honor these professionals who we will never forget.” Copp shared additional comments in a mechanical-hub.com podcast here: <https://bit.ly/3wRwscu>.



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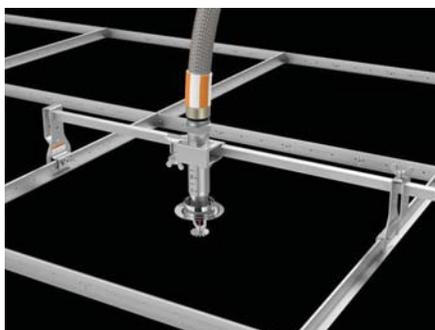


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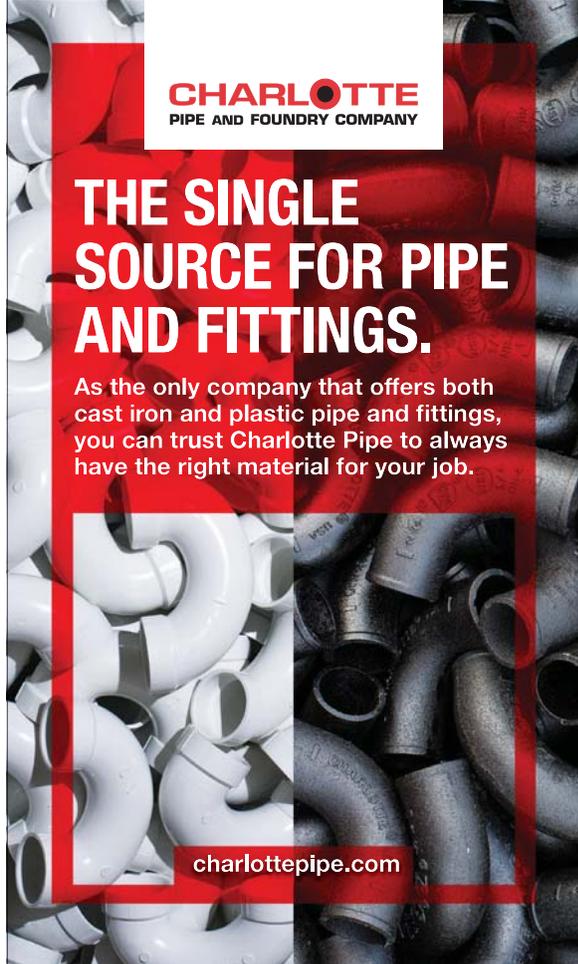
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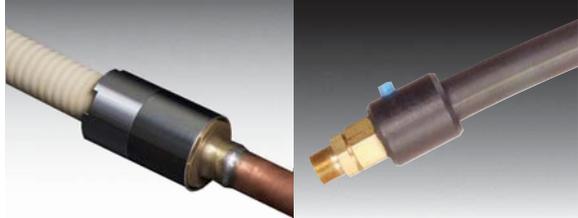
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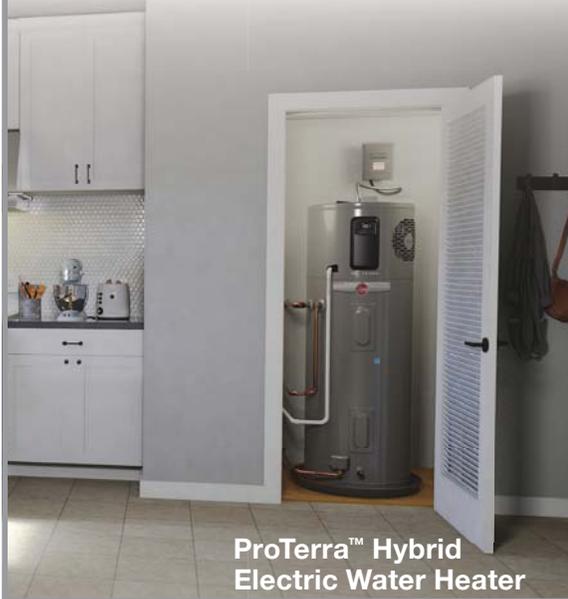
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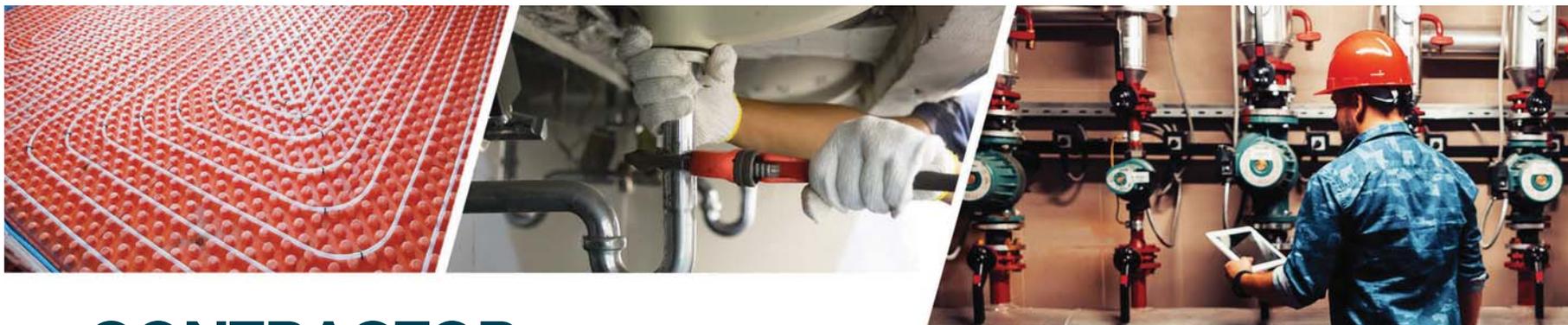
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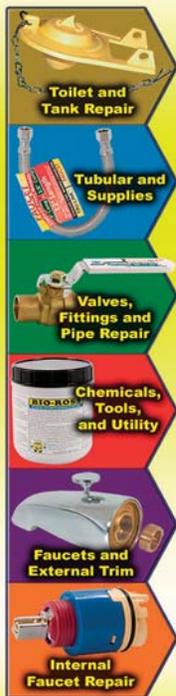
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by Steve Spaulding
EDITOR-IN-CHIEF



