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PRESENT
FUTURE

2024 Annual Report

pmi 70 YEARS

PLUMBING MANUFACTURERS INTERNATIONAL

Continuing Our History of Trustworthy Products and Advocacy

In 2024, Plumbing Manufacturers International's 70th year, we find ourselves at a crucial stage of environmental history. Water shortages, as well as water contaminants such as lead and PFAS, have created an urgency to assure reliable access to safe, clean water in the future. PMI is working hard and proactively to contribute to solutions to the water-related challenges our society faces.

As this report demonstrates through its three sections – past, present and future – PMI has had and continues to have a trustworthy reputation among legislators and regulators who influence policy governing the plumbing and water industries. PMI's reputation – which was earned by our adherence to scientific method and root-cause analysis – has served the plumbing manufacturing industry well when new legislation and regulations are proposed.

Examples in this report show how our presence at the table has made new proposals better, most notably during the development of the Environmental Protection Agency's WaterSense program and during flow-rate and lead-reduction debates in California and elsewhere. Today, we are participating in discussions about climate reporting, extended producer responsibility, per- and polyfluoroalkyl substances (PFAS), and more in addition to continuing conversations about water efficiency and lead in water.

Looking toward the future, PMI and its members continue to break new ground by bringing safe, responsible plumbing solutions to places in the world where sanitation challenges still exist. We're also working on water reuse and non-sewered toilets and other technologies that can make the world even more water-efficient, as well as codes and standards that will make these innovations safe and reliable.

This report is an acknowledgment of the tremendous work completed in the past, the amazing accomplishments of the present, and the promise of the future. We hope you enjoy reading it! We believe it will make you even more proud of our achievements to date as we continue to build a legacy for which future generations will be thankful.

Sincerely,

Chip Way
2024 President
PMI Board of Directors

Sal Gattone
Immediate Past President
PMI Board of Directors

Kerry Stackpole
CEO and Executive Director
Plumbing Manufacturers International

PAST

In 1954, Dwight D. Eisenhower was president and his wife, Mamie, was a kitchen and bath trendsetter. Single-handle faucets were all the rage, and Plumbing Manufacturers International (PMI) was born.

Mamie's favorite color was pink. She redecorated the White House's private quarters in pink, and the nation followed along. Kitchens and baths across America were soon brightened by pink, turquoise and other pastels. Once closed off from the rest of the home, kitchens became the heart and social center of the home as Julia Child brought French cooking into the mainstream.

Meanwhile, plumbing manufacturing industry pioneers saw the fruits of their inventiveness lead to commercial success in a post-war America eager to use modern innovations in the new homes being built across the nation.

After burning his hands by turning on a two-handle faucet, **Moen** founder Alfred Moen was inspired to invent the single-handle faucet to better regulate the flow and mix of hot and cold water. **Delta Faucet Company** and **Masco Corporation** founder Alex Manoogian brought to market a single-handle, washerless ball faucet, the Delta faucet.

Also during the 1950s, **Fluidmaster** founder Adolf Schoepe launched the company's pilot fill valve, and **Lavelle Industries** introduced the toilet flapper – technologies still in use today. In Switzerland, Hans Denzler & Co., now known as **Neoperl**, began to manufacture, distribute and install the previously unheard-of device called an aerator to deliver a splash-free water stream.

Soon, these innovative products were in kitchens and bathrooms around the world.

PMI's beginnings

The progenitor of PMI – the Plumbing Brass Institute – was formed by combining the Sanitary Brass Institute and the Tubular Plumbing Goods Institute. The new organization's first president, Arthur H. Goepel, immediately appointed the first plumbing standards committee for fixture fittings.

What is now known as PMI was on its way.

Through the 1960s and early 1970s, as kitchen and bath color hues moved from psychedelic pop to earth tones, PMI's members primarily concerned themselves with adopting and regulating various plumbing manufacturing standards relating to fixture fittings, piping, valves and other components. During this time, water and sanitation were generally overseen by local authorities, with state oversight.

The 1970s ushered in increased federal government involvement in water and sanitation due to concerns about environmental degradation caused by pollution. In rapid succession, the Environmental Protection Agency (EPA) was established in 1970, followed by the passing of the Clean Water Act in 1972, and the Safe Drinking Water Act in 1974. These actions helped to keep waste and other contaminants out of freshwater and drinking water. The federal government's interest in water quality caused PMI to become active in monitoring legislation and regulations to assure safe water without unintended negative consequences to the public and manufacturers.

Even though present-day water shortages were not yet a concern, PMI members were already making plumbing products more water efficient. The first 3.5 gallon-per-flush (gpf) toilets were introduced in 1974, replacing previous fixtures using 5 to 10 gpf or more. In 1974, **Sloan** introduced a hands-free faucet, which used up to 40% less water than conventional faucets of that time. In 1976, **T&S Brass** introduced its first water-efficient spray valve, the B-107-C. In 1978, California passed a law requiring toilets to use no more than 3.5 gpf.

During the 1980s, to further assure safe drinking water, PMI provided input to the establishment of NSF/ANSI/CAN standard 61 for testing all fixtures that come into contact with potable water. To this day, NSF/ANSI/CAN 61 continues to uphold lead-free and other safety standards for plumbing products. As the dangers of lead in water became more well known, the Lead Contamination Control Act became federal law in 1988.

In 1991, the EPA introduced the Lead and Copper Rule, which set maximum levels for lead and copper contaminants leached into drinking water from service lines, as well as regulations for periodically testing plumbing systems for these contaminants. To contribute toward achieving the aims of this rule, plumbing manufacturers introduced a domestic set of lead-free plumbing products that same year.

