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Keeping Today's Plumbing Manufacturing Safe

By Kerry Stackpole, FASAE, CAE, PMI CEO/Executive Director

Kerry Stackpole

In an increasingly interconnected world, the vulnerability of American manufacturers to cybersecurity and infrastructure attacks has reached alarming levels. As the backbone of safe, responsible plumbing, Plumbing Manufacturers International (PMI) members must prioritize the protection of their systems and data. To effectively combat these threats, CEOs and senior executives must focus on a proactive and multifaceted approach that encompasses strategic investments in technology, employee training, collaboration with industry partners, and the establishment of robust cybersecurity policies.

The manufacturing sector has become a prime target for cybercriminals due to its reliance on technology and digital systems. Ransomware attacks, data breaches, and sabotage can lead to significant operational disruptions, financial losses, and damage to reputation. According to a report by the Ponemon Institute, the average cost of a cyberattack for manufacturing companies is more than $1.6 million, which underscores the urgency for CEOs and senior leaders to act decisively.

One of the first steps you can take is to invest in advanced cybersecurity technologies. This includes implementing firewalls, intrusion detection systems, and endpoint protection solutions that can identify and mitigate threats before they escalate. Adopting cloud-based security solutions allows your company to benefit from the latest updates and threat intelligence. In addition, integrating cybersecurity with operational technology (OT) is crucial, as many attacks target systems that control physical manufacturing processes. It's important to ensure that information technology (IT) and OT teams collaborate to create a unified security strategy that encompasses all facets of the manufacturing environment.

In conversation with experienced internet security consultants at one of America's largest software companies, we were reminded that human error remains one of the leading causes of cybersecurity breaches. Finding usernames and passwords on Post-it notes and under mouse pads is more common than one might think. CEOs and senior executives must prioritize comprehensive employee training programs that focus on cybersecurity awareness. Regular workshops and simulated phishing attacks can educate employees on identifying potential threats and adopting safe practices. By fostering a culture of security mindfulness, your company can empower your workforce to become the first line of defense against cyberattacks. It is equally important to establish clear protocols for reporting suspicious activity, which can significantly enhance the organization's overall security posture.

Collaboration is key to addressing cybersecurity challenges effectively. As CEO or senior leader, you should engage with PMI and governmental bodies to stay informed about emerging threats and best practices. Being part of alliances with other PMI members can facilitate knowledge sharing and the development of collective defense strategies. By participating in information-sharing platforms, companies can exchange threat intelligence and learn from one another's experiences. This collaborative approach strengthens individual organizations and fortifies the entire manufacturing sector against cyberthreats.

A comprehensive cybersecurity policy is essential for guiding your organization's approach to risk management. PMI member companies should ensure that their policies cover all aspects of cybersecurity, including incident response, data protection, and employee conduct. Regular audits and assessments of these policies are crucial to identify vulnerabilities and ensure compliance with industry standards and regulations. Also, invest in developing an incident response plan that outlines the steps to take in the event of a cyberincident. This preparedness can minimize damage and expedite

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INSIDE

Don't Miss PMI24's Powerful Program, Festivities and More!

By Judy Wohlt, PMI Communications Team, Valek and Co.

A powerful program planned for the PMI24 Manufacturing Success Conference, Nov. 4-7 in Atlanta, will showcase prominent experts discussing critical topics, as well as industry networking and an exciting Plumbing Manufacturers International 70th-anniversary celebration. Review the entire schedule and register now at safeplumbing.org/pmi24!

Learn about the latest per- and polyfluoroalkyl substances (PFAS) destruction technologies, net zero water building designs, reinvented toilet concepts, WaterSense developments, Federal Communications Commission's (FCC) Consumer IoT Cybersecurity Labeling Program, sustainable packaging efforts in Michigan, and much more.

