ASPE
American Society of Plumbing Engineers™
BALTIMORE

Monthly Newsletter SEPTEMBER 2019

Upcoming Meeting

Date: **September 25, 2019**

Time: **6:00pm to 8:00pm**

Place: Olive Grove Restaurant

Topic: Cross Contamination Control

Speaker: WSSC - Chip Matthews & Tom Buckley

Meeting Format
6-6:30 Social
6:30-6:45 Announcements and Table Tops
6:45 Dinner Served
7:00-8:00 Speaker

MEETING LOCATION

Olive Grove Restaurant & Lounge

705 North Hammonds Ferry Road
Linthicum, Maryland 21090
Phone: 410.636.1385

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In This Issue

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Please Contact Jason Eagles or Jeff Edwards

Make checks payable to Baltimore Chapter of ASPE. Please contact the chapter Treasurer with any questions.

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Jeffrey W. Edwards, CPD ,GPD
President

President's Report

Hello to all and I hope everyone had a great summer. Yes, it is that time of year again. The chapter's technical meeting season is starting up again on Wednesday, September 25th back at the Olive Grove Restaurant.

A lot of hard work has been spent the past several months by the chapter board with planning and scheduling our technical presentation meetings along with other events such as Women of ASPE, ASPE Young Professionals, and our Engineers Week presentation that will be announced in our newsletters moving forward. For a list and topics of our scheduled technical meetings this season, please refer to the last page of our newsletter.

Our chapter has once again worked with and coordinated with the DC ASPE chapter for technical presenters and meeting dates for this season. DC's meetings will occur on the 4th Tuesday night of the month before our meetings on the 4th Wednesday night.

The DC ASPE board has changed meeting locations along with new board members. I want to wish them good luck and hope all their hard work pays off for them for a successful meeting season.

The chapter has been very fortunate to have new sponsors join us this year as well as many original sponsors remaining loyal to us. The entire board thanks all our sponsors for helping to support our proud chapter.

The chapter will once again be passing out membership tenure awards to eligible members as we did last year.

I hope this season will be another success for us while attempting to gain some new members to our chapter. Please know if there is anything you want to discuss about our chapter, please feel free to reach out to me.

Best Regards,
Jeff Edwards, CPD, GPD
President-ASPE Baltimore Chapter

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- Product Show registration: includes attendance to the Product Show on October 24

aspe.org/2019tech

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If you have a story or photo you would like to share on our Facebook or LinkedIn page, let us know! We are proud to support our chapter members

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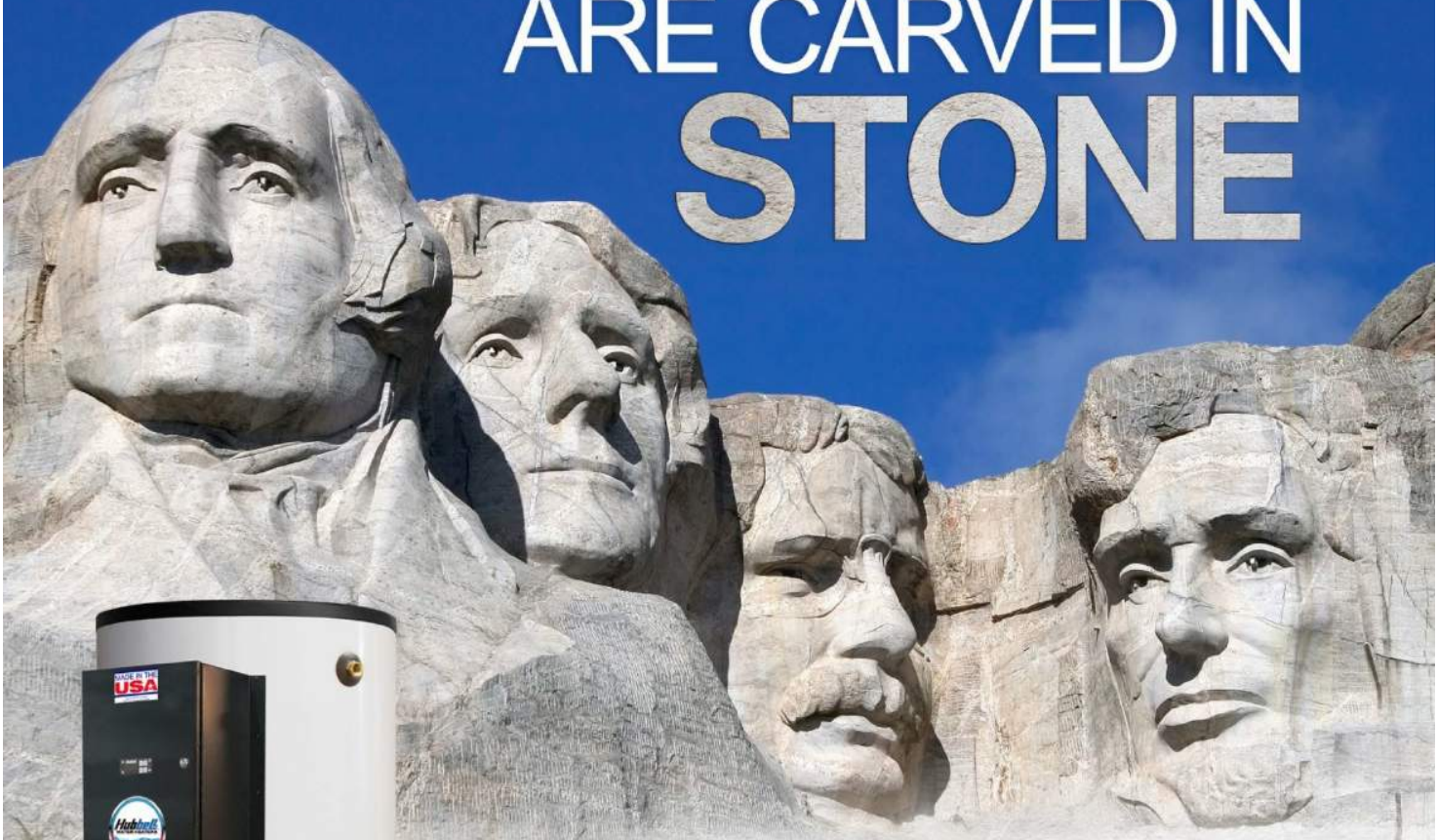