The following year, PMI supported the signing of the EPAct into law by President George H.W. Bush. This law set federal water-efficiency standards for plumbing products, effective in 1994. In the years leading up to the law's signing, plumbing manufacturers were finding various states setting different water-efficiency standards, leading to manufacturers having to produce various versions of products to meet these different requirements. The EPAct harmonized water-efficiency stand-

ards across the nation, to the approval of PMI and its members. Later that decade, PMI opposed an attempt to repeal the EPAct, which would have potentially opened the door to thousands of state and local water-efficiency regulations.

During this time, PMI held conferences twice a year. These meetings were attended primarily by member company owners and top executives for networking, strategy sessions, and socializing. PMI had been run since its inception by an association management firm, which alerted PMI members about technical, legislative and regulatory situations that might impact the plumbing manufacturing industry.

PMI hires full-time executive director and staff

In 1998, the PMI Board of Directors decided to break PMI away from the management firm and hire its own full-time executive director and staff. Barbara Higgens was named executive director. Her original staff included technical manager Dave Viola, now the CEO of **IAPMO**. PMI's government affairs function remained with outside consultants.

Barbara Higgens

"That ended up to be one of the most significant turning points in PMI history, thanks to the leadership in place, people like Fred Luedke from **Neoperl**, Bill O'Keeffe from Symmons, and Gary Turner from **Water Pik**," said Todd Talbot, a former PMI board president and current advisor to the **Globe Union** board. "Hiring Barb was a turning point, making a difference for the organization in the long term." John Lauer, another past PMI board president who is now **Sloan's** director of sales in the western region, emphasized the importance of Viola's hire, as well. "He elevated the association's leadership position as a regulatory and standards-focused organization."

Higgens started the dedicated, staff-managed PMI from her kitchen table, faced with a "make it or break it situation," she recalls. "I was told bluntly that If I failed, there would be no PMI." She worked with the board and staff to add value for members and to make the organization more business-like. She remembers someone telling her jokingly that her legacy was "taking the fun out of PMI." But seriously, she said she believes her most important contribution was making PMI more connected and collaborative. "If an organization, or for that matter an individual, resists all the time, the risk is to become irrelevant. So I was anti-'just say no.' If the industry continued to fight (regulation) rather than collaborate, we were going to be steamrolled," she stated.

Talbot remembers having one of the members quit because PMI decided not to have a dance at its spring meeting. "We wanted to create the cornerstone of what PMI was going to focus on and talk about and, more importantly, what we weren't going to do. And one of the things we weren't going to do was have dances in Palm Springs anymore," he said.

From reactive to proactive

Turner, a past PMI board president, said he and other board members decided to convene a series of meetings with industry leaders including David Kohler and Chuck Dowd, president of **Delta Faucet Company** at that time. Dowd recalls Bruce Carbonari, president and CEO of **Moen** at that time, participating in these discussions, as well. The leaders were asked: what would it take for their companies to remain or become PMI members?

"The executives were very forthcoming," Turner recalls. "After those discussions, the board developed an organizational structure that was issue-based rather than based on products or technologies. So instead of having panels on faucets and fittings, for example, we organized around issues such as water conservation and other critical issues facing the industry."

The vision was to be proactive, to be the leader on critical industry issues rather than reacting to crises, he explained. "We wanted PMI to have a seat at the table when proposed legislation, regulations or codes were being developed, wherever they were being developed – in Congress, in states, in locales, or in code bodies," Turner said. Dowd added that the board created the "focus five" areas of concentration: code uniformity, consolidated trade show, water conservation, lead standards uniformity, and fair trade.

Having this business-like, collaborative focus paid dividends as the EPA started developing the WaterSense program, which launched in 2006. Pete DeMarco, then of American Standard (now a **LIXIL** brand) and now semi-retired from **IAPMO**, led PMI's involvement in the program's development. Because WaterSense voluntary product specifications were set 20% below federal water-efficiency standards, the program helped to deter states from setting standards below federal or WaterSense levels for many years.

The I in PMI stands for international

During Higgens' tenure, PMI also began reaching out to international companies and associations such as the Canadian Institute of Plumbing and Heating, the United Kingdom's Bathroom Manufacturers Association, and Europe's CEIR. "That was another big shift," she remembered. "When I first began, there was a big concern about the influx and influence of China. PMI was solely U.S.-based." Foreign companies like **TOTO** Ltd. would pay high dues but some of the membership benefits were held from them, Higgens explained. "Over time, there was a crossover where U.S.-based companies either had a presence in China or were purchasing from China. That's one of the reasons that the term institute was dropped from PMI's name in favor of international because there was a seismic shift from excluding foreign companies to embracing them," she said.

PMI also forged relationships with kindred American associations such as the National Association of Manufacturers and the American Society of Plumbing Engineers and with government agencies including the EPA and Department of Commerce.

Plumbing Manufacturers International became PMI's official name in 2010. PMI's new collaborative posture led to the forming of the Plumbing Efficiency Research Coalition (PERC) and the Plumbing Industry Leadership Coalition (PILC) through which industry associations developed research projects and strategies to address common challenges.

Viola remembers making strides on conformity assessment, as well. "When I first started, there were many states and localities that had their own unique product approval schemes," he said. PMI formed a Universal Conformity Assessment Committee, chaired by Luedke, with the motto "tested once, recognized worldwide." Because **Neoperl** was marketing its products worldwide, Luedke understood how to consolidate conformity assessment requirements, Viola explained. "And we had great success. By 2004, the last area of the country that had unique conformity assessment requirements went away." All states and cities recognized ANSI-accredited third-party certification. "All of the model codes, UPC, the IPC, the

National Plumbing Code, and all the state codes harmonized so that manufacturers could simply pick any approved ANSI-accredited third-party certification scheme as their provider and get market access in those jurisdictions," Viola stated.

