



THE PIPELINE

News and Information about the Eastern Massachusetts Plumbing Industry • August 2017

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“The Wynn project is a once-in-a-lifetime opportunity to work on a job of this magnitude.”

- Jim Vaughan of Local 12
Cover

“I loved the trade, and I loved teaching.”

- Hank Fandel
Cover

“Health starts with plumbing.”

- Carmela Digregorio of Plumbers Without Borders
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Deconstructing the Wynn Casino Project

IT'S EASY TO LOCATE THE SITE ON WHICH WYNN BOSTON HARBOR IS BEGINNING TO TAKE SHAPE. INSTEAD OF ONE OR TWO TOWER CRANES, THERE ARE SIX PIERCING THE SKYLINE.

The sheer number of cranes only begins to give a sense of the upscale gaming resort's scope and scale. It is many orders of magnitude greater than the region's largest construction projects.

“The plumbing value alone for this job is in excess of \$100 million,” says Jim Vaughan, business agent for Plumbers Local 12. “It's almost overwhelming.” Visitors will have to feed a lot of quarters into the slots to pay for the Wynn's construction.

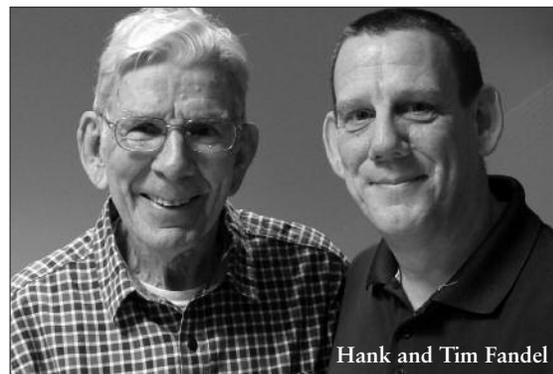
Three members of the Greater Boston Plumbing Contractors Association are part of the project's crew.

A family tree connected by plumbing pipe

“THERE IS DEFINITELY PLUMBING IN THE BLOOD,” SAYS HANK FANDEL.

Representing the third of five generations who are working or have worked as plumbers in the Boston area, Hank is an example of the family ties that can often be traced in the industry. But the number of Fandel family members in the trade is especially large

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Hank and Tim Fandel

J.C. Higgins is handling the underground systems. E.M. Duggan will build the plumbing systems for the podium, including the gaming, restaurants, shops, and the 671-room hotel. And J.C. Cannistraro will be building the mechanical systems for the resort's central utility plant (or CUP), the drain systems for the garage, and the plumbing systems for the convention complex.

Why three plumbing contractors? It's part of the plan to manage the vast project according to Peter Campot, director of construction for Wynn Design and Development. “The strategy for building the project was to break it up into manageable pieces,” he says.

There is plenty of work to break up. Hard construction for the project is valued at \$1.4 billion. In total, Wynn will be investing \$2.4 billion in the Boston Harbor resort, making it the largest single-phase development in the state's history. At its height there will be 2,500 construction workers on the site at one time, about 150 of which will be Local 12 members. That doesn't include the pre-fabrication work that the plumbers will perform offsite.

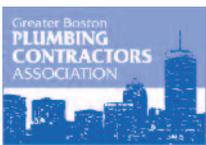
Given today's practices, 150 plumbers working on one project is especially noteworthy. “With efficiencies such as pre-fab that shops bring to jobs, we have smaller, more efficient crews working on tighter deadlines,” says Tim Fandel, business agent for Plumbers Local 12. “Years ago, it may have taken 300 plumbers to build a project of this size. And it would have taken them longer.”

An ambitious project with an ambitious schedule

The schedule for the massive project is remarkably tight. The two foundation systems, which are supported on precast piles, are complete, and structural

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Cannistraro heeds urgent call in Haiti

IT STARTED WITH THE EARTHQUAKE THAT STRUCK HAITI IN 2010.