Discover new and developing PFAS destruction tech

Cally Edgren

Cally Edgren, vice president of regulatory and sustainability at Assent, will lead the Nov. 5 panel on new and developing PFAS destruction technologies. Responsible for the strategic leadership of a global team of regulatory and sustainability experts, Edgren is a recognized expert in PFAS-related risks impacting complex manufacturing. Edgren formerly served in senior managerial positions at Kohler Co., providing leadership and strategy for comprehensive product compliance.

Serving on the panel, **Lingke Zeng**, project director of Civil and Environmental Consultants, will share her insights from spending over 18 years in complex site remediation and water treatment to address a range of contaminants including PFAS. As a technical expert, she has evaluated, designed and implemented remediation and waste treatment at more than 300 commercial and government sites throughout the United States and internationally.

Lingke Zeng

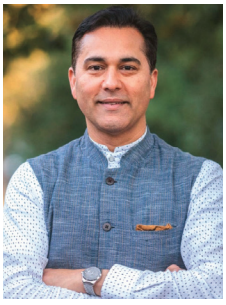
Sarah Parker, Ph.D., senior managing scientist at Exponent, also will participate on the panel. She has helped many clients understand the use and occurrence of PFAS in products, materials and processes. A chemist specializing in how composition and formulation affect the performance of complex chemical systems and practical materials, Dr. Parker has experience in testing methods to assess products and materials for the presence of PFAS.

Sarah Parker

Green building experts: 'the future is net zero water'

On Nov. 6, **Shan Arora**, director of the Kendeda Building for Innovative Sustainable Design at Georgia Institute of Technology, will discuss "The Future is Net Zero Water" along with **Mike Snider**, field foreman at Batchelor & Kimball, and **Joshua Gassman**, principal and sustainable design director at Lord Aeck Sargent.

The Kendeda Building is the first building in Georgia and 28th in the world to earn the International Living Future Institute's Living Building Challenge certification—the world's most ambitious and holistic green building achievement, reports the Georgia Tech website.



Shan Arora

Arora has gained global recognition as an advocate for designing, constructing and operating regenerative buildings that produce net-positive environmental impacts. He engages people across cultures, ages and vocations to amplify the message that in a resource-depleted world, we must give back to nature more than we take. Arora applies his experience in clean energy policy, sustainability, community engagement, business development, and tax policy to advance his mission.

Snider has contributed to several high-profile projects, including the Kendeda Building, the Hartsfield-Jackson Airport's international terminal, and the University of Georgia Sanford Stadium expansion. Since 2015, he has been an instructor at the Mechanical Trades Institute, specializing in state plumbing code and preparation classes for the state plumbing license test. Snider also is an active member of Atlanta Local 72.

Joshua Gassman

Gassman will share insights about his work on the Kendeda Building. Gassman has applied his experience to develop high-performing buildings that produce net-positive water, energy and waste. An avid environmentalist, he has extensive knowledge of the U.S. Green Building Council's Leadership in Energy and Environmental Design System and other sustainability verification systems such as the Living Building Challenge.

Georgia Tech research engineer to explore reinvented toilet concepts

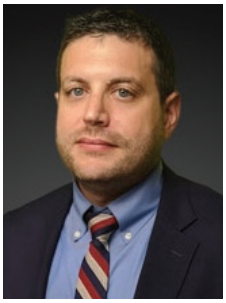
Kyle Azevedo, a senior research engineer in the Aerospace, Transportation and Advanced Systems Laboratory at Georgia Tech Research Institute (GTRI), will delve into "Reinventing the Toilet: A Global Collaboration Turning an Infrastructure into an Appliance."

Kyle Azevedo

He leads the mechanical applications branch at GTRI and for the last 15 years has directed product development initiatives in multiple industries, including transportation, consumer electronics, sustainable technology, and defense systems. Azevedo has professional interests in advanced and additive manufacturing and a passion for engineered systems that improve the human condition.