Another key moment in PMI's history was the welcoming of certifiers and suppliers as allied members. In 2011, PMI opened the door to companies that would eventually include **CSA Group**, **IAPMO**, **International Code Council Evaluation Service**, **NSF** and **UL Solutions**.

As concerns about lead in water increased, California and other states began setting increasingly stringent lead standards. To get all states behind one harmonized federal standard, PMI began to advocate for a national lead standard. This work culminated in the Reduction of Lead in Water Act, which became effective in 2014 and which reduced the allowable lead content in plumbing fixtures from 8% to less than 0.25%.

PMI and its members continued to find ways to make plumbing products more water-efficient and lead-free while promoting the use of WaterSense products. During a severe drought in 2015, California moved to set mandatory water-efficiency standards below WaterSense specifications.

Fernando Fernandez of **TOTO USA** served as the PMI board president in 2015. He said his fondest memory as president was making the California situation a win-win for PMI and the state. "We engaged in conversations with the California Energy Commission (CEC). We had to move away from old-fashioned thinking and understand how serious things were – that was a terrible situation with the drought at the time. In the end, we met in the middle." California reduced the faucet, showerhead and urinal standards below WaterSense levels but not the toilet standards. "Being at the table and not on the menu was of utmost importance," he said. The effort involved engaging with PMI member suppliers, as well as Home Depot, Lowe's and other retailers. "It was an effort that took a wider presence than the norm of only PMI members. We lobbied and reached out to all our allies. We had letter-writing campaigns so that we were all engaged with the CEC," he added.

In 2016, PMI members including **BrassCraft**, **Delta Faucet Company**, **Fluidmaster**, **Kohler**, **LIXIL**, **Moen**, **Pfister Faucets**, **Speakman** and **Viega** donated plumbing supplies to residents of Flint, Michigan, affected by lead from service lines leaching into the water supply due to a lack of corrosion control. In 2017, **T&S Brass** marked its 70th anniversary by installing more than 600 solar panels to provide 15% of the facility's total electrical usage. In 2018, **Sloan** banned plastic bottles from its facilities.

In more recent years, PMI successfully advocated for improvements to the national water infrastructure, introduced smart products that detect leaks and precisely measure water use, and supported the signing of the INFORM Consumers Act to help combat the online sale of stolen and counterfeit goods including plumbing products.

"Over the past 70 years, the resilience and innovative nature of the plumbing manufacturing industry has been very apparent and continues today. These qualities serve us well today, as we work to meet the many challenges facing the industry and society."

PMI CEO/Executive Director Kerry Stackpole

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Building upon its legacy of advocating for safe, responsible plumbing and sanitation systems, PMI now is positioned to broaden its mission as the world faces increasing water shortages due to climate change. To successfully complete this renewed mission with guidance from PMI's committees, PMI and its members are expanding sustainability efforts, protecting water quality and public health, developing a diverse workforce including the expertise that will be required, and contributing to efforts to bring equitable water resources to underserved populations.

Mitigating climate change

Environmental, social and governance (ESG) reports and similar communications issued by PMI members demonstrate the countless ways these organizations contribute to the mitigation of the negative effects of climate change. Also, previous PMI reports have outlined how members have installed solar panels, diverted waste from landfills, re-engineered manufacturing processes to use less water and energy, reused recycled materials, and much more.

New within the last 12 months is **Duravit's** announcement of the building of its climate-neutral ceramic production facility in Quebec. Scheduled to begin production in late 2025, the plant will manufacture toilets and wash basins using renewable energies exclusively and including electricity from hydropower. Duravit estimates it will save about 11,000 tons of carbon emissions per year compared to a conventional ceramic factory. Many other PMI member companies have begun to reduce their greenhouse gas emissions, as well, setting goals for net zero by 2050 or earlier. **Kohler** and **Viega** have set very ambitious goals – net zero by 2035.

To assist organizations in demonstrating carbon emission reductions, **UL Solutions** introduced "UL 360" software, which streamlines ESG and sustainability data collection, reporting and disclosure activities. The software also can track these data throughout a company's supply chain.

Rethink Water

Since introducing its Rethink Water initiative, PMI has used the program as a vehicle to promote the benefits of replacing older, inefficient toilets with new, water-efficient models. As noted earlier in this report, California mandated the use of 3.5 gpf toilets in 1978. A PMI study accompanying the launch of Rethink Water found that more than 40 years later, 6% of the toilets in California – 469,000 toilets – still are using 3.5 gpf, which is 2.22 gpf above the current California and WaterSense standard of 1.28 gpf. In addition, another 26.1 million 1.6 gpf toilets are above the California and WaterSense standard.

Reducing mandatory flush rates further would save water over time but only among buyers who have the financial means to replace their toilets voluntarily with more efficient models than they currently own. To save water more quickly, PMI advocates for the replacement of inefficient toilets through rebate or giveaway programs as soon as possible; this approach would lead to a faster installation of water-efficient toilets and would save up to 65.3 billion gallons of water within the next five years.

PMI is working to expand the Rethink Water initiative to address the importance of safely and responsibly managing building plumbing systems, which consist of many parts, including pipes, valves, water heaters, fixtures and fittings, pumps, and drains. In well-engineered systems, these components work together to achieve safe and efficient water flow. Further reducing flow and flush rates without considering how the reduction affects fixture performance may have unintended, negative consequences to other components of the plumbing system, making them not work as well as intended and potentially compromising public health and safety.