The death toll was upwards of 250,000. Another 300,000 were injured, and 1.5 million people were displaced. The earthquake created between \$7.8 billion to \$8.5 billion in damage. Tracy Cannistraro saw the devastation and the urgent need and asked her husband, “What could we do?”

Not one to shy away from a challenge, John Cannistraro, Jr. responded by helping to build a teaching hospital in Port-au-Prince. As the president of Cannistraro, a GBPCA member and one of the country’s largest mechanical contractors, he marshaled resources and leveraged over \$600K worth of materials as well as hundreds of volunteer hours. Cannistraro constructed 300 medical gas headwall units at its prefabrication plant in Wattertown. The company shipped the units in containers to Port-au-Prince and sent a couple of Local 12 plumbers there to train Haitian mechanics and oversee the installation.

“The hospital was built,” said Cannistraro. “But it came with a lifetime warranty for Haiti.” With that commitment, he next helped build a new surgical center and medical laboratory in the southern part of the island nation.

While involved with the projects, Cannistraro connected with Partners in Health. In discussions with officers of the non-govern-

mental organization, which assists in providing healthcare for people in Haiti and other impoverished countries, he learned that cholera and other water-borne diseases that are rampant in Haiti are caused by a lack of household sanitation. Young children are especially vulnerable. In most areas, there is neither running water nor any sewage systems. With no sources for proper disposal of feces, as many as 90% of those living in rural areas defecate in the open. Cannistraro saw this as another challenge.

“John Cannistraro is one of our biggest supporters,” says Elizabeth Campa, senior health and policy advisor for Zammi Lasante, Partners in Health’s sister organization in Haiti. For about a year the two have been working together on an open pit cover that the contractor has designed with a “think tank” of Cannistraro engineers and other employees.

Understanding that the cover would have to be portable, lightweight, stackable, durable, easy to clean, and inexpensive to produce and distribute, the team got to work. The prototype concept that they developed is essentially a covered bucket on top of a nine-foot, plastic-covered pit. Cannistraro says that it should serve an average household about ten years.

Earlier this year, Campa and Cannistraro presented a mock-up of the unit made on a 3-D printer to members of the Haitian government, UNICEF, and the World Bank. The panel approved the concept and gave the green light to proceed with a field test.

A full-scale model of the open pit cover was on display at a fundraising event in the spring that coincided with World Plumbing Day. It was held at



Elizabeth Campa and John Cannistraro address the audience at a fundraising event held at The Plumbing Museum to support the Haiti pit covers project.

The Plumbing Museum, which is located on the Cannistraro campus and operated by the company. The \$60,000 that was generated at the event will be used to build working pit covers and test them in a dozen households before the end of this

year. The testing will generate interest in the pit covers.

“We’re going to make this happen,” Cannistraro says.

He and Campa hope that the government of Haiti will give its final approval so that the product can be marketed to the greater public.

Once the concept is proven viable, Campa envisions the Haitian government establishing a long-term goal of having sanitation markets throughout the country where people could buy pit covers for a reasonable cost. “It might take five or ten years, but that’s our goal,” she says. It’s critical to have the buy-in of the Haitian government, with which Partners in Health and Zammi Lasante have been working closely for 30 years.

Addressing the donors who had come to support the Haiti project, Cannistraro talked about the impact that the pit covers could have on containing disease and preventing deaths. “I need help,” he said. “What’s a better investment? It’s a life. It’s a soul.”

The plumbing industry professional also used an apt water-based metaphor. He repeated an adage that his wife said about their efforts to help the Haitian people: “If you put a pebble in the water, it makes a ripple, then a wave, and the next thing you know it’s a tidal wave.”

\$60,000 will provide support in the early stages of developing a model and sending it to Haiti for testing. But additional funds are needed to grow the start-up project and reach a larger area of the population. 100% of funds donated will go directly to the project. To make a donation or for more information, contact Elizabeth Campa at ecampa@pih.org.



A model of the open pit cover that the Cannistraro company is helping to develop.