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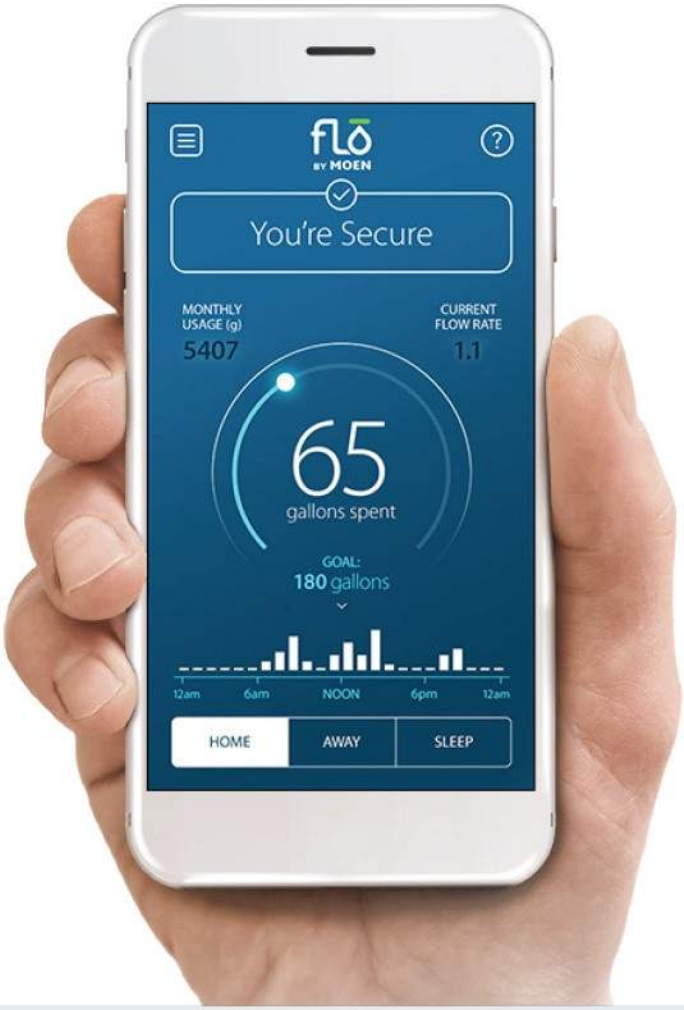

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Chuck Swope, PE, CPD, LEED AP BD+C
Vice President—Technical

Technical Report

I am happy to announce that our chapter was presented with the 2019 Region 1 Director's Award for our outstanding performance and continued improvement in the Baltimore Chapter. Our chapter president, Jeff Edwards, accepted this great honor at the 2019 Region Meeting held in Quebec City at the end of May. Paulie Silvestre, the current Region 1 president, has been a great help to our chapter by streamlining our interactions with the Society and we thank him for recognizing the hard work that we've put into the chapter.