Water sustainability

Water sustainability has been a core mission for PMI, ever since efforts to manufacture water-saving plumbing fixtures and fittings began in the 1970s. PMI and its members continue to advocate for sensible and harmonized water-efficiency policies with governmental entities both inside and outside of the United States.

PMI CEO/Executive Director Kerry Stackpole, PMI government affairs consultants Jerry Desmond and Stephanie Salmon, and Cambria McLeod of **IAPMO** partnered with Fernando Fernandez and Gordon Tai of **TOTO USA** on a panel discussion about sustainability in plumbing at the 2024 Kitchen and Bath Show (KBIS). During "Plumbing Trends Unveiled: Navigating Market and Design Changes for Success in 2024," organized by TOTO, they discussed the significant transformation now occurring in the industry as it focuses on megatrends in wellness, sustainability, and the integration of advanced technology.

PMI members advance water sustainability through continual innovation serving their customers. **Kohler** won its ninth WaterSense Sustained Excellence Award as it continued to produce, promote and donate WaterSense plumbing products.

Sloan's partnership with the Chicago Cubs meets the demands of the team's high-traffic environments. Sloan's Royal Flushometer, hands-free sensor faucets, and other products enable hygienic and water-efficient performance at maximum capacity at both Chicago's Wrigley Field and Sloan Park, the team's Arizona spring training home.

Aerators add air to a faucet's water stream, reducing the amount of water, energy and splashing. Equipped with flow regulator technology, **Neoperl's** aerators enable users to further reduce the flow rate of their faucets and showerheads. For five minutes' work, a homeowner can reduce hot water use by as much as 40%, energy use by 350 kilowatt hours per person per year, and save about $130 per year.

Specializing in the production of water-free and water-efficient urinals and other water technologies, **Falcon Water Technologies** supplies its products to global brand partners in North America, Europe, Asia and Latin America. The company's touch-free, water-free technologies represent the majority of the company's sales. Falcon produces a hybrid urinal that reduces water use by 98%. The company says its products have saved more than 20 billion gallons of water so far. The company's products have been installed at Dodger Stadium, Los Angeles Memorial Coliseum, Walt Disney Concert Hall, Taj Mahal, London's Heathrow Airport, and Camp Nou football stadium in Barcelona.

The **International Code Council** launched its inaugural World Water Awareness Campaign to raise awareness of the collective responsibility to address the global water crisis through long-term, consistent water conservation efforts. The Code Council also partnered with the University of Miami to release "Water Conservation and Codes: Leveraging Global Water-Efficient Building Standards to Avert Shortfalls." This report is part one of a multiple-part study underscoring the critical need for municipalities to adopt updated water conservation standards contained in the 2021 International Water Conservation Code Provisions.

A trailblazer since 1985, **Fisher Manufacturing's** 1.15 gallons-per-minute (gpm) Ultra pre-rinse spray valve significantly reduces water, heat and sewage usage. In addition, Fisher ensures the quality of every faucet through water testing with recycled water and re-circulating pumps. This environmentally mindful process upholds product standards while reducing demand for fresh water and sewer services from the local system, actively conserving water reserves.

Symmons Industries introduced its water-efficient 1.5 gpm HydroMersion showerhead. Meticulously engineered waterways, precision molding, and computer-designed outflow patterns converge to deliver high-performance force and functionality.

Sustainable materials

PMI members have expanded their sustainability efforts beyond water and put them into materials and production processes. The robust yarn of **Hansgrohe's** Designflex shower hose is made from recycled plastic bottles. Because this recycled material is durable and resistant to moisture, it also is found in sailing materials, outdoor furniture, and medical technology.

Kohler WasteLAB fosters a circular economy by incorporating into kitchen and bath tile products a variety of landfill-bound materials left over from the manufacturing process, including wastewater sludge, pottery dry cull, cast iron slag, foundry dust, and enamel powder. Over the past several years, sales of Kohler WasteLAB tiles have diverted 25.5 metric tons of waste from landfills. Kohler won a 2024 Best of KBIS Sustainability Standout Silver Award for "Transcendence by Kohler WasteLAB x Nada Debs."

Dornbracht collaborated with Nature Squared, a sustainable design and manufacturing company, to create bathroom fittings made from materials that are not endangered, protected or threatened and that are sourced predominantly from industries such as farming and fishing, transforming what would normally be considered waste into custom-made, handcrafted and sustainable products and surfaces.

The **International Code Council Evaluation Service's** SAVE (Sustainable Attributes Verification and Evaluation) Environmental Program provides manufacturers with independent and comprehensive evaluation and certification that their products meet specific sustainability targets relating to materials, waste reduction and recycling, carbon emission mitigation, and other measures. Through this program, manufacturers can develop environmental product declarations (EPDs) for their building or plumbing products. These EPDs provide transparency about the environmental impacts of their products, helping potential customers to make informed product selections.

In addition, ICC-ES's Safe and Sustainable Cabinetry (SASC) Program is a valuable tool for kitchen and vanity cabinet manufacturers that want to demonstrate their commitment to safety, sustainability and environmental responsibility and provide consumers with clear and transparent information about the product's environmental impact. The program provides independent and comprehensive third-party verification of kitchen and vanity cabinets on the performance, sustainability and environmental requirements outlined in ICC-ES Environmental Criteria (EC)118.

The parent company of PMI members **BrassCraft**, **Delta Faucet Company** and **Hansgrohe**, **Masco Corporation** reported that 40% of its plumbing products revenue derives from sustainable products. These products include taps and mixer products that meet standards set by WaterSense, the European Water Label, and the Building Research Establishment Environmental Assessment Method.