Massive Wynn project rising in Everett

Continued from page 1

steel is being erected. Plans call for all steel to be finished at the end of 2017 and the entire project to be completed in early 2019. Then it will take about four months to load everything in for the resort's summer 2019 grand opening.

In order to meet the ambitious schedule, Campot says Wynn is spending about \$2 million per day in construction costs or an average of \$10 million a week. The site is humming 24 hours a day with two full-time shifts and a third shift assigned to handle clean up and material load-in and load-out.

The project will include a 1.4 million-square-foot garage that will accommodate 3,000 cars. How big is that? Six 777 jets could fit in the basement of the garage. The hotel will span 730,000 square feet. At about 700 square feet, the hotel rooms will be twice the size of average rooms in the Boston area. The 650,000-square-foot podium will include the casino, dining, and retail spaces. There will be 150,000 square feet of convention space and an additional 250,000 square feet of support space for the CUP and other back-of-house areas.

As the project evolved from its initial approval, the owners decided to reduce the number of shops and overall retail space.

They are maintaining the original size of the project, however, by making the convention and restaurant areas larger. "When Wynn announced it would be redistributing the mix, Local 12 was happy to learn that it would be adding additional restaurants," Fandel says. "That's more work for us."

To put the Wynn resort in perspective, it will be much bigger than the Boston Convention and Exhibition Center. It will also be more difficult to build because of the quantity and quality of finishes. "It's off the charts," says Campot. "It's 1.7 million square feet of class-A space. We're building a five-star resort."

To get a sense of the finishes, the construction director showed me a hallway lined with dozens of swatches, material samples, renderings, and other indications of what's on the way. He says that Wynn has its own interior design team. Among the items represented were rich woods, ornate lights, plush carpeting, a carousel that will be fashioned out of flowers, and, inexplicably, a pop art Popeye the Sailor Man sculpture valued at \$28 million that will greet guests in the resort's lobby.

Challenging construction site

Just as impressive as the size, scope, level of detail, and cost of the project are the constraints

and challenges of the construction site and Wynn's efforts to address them. Even before the property could be developed, the company had to excavate 500,000 cubic yards of soil, the majority of which was dirty and had to be treated. Located adjacent to the Mystic River, the site had ground water four feet down. The whole project is 14 feet above natural grade and is designed to be flood resistant for 500 years.

Eight acres of the 32-acre site is water. Of the remaining 24 acres, the building will occupy 14 acres and 10 acres will be used for hardscape and landscape. "There is virtually zero laydown area," Campot notes. "Everything has to be just-in-time delivery."

To handle the daunting logistics, the construction site is tightly managed. There are onsite traffic controllers to oversee major deliveries such as the 200 concrete trucks it takes for a 2,000-yard pour. Campot says that even minor deliveries require careful coordination.

As part of the construction planning process, Wynn is making extensive use of BIM modeling. Like most projects of this size, there are electronic models of the mechanical piping systems. But the development team has taken BIM to the next level with sophisticated renderings of more than just what will be behind the building's walls. Digital pre-visualization extends to the tiniest details, such as the architectural finishes. With its technical prowess, the Boston area is especially strong in BIM modeling, and Campot says that the work his team is doing in this realm will reverberate throughout the casino construction industry.

There is something else in which Boston is especially strong: sports. Because of the region's passion for its professional teams, the Boston Harbor resort will be the first Wynn property to feature a sports bar.

WYNN BY THE NUMBERS

\$2.4 Billion
Total investment

\$1.4 Billion
Hard construction costs

\$100 Million
Plumbing value

2,500
Construction workers

5 Million
Labor hours

1.4 Million Sq. Ft.
Size of garage

3,000
No. of cars that could fit
in the garage

6
No. of 777 jets that
could fit in the garage

1.7 Million Sq. Ft.
Size of resort

\$28 Million
Value of Popeye statue
planned for lobby



The enormous casino resort is beginning to take shape. Photo: Boston Globe

Wynn is not forgetting the resort's harbor location. As part of the project's substantial landscaping package, it is dredging an inlet and installing a marina. Plans include the restoration of one half mile of living shoreline. Calling it an incredible urban renewal project, Campot says that by transforming the property from "gritty to gorgeous," it will trickle down throughout the area.