In other good news, we have several new board members and a promotion! You may remember Brian Crisp greeting you at our entrance table each month. Brian has now stepped up to become our new Vice President of Membership. He will be reaching out to our new members to introduce the chapter as well as making sure everyone else renews (not that anyone would intentionally let their membership expire). Matthew Obenchain and Jay Otto have also joined our board to take over Brian's duties as the Correspondence Secretary and the Administrative Secretary respectively. Matt and Jay have both attended our meetings for many years and we are glad to see members step up to contribute directly.

This season's technical sessions promise to be as interesting as last year's, for sure. Our first session will be presented by Chip Matthews and Tom Buckley from WSSC. Last season, our friends (and fellow board member) at WSSC presented the upcoming code changes to the 2018. This year, Chip and Tom's topic will be on Cross Connection Control. This is an important topic to our industry because of the close relationship between plumbing and public safety. By preventing backflow from hazardous sources, we protect our potable water system from contagious diseases and toxins. The presentation will cover the types of backflow preventers as well as their best applications.

Chip Matthews joined the WSSC Water as the Cross-Connection Section Manager in September of 2018. As the Section Manager for the he manages 8 Field Investigators, 2 Field Supervisors, a Compliance Supervisor, and 6 Inspection Services Agents. Prior to joining WSSC Water, he worked 24 years in a private plumbing firm and operated a Backflow Training Educational School. He is certified by the University of Florida TREEO Center as a Cross Connection Program Manager, certified in Survey & Inspection, ordinance and organization, backflow assembly repair and maintenance, and I am a certified Backflow Course Instructor and tester. He also has a Bachelor of Science degree in Law and Public Policy from the University of Maryland University College and an MBA from Johns Hopkins University.

Tom Buckley has been with WSSC for 28 years and has served 15 years as a Plans Review Supervisor, 5 years as a Chief Plumbing Inspector, and the last 6 years in his current position as the Plumbing -Mechanical Engineering Review Section Manager. Tom is also a Master Plumber/Master Gasfitter and is a Certified Cross-Connection Instructor. Even with all of his accomplishments, he still finds time to spend with his wife of 32 years and 3 children.

Charles J. Swope, PE, CPD, LEED AP BD+C
Vice President—Technical

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Special Presentation

The Washington Suburban Sanitary Commission (WSSC) will be presenting a 90 minute informational session on the 2018 WSSC Fuel Gas Code with an emphasis on WSSC amendments to the International Plumbing Code and International Fuel Gas Code. This discussion will focus on sections of code that are closely examined by the WSSC Plumbing-Mechanical Engineering review Section. WSSC staff will review grease abatment code and design , cross connection requirements, and industrial discharge surveys. WSSC staff will also discuss changes introduced in 2019, including individual water metering, requirements for detector backflow preventers, and WSSC ePermitting and ePlan review procedures.

CATERED EVENT - DOOR PRIZES - PDH'S AVAILABLE

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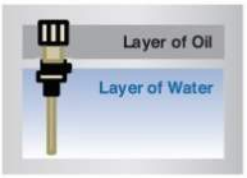

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Christopher Imhof, PE, CPD
Education Committee Chair

Terminology: Cross-connection and Backflow

By Chris Imhof, PE, CPD

The speakers for the September 2019 meeting of the Baltimore Chapter of ASPE will be Chip Matthews and Tom Buckley from the Washington Suburban Sanitary Commission (WSSC). The definitions in the following article are from the WSSC Plumbing and Fuel Gas Code that adopts and amends the International Plumbing Code.

Terminology and annotation are key elements to correctly designing a system that is protected from cross-connection and backflow. The plumbing designer is responsible for understanding the language of cross-connection to properly access risk, communicate with code officials, and specify the correct means to protect against cross-connection.

What is Cross Connection?

The 2018 International Plumbing Code (IPC) defines cross-connection as,

> "Any physical connection or arrangement between two otherwise separate piping systems, one of which contains potable water and the other either water of unknown or questionable safety or steam, gas or chemical, whereby there exists the possibility for flow from one system to the other, with the direction of flow depending on the pressure differential between the two systems (see "Backflow")."

Examples of typical cross connections are, fire sprinkler and irrigation systems, mechanical make-up water, and connections to a variety of medical, kitchen, and industrial equipment.

What is Backflow?

The 2018 International Plumbing Code (IPC) defines backflow as,

> **"**Pressure created by any means in the water distribution system, which by being in excess of the pressure in the water supply mains causes a potential backflow condition."

The 2018 WSSC Code defines backflow as,

> "The undesirable reversal of flow of a liquid, gas, or other substances in a potable water distribution piping system as a result of a cross-connection."

What Causes Backflow?

Changes in pressure are the cause of backflow. Backpressure and backsiphonage are the two hydraulic conditions where changes in pressure can create an undesirable reversal in flow.

What is backpressure?

The 2018 International Plumbing Code (IPC) defines backpressure as,

> "A pressure less than or equal to 4.33 psi (29.88 kPa) or the pressure exerted by a 10-foot (3048 mm) column of water."