Reducing or recycling waste

Bottle filling stations made by **Haws**, **Zurn Elkay Water Solutions**, and other manufacturers reduce the need for individuals to purchase water or beverages contained in single-use plastic bottles. Found in schools, parks, public areas, and transportation hubs, these stations encourage the use of reusable bottles and reduce plastic bottle waste. According to a report published by Plastic Oceans, plastic bottles make up 14% of littered waste. About 85% of water bottles produced are disposed in landfills or as unregulated waste, according to the United Nations Institute for Water, Environment and Health.

In an initiative blending art, education and industry, **BOCCHI** and Arucad University launched their Sustainable Art Competition. This innovative collaboration fosters the exploration of sustainable art forms, especially among young people, by encouraging the creative use of BOCCHI damaged or broken kitchen and bathroom sinks. Winning artworks were exhibited at the 2024 KBIS and International Builders Show in Las Vegas. Proceeds from the collaboration were donated to three non-profit organizations located in the U.S. and Turkey.

In their most recent ESG reports, PMI members reported impressive recycling data. **Reliance Worldwide Corporation** recycled 238 tons of furnace dross, 63 tons of zinc oxide dust, and 310 tons of non-ferrous metal and sent zero waste to landfills for U.K. operations. **Zurn Elkay Water Solutions** recycled 65.5% of total waste from its operations. Sloan's cartons are made from 60-70% recycled materials while its boxes are made from 100% recycled materials. The company's corrugated material ranges from 18% to 35% recycled content. In addition, all corrugated material is 100% SFI (Sustainable Forestry Initiative) certified. Lastly, **Sloan's** pulp trays are made with 100% post-consumer recycled content.

Laufen has developed a urine-separating toilet. The fixture separates urine for recycling and agricultural use rather than allowing it into wastewater. This process reduces nitrate pollution and oxygen-depleted bodies of water called “dead zones,” where aquatic life cannot survive.

Protecting water quality and public health

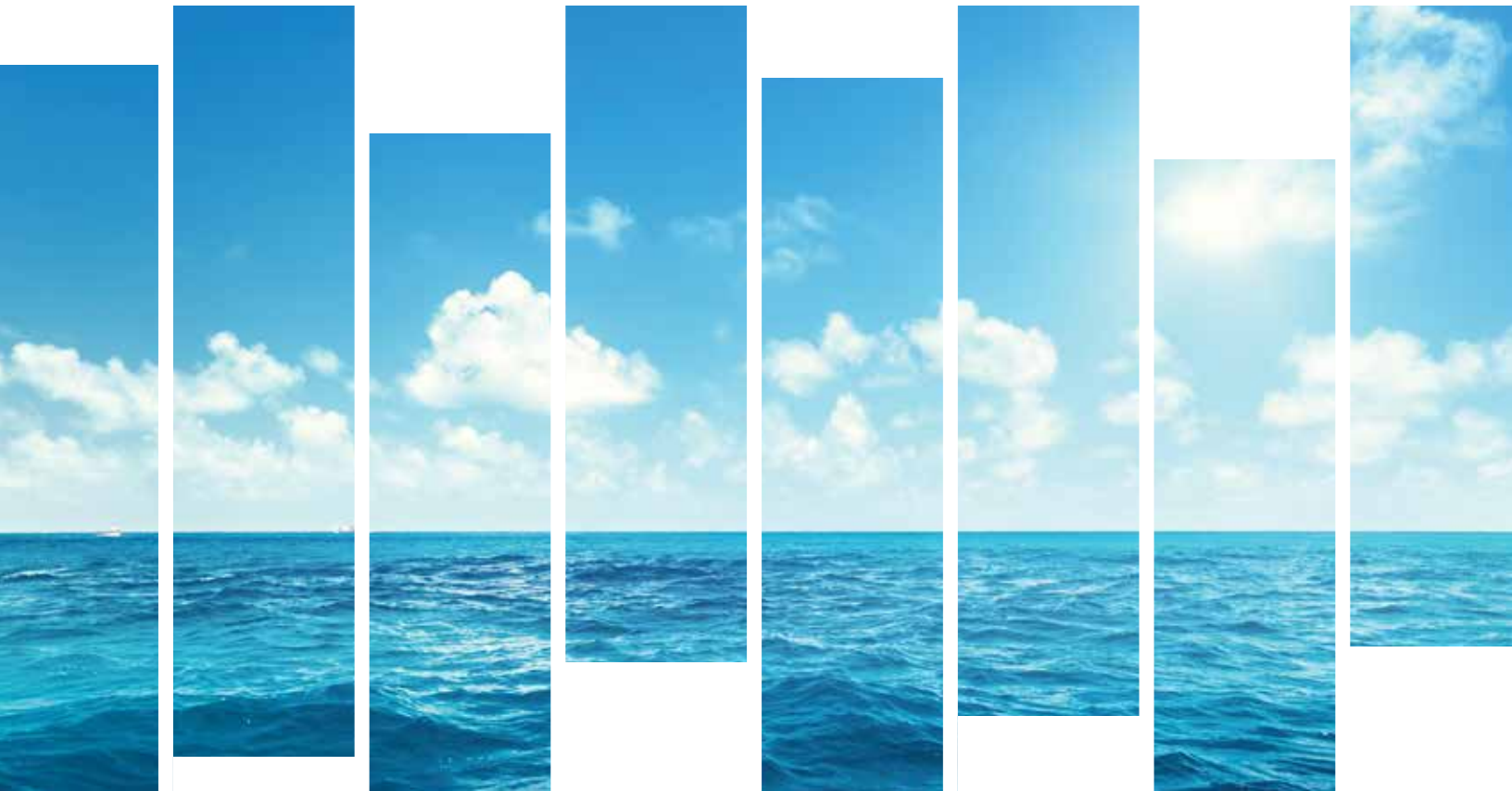
Presentations about per- and polyfluoroalkyl substances (PFAS) delivered at various meetings of PMI members provided advice about the necessity of identifying these substances in materials and operations and meeting reporting and remediation regulations.