In the Footsteps of Giants

So it's May, which every year here at CONTRACTOR Magazine is our Book of Giants issue, where we take a look at the nation's largest mechanical contractors (the feature starts on pg. 42). I always find these issues fascinating. On the one hand, even the largest mechanical contractors are in many ways like any two-truck shop. They want to keep their customers happy, they want to invest in tools that will make their operation run smoother, they want to develop their workforce.

On the other hand, our Giants have the resources to try new approaches, new technologies, new areas of work. The larger the contractor is the more vulnerable they may be to supply chain disruptions. And the larger they are, the more the overall economic health of the nation may impact their bottom line.

For those reasons our Giants have become the lens I've used to better understand this age of COVID we find ourselves in. At this time a year ago, in the intro to our 2020 Giants feature, I wrote:

More than a million cases have been reported — and more than 70,000 Americans have died. ...More than 30 million Americans have filed for unemployment.

Our Giants have responded, adapted, and in many cases found new pathways to success.

For all that it seemed then—to me at least — that social distancing, masking and quarantining were working, that infection rates were dropping and would continue to drop. I should have put more stock in the opinion of IAPMO's Russ Chaney when we met at AHR Expo 2020 for a private sit-down. IAPMO is an organization that takes both the long view and the world view, and Russ told me then that until there was a working vaccine with wide-ranging inoculations, things would never get back to normal.

And here we are today with 560,000 Americans dead. But also, here we are today with more than 103 million Americans fully vaccinated.

Our Giants have responded, adapted, and in many cases found new pathways to success. Murphy Co., for example, is recording the largest backlog in the

company's history. Some have embraced new technologies, such as University Mechanical Contractors with laser scanning, or John W. Danforth with VDC. All them have invested in their digital infrastructure, and if there is any positive to come out of the pandemic, it's that in a single year many companies are now at a point in their digital transformation they weren't expecting to hit until 2025 or even 2030.

And all of them have discovered new ways to empower their people. The same technology that allowed workers to work remotely — many of them in jobs where remote work was never thought possible — has super-charged collaboration.

Front-line workers have instant communication with the back office. The back office can see the work as it is happening in real time. Best practices now move around a company, around the industry, with the speed of the internet.

Tough times can damage organizations as well as individuals, but adversity can also build character. Adversity can bring people closer together. Adversity can show people what's really important. Every one of our Giants has a list of company values, principles that guide them such as integrity, collaboration, humble leadership, the power of individual differences.