The 2018 WSSC Code defines backpressure as,

> A pressure, higher than the supply pressure, caused by a pump, elevated tank, boiler, air/steam pressure, or any other means, which may cause backflow.

What is backsiphonage?

The 2018 International Plumbing Code (IPC) defines backsiphonage as,

> "The backflow of potentially contaminated water into the potable water system as a result of the pressure in the potable water system falling below atmospheric pressure of the plumbing fixtures, pools, tanks or vats connected to the potable water distribution piping."

The 2018 WSSC Code defines backsiphonage as,

> "A type of backflow where the upstream pressure to a piping system is reduced to a sub atmospheric pressure."

What is the Degree of Hazard?

The 2018 International Plumbing Code (IPC) defines Degree of Hazard as,

> "An actual or potential threat of contamination of a physical or toxic nature to the public potable water system or the owner's potable water system."

The IPC splits degree of hazard into two district levels, low hazard and high hazard. The IPC relates low hazard to pollution and high hazard to contamination.

Low Hazard

> "A cross-connection or potential cross-connection involving any substance that generally would not be a health hazard but would constitute a nuisance or be aesthetically objectionable if introduced into the potable water supply."

Pollution

> "An impairment of the quality of the potable water to a degree that does not create a hazard to public health but that does adversely and unreasonably affect the aesthetic qualities of such potable water for domestic use."

High Hazard

> "A cross-connection or potential cross-connection involving any substance that could, if introduced into the potable water supply, cause death or illness, spread disease, or have a high probability of causing such effects."

Contamination

> "An impairment of the quality of the potable water that creates an actual hazard to the public health through poisoning or the spread of disease by sewage, industrial fluids or waste."

What is the Difference Between a Backflow Prevention Device, Assembly, and Method?

The 2018 WSSC Code defines device as,

> "A non-testable backflow preventer."

Devices typically do not have test cocks and do not require inlet and outlet shut-off valves.

The 2018 WSSC Code defines assembly as,

> "A testable backflow preventer with one or more approved body components and including approved valves."

Assemblies have test cocks and can be tested while installed, inlet and outlet shut-off valves are required.

While neither code defines method, an air-gap is considered a method that does not require a device or assembly.

What is Containment and Isolation?

Containment and isolation are terms used by cross-connection control programs to define the location and arrangement of backflow prevention assemblies, devices, and methods. Not all jurisdictions or cross-connection programs enforce requirements for both containment and isolation. Jurisdictions may choose to enforce containment requirements, but not isolation. Or, jurisdictions may choose to enforce containment and isolation requirements in their cross-connection program. Additionally, different jurisdictions have different requirements for commercial containment assemblies.

The 2018 WSSC Code defines containment as,

> "The appropriate type or method of backflow protection at the beginning of the service connection or immediately inside the building, commensurate with the degree of hazard of the property owner's potable water system."

The 2018 WSSC Code defines isolation as,

> "Assemblies or devices installed to protect against backflow at individual cross connections."

Plumbing designers should be prepared to hear and use these terms when having discussion with code officials.

Annotation and Documentation

Proper plumbing design should use correct and consistent terminology across the entire project.

Here are a few common mistakes made on plumbing documents:

- Confusing the names of backflow preventers, such as dual check valves and double check valves.
- Certification numbers not matching product description or model numbers, such as labeling a device an ASSE 1013 spill-resistant vacuum breaker. An ASSE 1013 is a Reduced Pressure Principle Backflow Prevention Assembly and a spill-resistant vacuum breaker is an ASSE 1056.
- Listing only product model numbers for backflow preventers and not the certification numbers required by code.
- Not having backflow preventers consistently labeled between floor plans, riser diagrams, schedules, and specifications.

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Kathy Dwyer
Treasurer

Treasurer's Report

Welcome to 2019-2020 ASPE kickoff newsletter. We are all looking forward to a great year and many exciting topics.

I am happy to report our chapter is in solid financial position. We have had many supportive companies step up and advertise which is much appreciated. I hope you will support those who support ASPE.