Zurn Elkay Water Solutions launched a combined lead-, PFOA- and PFOS-reducing filter that integrates into the company's bottle-filling stations and faucets for schools, hospitals, airports and other commercial and residential applications. This filter will work to reduce drinking-water levels of PFOA and PFOS compounds, part of the PFAS family of "forever chemicals."

Bradley Company continued to promote the health benefits of hand hygiene with its Healthy Handwashing Survey. Most recently, the survey found that Americans want more privacy in public restrooms. They also suds up more frequently during seasonal virus outbreaks, when they're sick, after using public facilities, and while traveling.

BLANCO's CATRIS Flexo filter faucet offers convenient access to filtered water right at the kitchen water place, reinforcing the safe use of tap water and reducing the preference some people have for water bottled in single-use plastic containers. The two-in-one faucet has a magnetic docking arm that delivers filtered water through a discrete waterspout. The CATRIS faucet provides water-saving benefits with a flow rate of 1.5 gpm for the main waterspout and about 0.75 gpm for the second, depending on the filter installed. The faucet seamlessly connects to any point-of-use water filter to improve taste and reduce odor. BLANCO now offers two filter sets that are capable of removing chlorine, chloramines, microplastics and 50 other microscopic materials to ensure safe, clean drinking water.

Protection from bacteria and viruses is an urgent issue not only in hospitals and nursing homes: 100% hygiene is desired in private bathrooms, too. **Laufen's** Clean Coat Active (LCCActive) makes ceramic objects in the bathroom cleaner and safer. This surface finish kills bacteria and viruses permanently and reliably. Its effectiveness has been confirmed by independent testing institutes in accordance with the strict requirements of ISO 21702:2019 and ISO 22196:2011.



Building the diverse workforce of the future

Building the workforce of the future is a major priority for the plumbing manufacturing industry. Only by welcoming diverse expertise will the industry succeed. At the PMI23 Manufacturing Success Conference, the first PMI Women's Breakfast recognized and encouraged contributions from the industry's women. PMI also fostered creativity and innovation through its PMI Inspiring Leaders Program and Workshops, PMI CEO Thinking Forum, Tech Talks, and various webinars.

Reliance Worldwide Corporation (RWC) made more progress toward its 40:40:20 (female: male: any gender) goal, raising its female employee population from 38.6% to 39.1%. **Sloan** reported that 68% of its workforce identified as women, ethnically diverse, or veterans. **Kohler** has established associate-led business resource groups made up of like-minded individuals to create a more diverse and inclusive workplace. These groups support Asians, Blacks, persons with disabilities, Indians, Latinos, LGBTQIA+ community members, mental health advocates, women, and young professionals.

PMI members **Fluidmaster**, **IAPMO** and its International Water, Sanitation and Hygiene Foundation, **International Code Council**, **Moen** and **House of Rohl**, **RWC's** SharkBite, and **Uponor** (now **GF Building Flow Solutions Americas**) all became founding partners of the Women in Plumbing and Piping (WiPP) organization. The Code Council also sponsored the Service Titan Elite Trades and Championship Series for plumbing and mechanical contractors, as well as season five of **Pfister Faucets'** American Plumbing Stories.

Viega co-sponsored Transportation and Construction GIRL Day at the Jefferson County Fairgrounds in Golden, Colorado. Started by the HOYA Foundation, the day provides young women with information about economic sustainability in the transportation and construction industries. About 1,200 girls from 70 different Colorado schools attended. Students who visited the Viega booth had the opportunity to get hands-on experience with Viega products, learn how to use a press tool, and complete a press connection themselves.

Gerber partnered with Yami and her YouTube channel, The Latina Next Door, to provide step-by-step guidance on DIY plumbing product installations and other home improvements. The channel has 216,000 followers. In addition, Gerber University provides product training to plumbers on topics including toilets and tub and shower valves. This resource also provides tips on how to grow plumbing businesses and highlights projects completed by those who have received training.

Bringing safe water and sanitation to underserved communities

For the past 11 years, **LIXIL's** SATO program has been working to bring safe toilets to the 3.6 billion people worldwide who don't have access to one. In response to a Bill and Melinda Gates Foundation's Reinvent the Toilet Challenge, two LIXIL American Standard employees, Jim McHale and Daigo Ishiyama, traveled to Bangladesh to meet with people who used pit latrines and began to think about how their company can find a better solution. SATO has made a positive impact on the lives of 45 million people in 44 countries by putting customers at the center and approaching the business like any other product development or growth challenge.

In Navajo Nation, New Mexico, **IAPMO's** International Water, Sanitation and Hygiene Foundation demonstrated the appropriate design, installation and maintenance of engineered septic systems, which can be used where conventional, gravity-fed septic systems are failing. The pressurized mound septic systems serve as a working demonstration for Navajo officials, chapter leaders, tradespeople, non-profits, and community members to learn about alternative sanitation solutions.

Kohler's WaSH (Water, Sanitation and Hygiene) program develops solutions including off-grid sanitation to address open defecation in dense urban environments and universally adaptable hands-free handwashing in regions dealing with water scarcity. With projects in China, India, Indonesia and Thailand, WaSH makes use of products developed through Kohler's Innovation for Good incubator. One example is the Kohler Rinse pail-flush toilet. A seated porcelain toilet that doesn't require electricity or piped water to function, the Rinse flushes when water is poured into the bowl and can be used with a septic tank or pit system. The non-profit Water Mission has used the Rinse to provide healthy latrine access to communities in western Honduras.