In these difficult times, each of our Giants has returned to their core values as both a source of strength and as the stars they steer by. Because of that each of these companies is emerging from the pandemic changed, but also in a way more clearly themselves. I hope that by the time the country and the world returns to normal, we can each of us say the same. **C**

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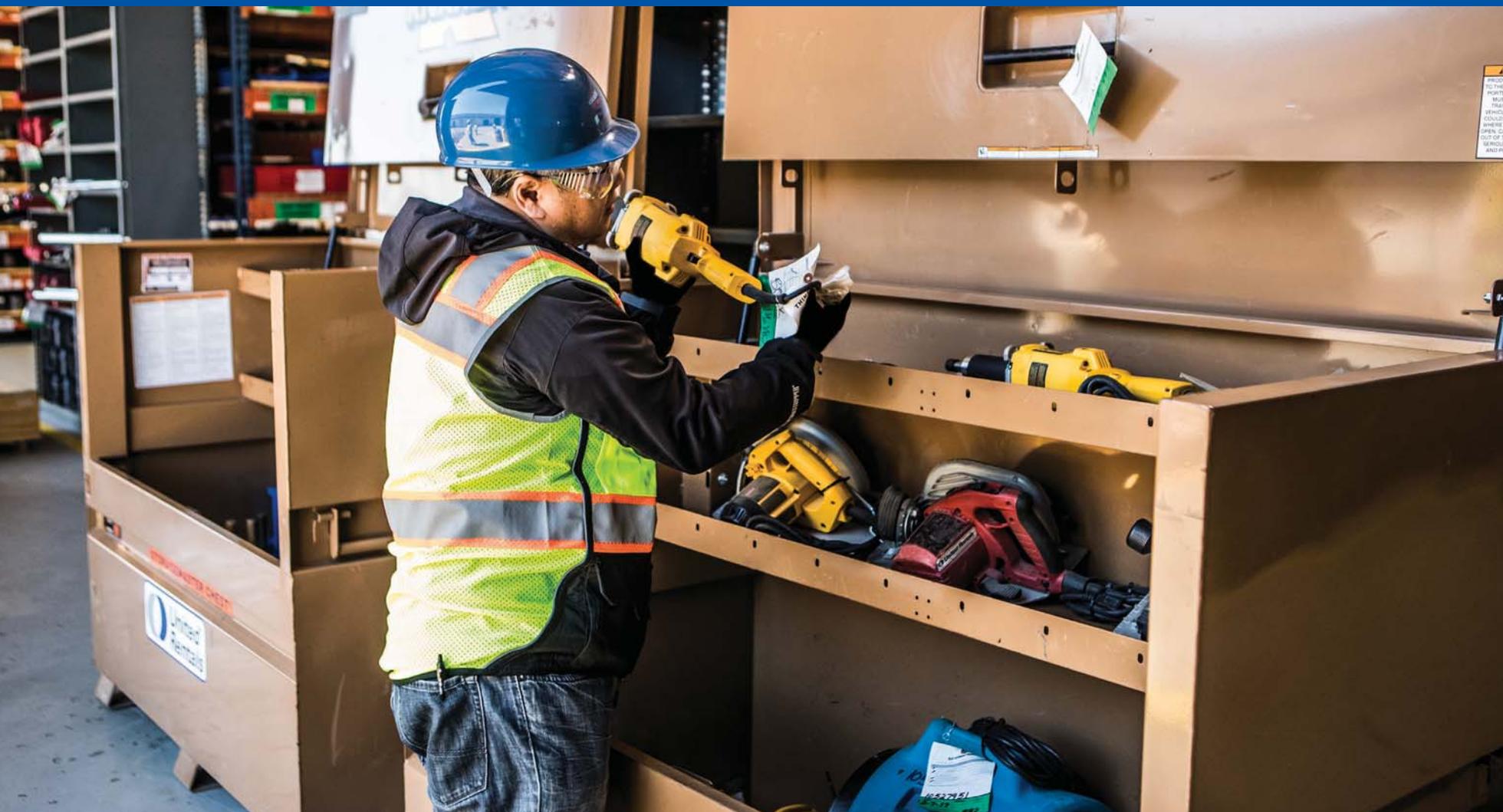
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