The Generation 2 Reinvented Toilet (G2RT) program at Georgia Tech involves a global team of scientists and engineers that is taking a second look at solutions for reinventing the toilet. They are integrating the best concepts developed across the Bill & Melinda Gates Foundation's Reinvent the Toilet Challenge program to create a low-cost, single-user, reinvented toilet for those living in poverty without access to connected sewers and centralized treatment facilities.

Learn what's new with the WaterSense program



Jonah Schein

Jonah Schein, national program manager for homes and buildings, Environmental Protection Agency's WaterSense Program, will share "What's New with WaterSense" in his Nov. 5 presentation. Learn about new product specifications for reverse osmosis treatment systems, revisions to old product specifications for faucets and toilets, and the expansion of the WaterSense-labeled homes program.

A self-professed water nerd, Schein has spent his career focused on water efficiency—starting with desert agriculture and moving on to high-performance buildings for the last two decades. He has overseen the technical development and implementation of the WaterSense-labeled homes program since its inception. As an established expert in his field, Schein speaks regularly and has published numerous articles on water efficiency, conservation and sustainability.

Hear from a cybersecurity legal authority and a recycling specialist

On Nov. 5, hear "The Latest on FCC's Consumer IoT Cybersecurity Labeling Program" from **Brian Finch**, partner in the Washington, D.C., office of Pillsbury Winthrop Shaw Pittman. He co-chairs the firm's cybersecurity and homeland security practices, focusing on providing clients with liability mitigation advice.

Brian Finch

His clients include the American Water Works Association, several critical infrastructure companies, defense and cybersecurity contractors, and many professional sports teams. Finch is a leading authority on the SAFETY Act, a federal statute that can provide liability protection to companies following a terrorist or cyber attack.

Matt Flechter, a recycling market development specialist at the Michigan Department of Environment, Great Lakes and Energy, will discuss sustainable packaging on Nov. 7. For more than 24 years, he has assisted recycling programs to grow the Michigan supply chain, so the valuable commodities businesses need to create their products are available—instead of sitting on the curb. With a dedicated team, Flechter has designed and developed the recycling and organics policies, education, infrastructure, and markets programs that make Michigan a leader in recycling.

Matt Flechter

Reinvention: the Future of Plumbing Manufacturing

By Ray Valek, PMI Communications Team, Valek and Co.

In recognition of Plumbing Manufacturers International's 70th anniversary, the title of the 2024 PMI Annual Report is "Past, Present, Future." This excerpt provides a glimpse into the future of plumbing manufacturing. Read the entire report at tinyurl.com/49x4az35.

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."

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 Reinvent 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, IAPMO CEO **Dave 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.

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," said PMI CEO/Executive Director **Kerry Stackpole**. "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 Members Prepare for Rising EPD Demand

By Judy Wohlt, PMI Communications Team, Valek and Co.

The demand for environmental product declarations (EPDs) is rising, driven by federal initiatives and various state legislation requiring low-carbon construction materials and by building sustainability rating systems such as LEED and Green Globes. Plumbing and other manufacturers are using EPDs, which disclose the environmental performance of their products, to provide transparency around their sustainable practices.

Kim Hammer

Kim Hammer, a life cycle assessment certified professional and program manager at Sustainable Minds, walked Plumbing Manufacturers International members through the Sept. 12 webinar "All You Need to Know about PCRs, LCAs and EPDs." She discussed how EPDs are created and the role LCA reports and product category rules (PCRs) play in the process.

EPDs are science-based, public-facing documents that summarize the findings from LCAs, which evaluate the potential environmental impact of a product throughout its life cycle, Hammer explained. EPDs support carbon emission reduction by allowing architects, engineers, suppliers, and others to compare the environmental impact of various materials and products and select the most sustainable option.

"There are a whole bunch of current plumbing product EPDs on the market. This is a good sign that plumbing manufacturers have been making sure to create EPDs and perform LCAs," she said. "Manufacturers are getting a leg up since they're able to market themselves this way."