Other Notable Happenings

Falcon Water Technologies and **LSP Products** joined PMI as manufacturing members.

Six top executives from PMI member companies were named to the association's Strategic Advisory Council. The executives are Andres Caballero, president, **GF Building Flow Solutions Americas** (formerly Uponor); Jill Ehnes, president, **Delta Faucet Company**; Shawn Oldenhoff, senior vice president, category management, Kitchen and Bath North America, **Kohler**; William Strang, president of corporate strategy, ecommerce and customer care, **TOTO USA**; council chair Todd Teter, president, **House of Rohl** and WINN EMEAA at Fortune Brands Innovations; and Claude Theisen, board chairman and CEO, **T&S Brass**.

Plumbing fixtures and fittings manufacturers create good-paying jobs in communities throughout the U.S., according to the updated Plumbing Manufacturing Industry Economic Impact Study. Plumbing manufacturers have a direct economic impact of $47.7 billion to American society and provide 208,283 jobs and $13.2 billion in wages. After adding the impacts of suppliers and household spending by employees of the industry and its suppliers, the total economic impact of the plumbing manufacturing industry increases to $116.7 billion – about four-tenths of 1% of America's gross domestic product. This total impact accounts for 517,696 jobs, $35.3 billion in wages, and $15 billion in tax revenue.

PMI sponsored the 23rd annual Crystal Vision Awards Breakfast along with PMI members **Gerber Plumbing Fixtures** and **Kohler**. The awards recognize important contributions made by manufacturers, distributors and retailers in the building industry toward the Storehouse of World Vision, which supplies building materials to families and organizations in need.

PMI's Washington and California Legislative Forums and Fly-Ins gave PMI member companies the opportunity to meet with policymakers to discuss urgent industry issues including commercial to residential conversions, counterfeit products, cybersecurity, environmentally responsible packaging, harmonizing climate reporting, lead service line replacement, PFAS reporting and mitigation, the skilled trade labor shortage, tariffs and trade, tax relief, water efficiency, and more.

PMI Market Outlook LIVE presentations from ITR Economics' Connor Lokar gave PMI members the opportunity to gain economic and market forecasts that help them plan appropriately for expected business conditions.

FUTURE

LIXIL's Erin McCusker recently traveled to Africa, where LIXIL's SATO brand is continuing to grow. As she was leaving a meeting with a manufacturer in Dar es Salaam, Tanzania, she spotted a man getting ready to sell SATO products. “He was on his motorbike with two stools, two pans and two I-traps tacked onto his back. He was going out and doing door-to-door sales that day," LIXIL's senior vice president and leader of the SATO brand recalled.

In Africa, person-to-person interaction is required to explain to customers how a SATO toilet will solve their sanitation challenges. “You have to make sure that you're not coming in and saying, 'Well, of course your problem is a nail, because I have a hammer.' Do we take the time to listen to what the customer's challenges are? That was a big learning for us in SATO, and it continues to be for our product development and focus,” she stated. “You have to meet people where they are.”

Troy Benavidez

The plumbing manufacturing industry has traditionally classified products and projects as residential or commercial. Starting now and into the future, the industry can benefit from thinking in terms of social projects, said LIXIL's Troy Benavidez, the company's government affairs leader and co-chair of the PMI Advocacy and Government Affairs Committee. “We're looking at solving bigger issues, collectively,” he explained. Whether the challenge occurs in Africa, Bangladesh, Hawaii, Navajo Nation, Alabama or elsewhere, “it's government, it's NGOs, it's the private sector working collectively together to solve a societal issue,” he added.

Reinventing toilets, plumbing systems, and more

Looking at a challenge through a social lens can help us better design and implement solutions that are user-centric and that work within a particular place or culture, Benavidez stated. How do we make people comfortable with recycled water? With using a decentralized or onsite sanitation system? Or using a reinvented toilet or any of the other water-saving innovations in development?

While PMI's manufacturing members innovate, its allied members are busy at work on codes and standards guiding the use of these new products and associated plumbing systems. The **International Code Council's** Water Reuse Working Group is developing 2027 International Codes (I-Codes) addressing water quality requirements for direct water reuse, which includes direct potable reuse — commonly referred to as "toilet to tap." Represented in the group are the Environmental Protection Agency's Water Reuse Action Plan (WRAP) Team, **NSF**, manufacturers, plumbing contractors, engineers, building and design professionals, health departments, and code officials.

This year, **LIXIL** was named the first commercial partner for Georgia Tech's Generation 2 Reinvented Toilet (G2RT) technologies. The result of a four-year partnership with Georgia Tech and LIXIL's ongoing collaboration with the Bill and Melinda Gates Foundation's Reinvent the Toilet Challenge, the G2RT is designed to operate independently of traditional infrastructure and provide an accessible, sustainable sanitation solution that prevents nutrient contamination and the spread of diseases caused by waterborne pathogens.

Unlike conventional toilets that rely on sewer systems, septic tanks, cesspools, or pit latrines to dispose of waste, the G2RT is equipped with a self-contained processing unit that treats waste directly at the source. When the toilet is used, the liquid waste is purified and recycled for flushing, while the solid waste is subjected to high heat and pressure, eliminating pathogens and transforming it into safe, compostable, dry solids.

This kind of solution could be implemented in a multitude of places ranging from rural homes to sewer-connected urban areas to remote locations in national parks. "But this has to be something people feel comfortable using," McCusker said, reiterating the social aspect of the challenge. "Are we going to get past that yuck factor? Is there going to be customer confidence that it is safe to use? There's much to explore in terms of what's acceptable, what's safe, what's reliable, and what we can implement in an affordable way."