When it opens in 2019, the Wynn will undoubtedly be a remarkable place to visit. Until then, it will be a remarkable project to build. "For some of our members, it's a once-in-a-lifetime opportunity to work on a job of this magnitude," says Vaughan. "The Wynn is great for Local 12 and great for our contractors."

Plumbers Without Borders help conquer water and sanitation poverty

It's likely you have heard of Doctors Without Borders. But are you aware that there is an organization known as Plumbers Without Borders?

Like the physician-based group, PWB marshals professionals – in this case, plumbers – so that they can help improve global public health. Whereas Doctors Without Borders delivers medical aid, PWB's aim is to get to some of the root causes of disease and suffering: unsafe drinking water and poor sanitation.

To help support PWB's important work, MassPlumbers, a joint effort of Plumbers Local 12 Boston and the Greater Boston Plumbing Contractors Association, became a sustaining sponsor of the organization. We encourage Boston-area plumbers who want to lend their time and expertise and help make a difference in communities far and near to learn more about PWB and

consider joining its online database of potential volunteers. Go to PlumbersWithoutBorders.org for info.

Two plumbers based in Seattle, Domenico Digregorio and Fred Volkers, and their wives, Carmela and Judy, started the grassroots organization. Like John and Tracy Cannistraro (see "Cannistraro heeds call in Haiti" in this issue), the devastating 2010 Haiti earthquake inspired them to act.

A fellow plumber, Jed Scheuermann, who had participated in a humanitarian mission in the earthquake-ravaged country led to a light bulb moment: Since plumbers have special skills that can make a huge impact in places

of great need, what if there was a way to connect volunteer plumbers with organizations and projects focused on increasing access to safe water and sanitation? That became the motivation and mission statement of PWB, the organization that the Digregorios and Volkers founded.

Among the organization's goals are raising awareness and education standards about plumbing and sanitation. Its target audiences include tradespersons, community leaders, governments, and industry professionals. While PWB is mostly focused on bringing plumbers and third-party organizations and resources together, they are also very committed to promoting the trade of plumbing and apprenticeship programs around the country and the world.

"PWB doesn't currently manage or initiate projects ourselves, as we are volunteers too," explains Carmela Digregorio, one of the organization's board members. "We try and find the best suitable project opportunities out there and connect them with potential volunteers."