Program operators, independent agencies that manage publishing EPDs, are responsible for developing PCRs, ensuring compliance, and matching manufacturers with verifiers that have the necessary technical background to verify EPDs. Sustainable Minds, a program operator, created a Transparency Catalog (transparencycatalog.com) to help find EPDs from every program operator in North America, Hammer said.

EPDs summarize LCAs

EPDs summarize LCA reports, which are created in line with PCRs and industry standards. The industry standards for performing an LCA involve the ISO 14040 series—which covers LCAs in general, ISO 14025—which involves the requirements for EPDs specifically, and ISO 21930—which encompasses the requirements for EPDs of building and construction products and services, Hammer noted.

LCAs provide details for many important elements, such as the build materials for the product being analyzed, the transportation distances from upstream suppliers, and all materials and energy associated with the manufacturing process at the plant, she said.

Hammer shared how the LCA report describes all assumptions that were made, data sets chosen, standards followed, waste sources provided, energy allocated to a specific process or product, and other items—everything that's relevant to calculating the results going into an EPD.

PCRs set the rules for performing life cycle assessments

PCRs establish guidelines to assess the environmental impact of products or services throughout their life cycle. A program operator, which typically has practicing knowledge of LCAs and EPDs, runs a PCR program and creates the PCRs, Hammer explained.

Program operators must create a PCR committee by reaching out to manufacturers, LCA experts, industry associations, suppliers, and purchasers—essentially any interested stakeholders. The committee will meet to develop a PCR, which gets reviewed and edited by technical experts familiar with LCAs. The edited PCR must be made available to the public for a 30-day review before the PCR gets published, she said.

Many plumbing PCRs exist, such as those for kitchen and bath fixture fittings; however, new PCRs are still needed for many plumbing product categories to create more EPDs, Hammer said. She noted that through its sustainability efforts, PMI has been helping plumbing manufacturers improve their product transparency. In 2018, PMI published two sets of PCR guidance—one for kitchen and bath fixture fittings and another for kitchen and bath vessel fixtures.

PMI members can access the webinar and slides at tinyurl.com/578tzx92.

New Rethink Water Chapter Addresses Building Plumbing Systems

By Ray Valek and Judy Wohlt, PMI Communications Team, Valek and Co.

In a new chapter of its Rethink Water initiative, Plumbing Manufacturers International (PMI) is addressing the importance of "Responsibly Managing Building Plumbing Systems."

New website content including a video (tinyurl.com/5n8fa499) explains how these systems 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 the safe and efficient flow of water.

PMI CEO and Executive Director **Kerry Stackpole** said the content was developed to help policymakers understand how a change to one part of the system affects the other parts. "With good intentions toward saving water, policymakers in California and elsewhere want to reduce flow and flush rates below performance-tested WaterSense specifications certified by the Environmental Protection Agency," he explained.

However, further reducing these rates may have unintended, negative consequences to other plumbing system components, making them not work as well as planned. For example, using less water per toilet flush may lead to double flushes using even more water, inadequate drain carry of solid waste, blockages in sewer pipes, and backflow into potable drinking water. Lower-flow showerheads may lead to longer showers due to the difficulty of rinsing soap from hair. Lower water flow causes water to move through pipes at a slower rate and stay inside pipes longer, potentially leading to water pathogen growth.

"And perhaps most importantly, buyers may choose not to purchase lower-flow fixtures and fittings, choosing instead to leave then on store shelves," Stackpole said. "Any change to specifications must take the behavior and preferences of customers into account."

Legacy product replacement can save water more quickly

Stackpole said history shows that changes to flow and flush rates save water, but only gradually over a long period of time. California mandated lower-flow fixtures and fittings for new construction in 2016. However, eight years later, less than 25% of the toilets in California meet the specification of 1.28 gallons per flush (gpf), according to the California Market Penetration of Water-Efficient Plumbing Products Study conducted by GMP Research. Most Californians have decided to keep toilets with higher flush rates either because they don't want to spend the money on a new toilet or they prefer the toilet they have, he said.