As part of the Reinventing the Toilet Challenge, the foundation asked **IAPMO** to help develop and adopt an international standard (ISO), as well as derivative American and Canadian standards, for non-sewered toilets and other technologies, Viola said. As new technologies incorporating the use of graywater, recycled water, rainwater and stormwater are developed, codes and standards for plumbing products will need to be developed, approved and accepted by jurisdictions before reaching mainstream acceptance, he explained.

McCusker foresees a future in which plumbing systems are more decentralized, as reuse grows in importance and customers begin to accept it. She envisions climate-resilient systems that treat waste onsite while reusing water, capturing nutrients, and reducing the energy impact of transporting wastewater great distances to centralized treatment. Because of the magnitude of the global sanitation challenge, SATO toilets will still be in demand 25 years from now, as will reinvented toilet technologies, she said. "But we will have a much wider set of tools that can be deployed rather than relying on heavy infrastructure to meet the needs of communities."

Even communities linked into large traditional water infrastructure systems will benefit from this trend, Benavidez stated. "You can have an urban environment with multi-family homes and skyscrapers where wastewater treatment occurs closer to the source," he said. Onsite and decentralized treatment can provide nutrient recovery opportunities and enable onsite reuse within a home or neighborhood. By treating the most problematic waste streams onsite and embracing reuse for flushing and other non-potable uses, wastewater utilities can alleviate pressure on their centralized infrastructure, reduce the impact of overflow events during storms, and achieve higher water efficiency, he explained. "Even in large urban centers like Chicago or New York, there's still room for improvement around water reuse."

Benavidez sees PMI member companies coming together to drive the regulatory and policy changes that will be needed to enable this technology. "To get us to the future, we're going to have to push those boundaries around the regulatory and policy environment and show governments that it's our innovation or another PMI member company's innovation that's going to be a solution," he stated.

Skilled labor will be needed to implement these innovations

Plumbers and other skilled trades workers are needed to manage plumbing systems in use today and also will be needed to install and maintain the systems of tomorrow. "That's why over the years we've been putting so much effort into upskilling. Yes, we need plumbers, but we also need those plumbers to be able to upskill and learn the new innovation that's coming so that they can install the reinvented toilets and other technologies of the future," Benavidez emphasized.

PMI members have established various programs encouraging young people and others considering career changes to become plumbers and other kinds of skilled trades workers. In addition, PMI joined Tomorrow's Workforce Coalition, established by the American Society of Association Executives and the Professional Certification Coalition. The organization's goal is having the bipartisan Freedom to Invest in Tomorrow's Workforce Act (S. 722/H.R. 1477) signed into law.

The proposed legislation would expand the use of 529 education savings accounts to allow Americans to use them to pay for associated costs related to skilled trades certification exams and maintenance of certification credentials, allowing stu-

dents and professionals to upskill and reskill throughout their careers. The expansion could encourage more people to enter the plumbing fixtures and fittings manufacturing industries, as well as other skills-based careers. Currently, 529 plans can be used only for college, graduate or professional degrees; educational programs from Title IV-accredited institutions; registered apprenticeships; and certain K-12 tuition and student loan repayments.

Shifting the paradigm for 529 plans from "college savings plans" to "career savings plans," the bill addresses credentialing for "middle-skill" jobs, which require more than a high school education but not a bachelor's degree; these jobs comprise a large component of America's labor market. Providing pathways to fill the estimated 693,000 job openings in the manufacturing sector, the bill would also broaden learning opportunities for the estimated 48,600 new jobs each year for plumbers, whose knowledge and adherence to plumbing codes and standards provide the foundation of the plumbing manufacturing industry.

Standards remain a primary focus for PMI

More than ever, policymakers at all levels of government are facing pressure to deliver results quickly, use scarce public resources effectively, marshal evidence smartly, and serve and reflect the needs of many diverse groups and individuals. Three employees of the **CSA Group** — Ana-Maria Tomlinson, Sunil Johal and Nevena Dragicevic — recently authored a paper about what they called an "underleveraged tool in the policymakers' toolkit – standards." The paper explores how industry standards can keep pace with rapid societal, technological and environmental changes that are moving too quickly for traditional policymaking tools such as taxation, spending and regulation to address. These rapid changes include climate change, artificial intelligence, disruptions to global economic and political order, and more.

Sometimes referred to as "the invisible layer of governance," standards are voluntary when they are first published, but many are subsequently referenced in law or regulation and therefore become mandatory. For example, some states have adopted WaterSense specifications as their mandatory water-efficiency standards. In Canada, supported by advancements in CSA plumbing standards that included requirements for water temperature limiting devices, the number of deaths in Canada caused by contact with hot tap water decreased by 60% between 2000 and 2021.

Model codes are often adopted at the state and local levels. Codes, standards and guides also can be used to indicate best practices; develop incentive programs; gain access to procurement opportunities; promote diversity, equity and inclusion; deliver affordable housing in the face of high living costs; and more, the authors state.

Just as developing, maintaining and harmonizing plumbing standards were the focus of PMI in 1954, they remain a primary focus today.

"For the last seven decades, PMI members have created and maintained plumbing codes and standards relevant to the challenges of the times. And they've matched their technical expertise with effective advocacy for water efficiency and safe, responsible plumbing. These qualities saw us through the first 70 years and will be our legacy."

PMI CEO/Executive Director Kerry Stackpole

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Upcoming 2024 Events

PMI CEO THINKING FORUM
Sept. 18-19, Viceroy Chicago

PMI INSPIRING LEADERS PROGRAM
Nov. 4, Carter Center, Atlanta

PMI24 MANUFACTURING SUCCESS CONFERENCE
Nov. 4-7, InterContinental Buckhead Atlanta

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