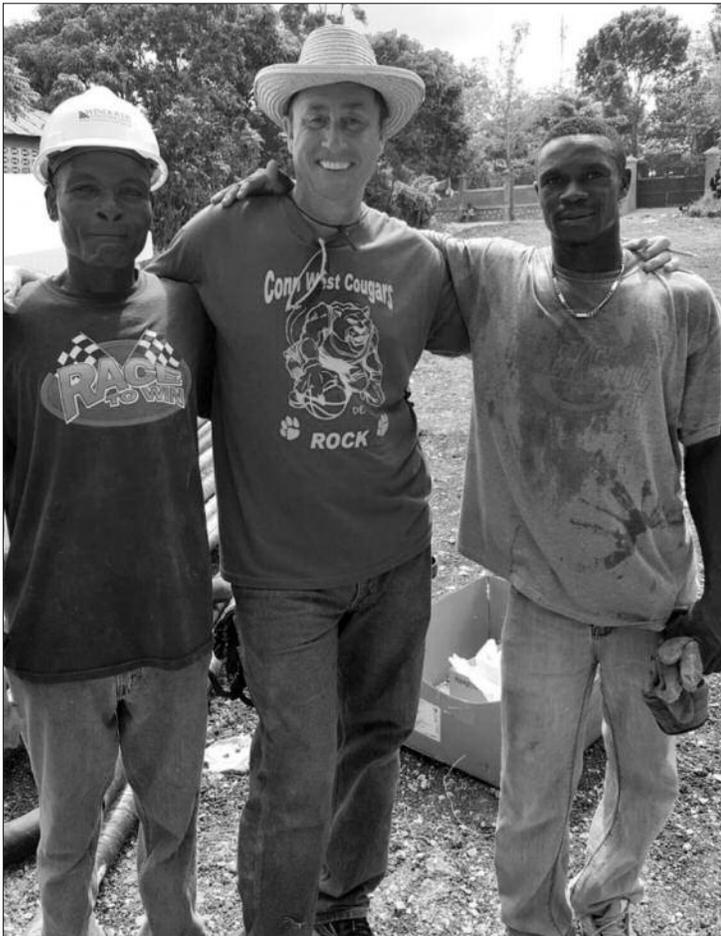
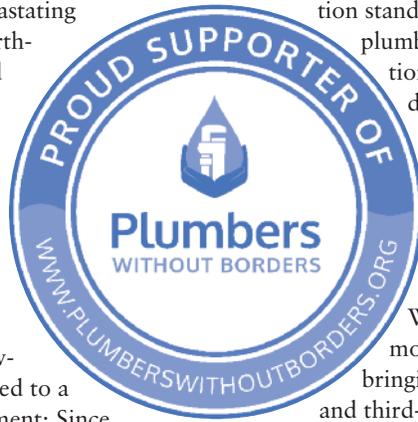
There are over 500 plumbers around the world enrolled in PWB's database. Projects have in-

cluded helping with the construction of a surgical center and the installation of water filtration systems in Haiti, assisting a hospital in Ethiopia to develop plumbing and sanitation procedures, and procuring a solar water pump system for an orphanage in Sierra Leone.

The organization is also working with Build Health International, an organization in Beverly, Mass. that is developing medical facilities in Haiti. While many PWB volunteer opportunities are in developing countries lacking infrastructure, PWB encourages plumbers everywhere to consider working with their local community organizations, such as Habitat for Humanity, Rebuilding Together, and homeless shelters.

In 2012, following the foreclosure crisis, a dozen PWB volunteers in the Seattle area helped Habitat for Humanity re-plumb ten homes. Currently in Seattle, PWB is helping to build a mobile shower for the homeless, a commercial kitchen for a local Teen Feed Center, and a community garden.

"Health starts with plumbing," says Digregorio. While that's true, in some parts of the world it really begins with good-hearted plumbers willing to step up and give their time. Thanks to PWB, they now have a way to find opportunities where their help is needed.



Plumbers Without Borders volunteer Jeff Morgan (middle) working on a project for Build Health International with teammates in Haiti.



Haiti Tec instructor Mackenson Picot (right) and a local plumbing volunteer at a water filtration systems project.

Plumbing through the generations with the Fandels

Continued from page 1

and their roots go back especially far. The Pipeline sat down with Hank and his son, Tim Fandel, to learn more about their family, the trade it embraces, and the considerable impact it has had on the region's plumbing industry.

It all started with Hank's grandfather, **William J. Fandel**, a plumber who emigrated from Germany in the late 1880s and raised his family in the Boston area. Per German custom, he was trained as a carpenter as well as a plumber and brought diverse skills to the US with him. He inspired his son, **William J. Fandel II**, to enter the industry.

The younger William apprenticed with a plumber, learned the trade, and got his license in 1911. During the First World War, he installed plumbing in a barracks located in Georgia. William worked for a number of Boston shops, including Ferris & Mahoney, a signatory contractor with Local 12. According to Hank, his dad was one of the first plumbers in the union to draw a pension when it became available in the mid-1950s. When William retired, his first pension check was \$56.

Hank, one of five boys and three girls, grew up in Everett. His father had a basement workshop, and he remembers learning some of the trade's fundamentals there. "Dad showed me how to wipe joints," Hank says. "It's an art that is now forgotten."