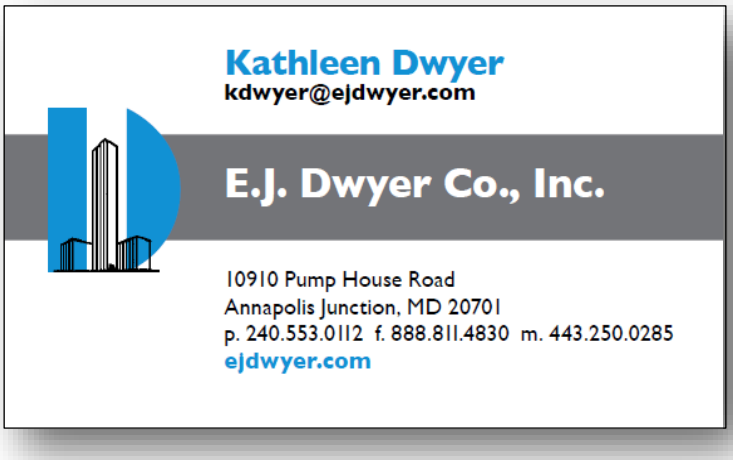
We will be having tabletops again this year and if you would like to be in the newsletter you will need to give us at least one-month notice. The raffles are all possible because of the price of tabletop. If the engineers who attend would like another raffle ticket for the engineer only raffle the tabletop folks will be happy to give you a ticket if you stop by their display.

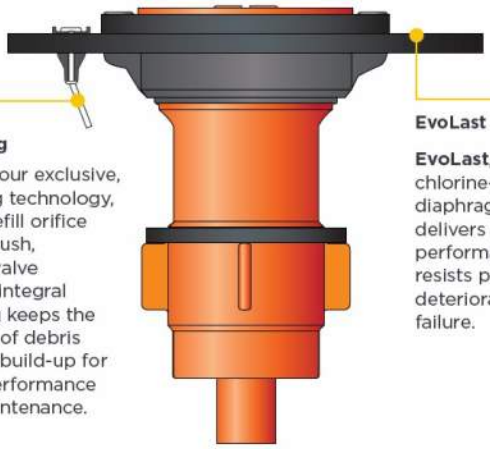
As a board we have made the decision to have an increase of $5.00 if you choose not to make a reservation ahead of time online. We need the counts for the restaurant to be able to make sure they have enough seats and food for all attending. So if you chose to register online the cost will remain the same at $35.00 but if you show up without a reservation we will be charging you $40.00. I do recognize that some of you prefer not to have your credit card information on the website, but you can register without paying just so we have the correct counts.

Thanks so much for your help staying organized.

I look forward to seeing all of you in a couple of weeks.

Kathy Dwyer
kdwyer@ejdwyer.com





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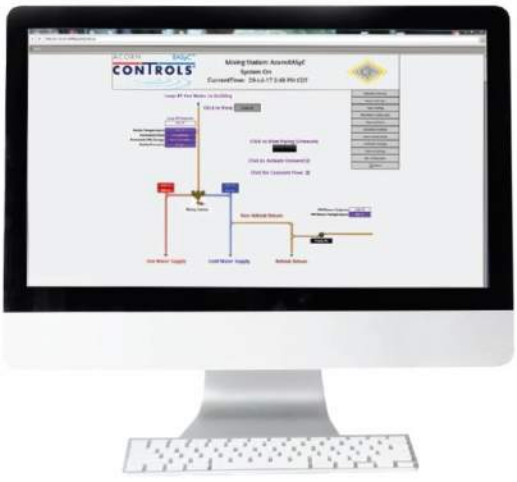

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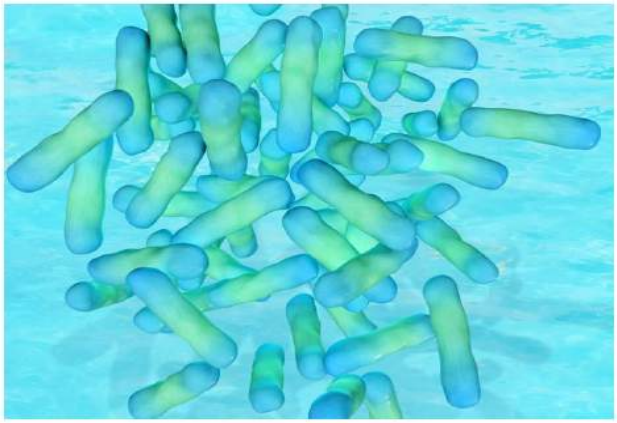
Tech Corner

Preventing Waterborne Contamination in Building Water Distribution Systems

January 5, 2019

Fredrick Ongeche



An important advantage that developed countries have is good infrastructure — a reliable electrical grid, decent transportation network and properly maintained water and sewer systems. Imagine your doctor having to wake up at 5 a.m. to look for firewood and water before going to his or her practice. How good could that doctor be?

Unfortunately, over the years investment in these crucial infrastructures has woefully declined to the detriment of many communities, particularly in rural and less affluent areas. Many communities no longer have the finances to maintain their dilapidated water and sewer systems, thereby exposing and subjecting residents to incessantly lower-quality water and service.

Building owners and operators must provide a safe and healthy environment for users and occupants. That duty surely extends to the quality and safety of water within a buildings domestic water system. Recently, the quality of potable water, the plights of poor communities and the declining state of infrastructure have been brought to the forefront by events such as the Flint, Mich., water crisis and numerous outbreaks of Legionellosis.