PMI is in favor of working with policymakers to create robust incentives to more quickly replace older, inefficient plumbing fixtures and fittings. This approach, called legacy product replacement, is not new. The San Antonio Water System is the best example of a water utility that replaced inefficient toilets until there were no more left to replace. PMI estimates that a robust legacy product replacement initiative in California could save up to 65.3 billion gallons of water within the next five years.

PMI has found many successful programs across the nation that provided free or discounted toilets to water utility customers meeting certain qualifications, usually relating to the older toilet's gpf and customer's household income level. View our "legacy product replacement" content including a video (tinyurl.com/8buphj3x) to learn about how to get more WaterSense products installed in homes, businesses and public places.

Manufacturers commit to delivering optimal efficiency and performance

PMI member companies consider the effects of water flow on the entire plumbing system when designing toilets, showerheads, faucets, urinals, sprinkler systems, and more for certification by the WaterSense program. Plumbing manufacturers spend thousands of hours researching, engineering and testing their products to achieve optimal water efficiency and performance.

Certified WaterSense products are at least 20% more water efficient than plumbing products meeting the federal water-efficiency standard. In addition, the products are certified by independent, third-party testing authorities to meet high performance and customer satisfaction standards.

WaterSense plumbing products have saved Americans more than 8.7 trillion gallons of water and $207 billion in water and energy bills, according to the EPA, since these products first became available in 2006. The EPA reports that these products also have positively impacted the environment, having eliminated 379 million metric tons of greenhouse gas emissions, the equivalent of planting 6.3 billion trees.

Keeping Plumbing Manufacturing Safe (Contd.)

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recovery, ultimately safeguarding the organization's assets and reputation.

Cybersecurity is not a one-off event. Hardening your manufacturing facilities requires a commitment to continuous improvement. Be sure to allocate resources for ongoing assessments and upgrades to your security infrastructure. Stay informed about the latest cyberthreats and trends and adapt strategies accordingly. Regularly reviewing and updating cybersecurity policies ensures that your organization remains resilient in the face of evolving threats.

The vulnerability of American manufacturers to cybersecurity and infrastructure attacks is a pressing concern that requires immediate and sustained action from top executives. By investing in technology, prioritizing employee training, collaborating with industry partners, establishing robust policies, and fostering a culture of continuous improvement, you can significantly enhance your cybersecurity posture. In doing so, you protect your organization and contribute to the overall resilience of the American manufacturing sector in a digital age. The responsibility lies with CEOs, senior executives and leaders to set the example and head up these efforts, ensuring that your organization is prepared to navigate the complexities of today's cyberlandscape.

PMI CEO Thinking Forum Held in Chicago

Lior Arussy, a leading authority on creating value for customers, led a group of PMI member executives through sessions designed to demonstrate exceptional customer centricity at the PMI CEO Thinking Forum in Chicago.

The day included visits to three Chicago Gold Coast stores—Hermès, Shinola and Le Labo—known for the personal sales and service experiences they provide their customers. He also addressed how to place your company's employees at the heart of customer experience efforts. Gain advice from Arussy by reading "Customer Centricity is No Longer Optional" in Chief Executive magazine (tinyurl.com/yzr6p46y).

Lior Arussy; J'aime Salvatore, Neoperl; Jeff Baldwin, T&S Brass; Nate Kogler, Bradley Company; Alana Stevens, BLANCO; Alex Sullivan and Cassie Schildt, Lavelle Industries; Kerry Stackpole, PMI; Mahesh Cheerla, BrassCraft; and Jodi Stuhrberg, PMI

2024 PMI LEADERSHIP

PLUMBING MANUFACTURERS INTERNATIONAL

1750 Tysons Blvd., Ste. 1500
McLean, VA 22102
Phone: 847 481-5500
Fax: 847 481-5501

SafePlumbing.org