His oldest sibling, **Jack**, enlisted in the Navy in the late 1940s. Encouraged by his father, he also joined Local 12 to become a plumber. Jack worked his way up to foreman and coordinated many jobs. For the last 22 years of his career, he left the field and went to work for Local 12 as head of its apprentice program and training center. Two generations of plumbers attended classes at the center during Jack's tenure from 1972 to 1994.

Like his brother, Hank went into the Navy after he graduated from high school. While serving, he worked on boilers and took a plumbing correspondence course. Around the time that his father retired in the mid-1950s, Hank got into the trade. He asked his older brother for help, and Jack got Hank an interview with his boss, Fred Ingraham. Impressed by a soapstone sink stand that Hank had built out of pipe, the shop owner took him on as an apprentice.

Hank worked for Ingraham through 1959 and then bounced around to a lot of different shops. "One year I worked for 22 different contractors," he says. His tax preparer told him that he must not be too reliable. In reality, Hank was just following the traditions of the construction industry and going where the work was. "That year, I made more money than the tax preparer," he says with a laugh.

Instead of moonlighting, Hank taught plumbing at a vocational school. He says that his students used to ask him why he was so mean. What they interpreted as mean, however, was actually Hank's demand that they adhere to the highest standards and learn how to deliver quality workmanship. "I loved the trade, and I loved teaching," he says. "I wanted to pass on my love."

Apparently, Hank passed on the love to his own children. When his oldest son, **Hank Jr.**, was finishing high school, he told him to find a job doing plumbing and give it one year. If he enjoyed the work and wanted to pursue it as a career, Hank told his son that he would try to help him get into the union. He must have enjoyed the work. A Local 12 member, Hank Jr. worked on



William Fandel (L) stands in front of a plumbing shop on Newbury Street in Boston with the shop's owner, the owner's wife, and another plumber. Circa 1920s.

the construction side for many years and now does plumbing maintenance for Boston College.

Hank's middle son, **Tim**, had a similar talk with his father after he graduated high school. "Dad told me I wasn't going to sit around the house and that I had two weeks to get a job," he says. As Tim learned, his father is a man who means what he says. "Two weeks came and went. On the following Monday, Dad said

that I had a job with Streeter Plumbing and Heating in Winthrop. He handed me my grandfather's old

plumbing tools and sent me on my way."

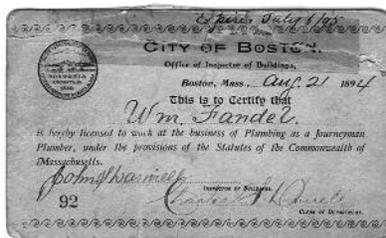
Like his brother and the generations of Fandels that came before him, Tim wanted to get into Local 12. That led to a peculiar ritual that he and his uncle, Jack, who was the director of the local's training center at the time, engaged in for about a year. "I'd call my uncle every Friday and say, 'Good Morning Mr. Fandel. This is Mr. Fandel.' He'd tell me, 'How are you Mr. Fandel? We have nothing this week. Why don't you call back Mr. Fandel.' It was very businesslike. Meanwhile, I'd see him at a cookout on the weekend."

Eventually, Tim did join Local 12. As did his younger brother, **Sean**, who works for American Plumbing and Heating. His cousin, **Danny Weeder** (who is also Hank's nephew) has been a Local 12 member since the 1970s and is now a project manager for P.J. Dionne. Tim's brother-in-law, **Rick Hackett Sr.**, is a plumber. **Rick Jr.**, Hackett's son, also has his plumbing license.

Tim isn't sure whether the next generation of Fandels will carry on the plumbing tradition. He says that he hasn't given his two sons the "try-it-for-a-year" spiel. But he has been talking about the industry with them and telling them what a great career it could be.

As with all of its members, the union has given the Fandels much, including great health benefits and a pension. In return, the Fandels have a long history of supporting Local 12. Around the time that his brother was leading the training center, Hank served as secretary/treasurer of the local. Tim is a business agent for Local 12, a position he has held since 2006.