Such an unfortunate crisis can provide important lessons pertinent to water distribution systems in buildings: Water distribution systems are susceptible to chemical and microbial contaminants; Water distribution systems in buildings can act to amplify and disseminate waterborne microbes and chemical contaminants; The quality of potable water entering a building is not always as it should be and, therefore, should not be taken for granted; There is an urgent need for better plumbing design to at least ameliorate and at best prevent the occurrence of contaminants within potable water systems in buildings; and Some building occupants/users are more susceptible to contaminants than others; therefore, the water system should be designed to protect the most vulnerable.

Of late, plumbing design has mostly focused on reducing cost and increasing water efficiency, sometimes at the expense of safety associated with potable water. Many times, systems and equipment made to safeguard the quality of potable have been value-engineered out of a project to save money.

In some cases, implementation of low-flow equipment has increased the residence time of potable water or outright stagnation. These, in turn, has resulted in degradation of the quality of

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potable water. Some studies have linked low-flow faucets and rubber materials found within them with increased colonization of Legionella bacteria.

To ensure the health and safety of occupants and users, proper design, installation and operation of a potable water system are paramount. The following points can help safeguard domestic water distribution systems.

Prevent contaminants from entering the potable water system

Contaminants can be introduced in the potable water system during construction — with incoming potable water or during equipment servicing. During construction, potable water pipe should be kept clean and stored in a segregated, secure location away from construction dirt and debris. Before installation, the pipe segments should be inspected for cleanliness and blasted with air to remove any loose dirt.

After installation, the piping system should be disinfected in accordance with protocols outlined by the authority having jurisdiction. Based on my experience, disinfecting potable water piping is best done by an independent, experienced water treatment professional as part of building commissioning, as opposed to the mechanical contractor.

The first line of defense for protecting the potable water system from possible contaminants in the incoming water is to install a filtration skid on the incoming water line.

Skid components should include an appropriately sized particulate filter (preferably 20 -50 microns) to remove suspended solids. The particulate filter should have a differential pressure gauge or other means to monitor and indicate when the filter media needs to be backwashed or replaced. Cartridge or bag filters with replaceable cartridges/bags are better-suited for potable water because mixing of clean and dirty water can be avoided entirely. Also, backwashing filters require the wastewater line to drain, thereby risking wastewater backflow and or reverse colonization due to backsplash.

Components should also include a chemical filter such as a carbon block/activated carbon media may be used to remove organic and heavy-metal contaminants from incoming water. In addition, a microbial disinfectant/sanitizer such as ultraviolet light or ozone to prevent waterborne germs should be included— including chlorine-resistant Giardia and Cryptosporidium — from entering the potable water.

Prevent proliferation of contaminants within building water systems The second line of defense is to provide systemic water treatment to prevent the proliferation of contaminants in the building water system. Systemic water treatment processes that can provide measurable residual treatment include, but are not limited to, chlorination, chloramination, chlorine dioxide or copper-silver ionization.

Water recirculation circuits such as hot water loops that are vulnerable to the occurrence of Legionella bacteria warrant extra attention. Protection can be improved when a systemic water treatment is coupled with a particulate filter installed on a recirculating loop. The filter will act to remove suspended solids continuously, thereby reducing demand for disinfectant.

Different treatment options offer unique advantages and disadvantages. The best protection is attained when two systemic water treatment options are used alternatively or concurrently. However, their compatibility must be considered.

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Design with cleanliness in mind

Our views and designs of water distribution systems in buildings are antiquated. Piping systems are designed inaccessibly — out of sight, out of mind. If you keep using the same cup to drink clean water, at some point, you will be drinking dirty water.

Water is the primordial home of life and no matter how clean it is at the beginning, without periodic "shock treatment," its conveyance system will be contaminated. Buildings and different sections of buildings should be designed with dedicated bypass/recirculation/disinfection loops. This will allow the piping system of a building section to be isolated and disinfected more easily and regularly, not just when there is an occurrence of an outbreak.

The right choice of piping material and components

Piping material and components have an important and direct impact on the quality of potable water. Some piping materials are more susceptible to microbial biofilm colonization than others. Piping material may also limit the kind and amount of residual disinfectant that can be used. Carbon steel pipe and components should be eschewed in potable water systems because they are highly prone to corrosion and oxidation by residual disinfectants.

By now it should be blindingly obvious that no components containing any amount of lead should be permitted in potable water. Extra precautions should be taken, especially when potable water is being supplied for nonpotable water uses such as cooling tower makeup, greywater tanks, water features and irrigation systems. Regular inspection of backflow preventers and anti-siphon apparatus ensures they are still functioning as required.