"Local 12 has been very good to our family. The industry has been good to our family," says Tim. "For us, it's about giving back to the industry and leaving it a little better than we found it."



William Fandel's 1894 plumbing license.

IT'S BEEN A FEW YEARS

since catastrophic lead contamination in Flint, Michigan's water supply caught the attention of the nation. By shining a spotlight on drinking water safety and showing how things could go horribly wrong, it has raised awareness and concern about the issue.

We may have taken it for granted when we grabbed a glass and tuned on a tap or pushed the button on a bubbler, but now it's only fitting to wonder about the safety of the water we drink. As Flint residents and officials continue to grapple with the calamity, what lessons might we learn?

"Lead is not a problem in our water," says Fred Laskey, executive director of the Massachusetts Water Resources Authority. That's good news for the 2.5 million people in eastern Massachusetts who rely on the MWRA. But it is only part of the story. While the water delivered to homes, businesses, schools, and other buildings might be safe, the

lead services, pipes, and fixtures in the structures could pose a risk to the water that flows in them. That's where plumbers can help.

The problem is not confined to Flint. According to a report released earlier this year by the Natural Resources Defense Council, about 77 million Americans – nearly one out of every four people in the US – have tap water that is either unsafe or comes from water systems that run afoul of safety regulations. That's not the case in the Boston area.

At its source, primarily the Quabbin reservoir, the water quality is excellent. At the MWRA's Carroll Water Treatment Plant in Marlborough (which GBPCA member contractor William M. Collins Company helped modernize as part of a recent update), water is buffered to reduce traces of lead and copper and disinfected with ozone and ultraviolet.

But many of the homes and buildings that receive the water

How safe is our drinking water?

– Plumbers play a critical role in water safety



were constructed years ago. Because of lead pipes, threaded brass, solder that contains lead, or other outdated plumbing, about 6% of them register levels of lead, according to the MWRA. "Plumbers play a critical role in the fight against lead. They are the key to making our water system work," Laskey says.

To help communities remove lead services, the MWRA is providing \$100 million in interest-free loans. Municipalities such as Newton and Quincy have programs to systematically change out pipes and fixtures and help get everything up to code.

Schools are a particular area of concern. "Lead and children are a bad combination," notes Laskey. "It can seriously affect cognitive skills." Recent tests in the Commonwealth showed a disturbing number of schools with lead levels above regulatory limits. Some are taking stopgap measures such as shutting off affected drinking fountains and flushing pipes. But others are undertaking or considering long-term solutions such as replacing fixtures and lead-bearing piping.

Because lead can leach into water from pipes, Laskey recommends that homeowners turn on the taps and get fresh water flowing after it has been sitting idle, such as first thing in the morning.

If they have questions or concerns, the MWRA director says that people should contact their local water departments. Cities and towns should have records of when services were installed in buildings and whether they should be replaced.

"I think we have a great product that is safe," says Laskey. "We need to take precautions to ensure that the water coming out the tap is good."

Leadership changes at GBPCA

Hugh Kelleher, who has been serving as the executive director of the Greater Boston Plumbing Contractors Association since 1998, will be retiring later this year. The organization was formerly known as the Plumbing-Heating-Cooling Contractors of Greater Boston.

Kelleher is working alongside **Jeremy Ryan**, the GBPCA's incoming executive director, during a transition period. Ryan, who started in his new position in July, comes to the organization after working for the National Electrical Contractors Association in Cleveland and in New York City.

The incoming director graduated from the University of Delaware and served a stint in the Army, where he tested in the top 1% of all recruits. Ryan has worked with union training programs and in collective bargaining.

At its annual meeting in May, the GBPCA elected **Dan Bent** as president of the organization. He will serve a two-year term. Bent is the executive vice president of American Plumbing and Heating Corp. in Norwell. He is the senior executive responsible for corporate planning strategy and customer relationships and directs the daily operations of the company.

THE PIPELINE

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