Seek advice from water treatment experts and qualified technicians Mechanical contractors and even current water treatment personnel may not be qualified to deal with potable water. Water in a nonresidential building is considered more or less public. If this water will be treated for use by the public, perhaps the building operator needs to be a certified public water operator.

At times, issues about potable water are serious and sometimes are a matter of life or death. A plumbing designer should not be hesitant to seek outside help, especially when working on projects involving health facilities such as hospitals and elderly-care homes where the primary population is more predisposed to potable water contaminants.

Implement hygienic operating protocols at the earliest opportunity Operating potable water systems to effectively maintain safety and hygiene require more than standard operating procedures and equipment manuals.

For instance, if filters will be used to filter municipal water at the point of entry, will the operator be required to disinfect filter media, vessel or other equipment/tools associated with potable water system before, during and after every servicing? How will this be carried out? Will replacement filter cartridges be required to meet NSF 61 standards or cheaper, noncompliant ones be allowed because of budget constraints?

Institute continuous water quality surveillance

Water distribution systems are important disseminators of waterborne contaminants — biological and chemical. Moreover, water infrastructure has been subject to hacking by nefarious states. Continuous surveillance of building water distribution systems can serve an early warning in detecting such activities and safeguarding the health and safety of users.

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Continuous surveillance encompasses:

• Monitoring water quality and quantity from entry to exit of the building — pH, disinfectant level, hardness, TSS, pressure, temperature, flow rate and daily consumption, among others.

• Monitoring the quality of processed water for various uses within the building.

• Keeping in constant communication with water-source owners and operators in municipalities.

• Awareness of what is happening in and around the building that can adversely affect water quality — such as nearby construction activities, flooding and fires — and reacting to them in a timely and effective manner.

• Having a response plan in case of an event, such as a boil water notice, microbial contamination or cross-contamination among other incidences.

An incident with a client revealed other advantages of continuous surveillance. A water treatment system served by potable water was faulting out due to high-temperature alarms. The faults almost exclusively occurred when the building was unoccupied — at night and over the weekends. When the building operator reset the equipment, no faults occurred throughout the day.

A major source of the alarm was an incidental high temperature of influent potable water — above 80 F and occasionally above 96 F, whereas at the faucets, the water temperature was consistently around 56 F. Replacement of temperature sensors in the equipment did not solve the problem and the client was frustrated. Theories and speculations abound to explain the faults, including the existence of ghosts. A team member even jokingly suggested getting a priest for an exorcism.

Before embarking on removing the insulation and cutting into the influent water line to install a continuous temperature monitor, the operator decided to trace influent water supply all the way to the take-off point in the mechanical room. To his surprise, the potable water line to an electronic mixing valve was warm to the touch. Further investigation revealed a hot water check valve was malfunctioning and letting hot water backflow into the cold-water supply line.

But this malfunction only happened when potable water flow was very low, which coincided perfectly with low building occupancy. Were it not for the high-temperature alarms on the water treatment equipment, this malfunction would have never been detected, perhaps until the conditions would have been worse. Warm temperatures between 77 F and 108 F in the potable water system promotes the growth of Legionella bacteria; therefore, it is important to keep cold water cold and hot water hot.

The current state of our water infrastructure has revealed many vulnerabilities in potable water systems in buildings. To ensure the health and safety of occupants and users, proper design, installation and operation of a potable water system are paramount.

Plumbing designers can play an important role in ameliorating or preventing the occurrence of waterborne microbe and chemical contaminants in building water distribution systems.

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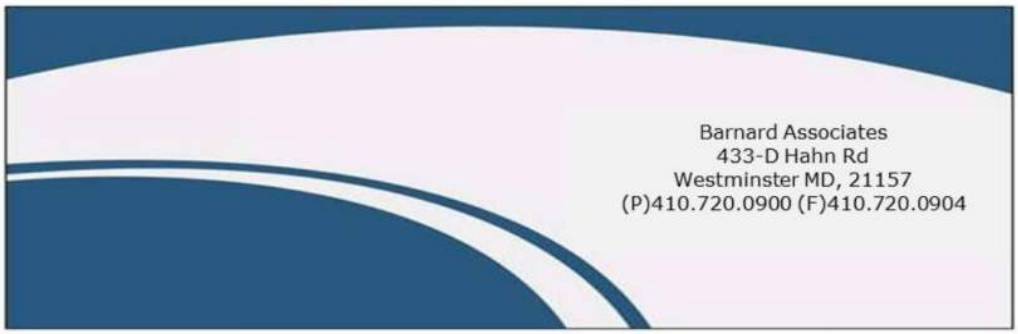

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Brian Crisp, CPD
Vice President - Membership

Membership Report

Welcome everyone to another ASPE Calendar year! This one is shaping up to be a great one for the Baltimore Chapter. In addition to our wonderful WOA & AYP events, the latter being organized by our new AYP Liaison Nikita Patel, we have some special events to look forward to this year. One of them being a meeting topic on the hard-to-acquire Professional Ethics in Engineering CEU/PDH for you Professional Engineers.

Our newly appointed Corresponding Secretary, Matt Obenchain, will be handling the (you guessed it) correspondence for the chapter going forward. All of the meeting reminders and newsletter e-mails will be coming from our new board member. So if you want your fix of writings by yours truly, you'll need to read my monthly membership updates in our newsletter. The other new face you'll see when checking in at our meetings, belongs to Jay Otto, our new Administrative Secretary. Please treat them as well as I've been treated this last few years.

Okay now to the meat and potatoes. We lost a few members over the summer, I guess retirement will do that. We've also had a few additions since May, as Baltimore remains a growing chapter:

Jay Otto – Otto Sales (now officially a member in addition to attending most meetings)
Matt Obenchain – Kibart (now officially a member in addition to attending most meetings)
Reed Pongonis – Symmons
Michael Betz – James Posey
Nicola Anderson – WRA

Please join me in welcoming them to our chapter, I think an adult beverage and a chat at the September meeting would be a good start.

A couple "fun facts" to start off the year:
The Baltimore Chapter has…

- -The 2nd most number of members who have both their CPD and PE worldwide.
- -The lowest ratio of members with their CPD certification to total members of *any* chapter (1 out of every 2.6 members has their CPD).
- -Baltimore has 41 members with their CPD and a total of 107 total members. Compare that to the NYC Chapter, 31 members with their CPD and a total of **312** members (1 out of every 10 members). I think this speaks volumes about the quality of our chapter and its members.

If you or anyone you know is interested in joining, or at least hearing about the benefits of membership, please don't hesitate to reach out to me. You can also join directly at https://www.aspe.org/join.

Thanks and see you at the meetings!

Brian Crisp, CPD
Vice President, Membership

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J. Richard Wagner, PE
ASPE Baltimore, V.P. Legislative

HYDRAULIC HEADS FOR ROOF DRAINS

No progress has been made in coordinating the maximum allowable hydraulic heads for roof drains with the structural design of flat and low slope roofs. ASME A112.6.4 for roof drains has been in process of being revised to require hydraulic heads for two years with no results yet. ASPE has not been active in this item.

The rain load *R* (lbs/SF) in the International Building Code (IBC) is based on the levels of ponding caused by the primary and the secondary roof drains at their design GPMs for the project. The Rain Load is not an independent load on the roof. It is compared with the Snow Load *(S)* and the Roof Live Load *(Lr)*. The highest of these three loads *(Lr or S or R)* is used in conjunction with other roof loads in the IBC. The roof live load *(Lr)* is 20 psf for roofs that are not occupiable. Some people assume that a 20 psf Live Load covers the Rain Load, but that is not necessarily correct. A 20 psf load is equivalent to 20/5.2 = 3.85 inches of rain water, which isn't necessarily enough for the total of the hydraulic heads for the primary and the secondary roof drains. Many 3" and larger size roof drains that have been tested had 3-inch and 4-inch or more individual hydraulic heads for the typical design GPMs for their pipe size.

Until ASME A112.6.4 requires hydraulic heads for roof drains, they cannot be specified for the roof drains in the plumbing design of the roof drainage system for use in the structural design of the roof.

It is also not clear how the hydraulic heads are going to be included in the manufacturer's product data. Some roof drains include numerous optional features that may affect their hydraulic heads.

J. Richard Wagner, PE
ASPE Baltimore, V.P. Legislative

2019-2020 ASPE Baltimore Chapter Meeting Schedule

Date: **September 25, 2019**
Speaker: WSSC
Topic: Cross Contamination Control

Date: **October 23, 2019**
Speaker: Generac
Topic: Natural Gas Sizing for Emergency Generators

Date: **November 20, 2019**
Speaker: Viega
Topic: Opportunistic Pathogens 101

Date: **December 13, 2019**
Event: Holiday Party
Location: Mustang Alley's

Date: **January 22, 2020**
Speaker: McShane PC
Topic: Professional Ethics in Engineering

Date: **February 26, 2020**
Speaker: Professor Kenneth Isman—UMCP
Topic: Importance of Fire Protection Hydraulic Calcs

Date: **March 25, 2020**
Speaker: PVI
Topic: Water Heater Sizing, Construction, and Efficiency

Date: **April 22, 2020**
Speaker: Charlotte Pipe
Topic: Cast Iron Pipe

Date: **April 24, 2020**
Event: Golf Outing
Location: The Timbers at Troy

Date: **May 27, 2020**
Speaker: Watts
Topic: Automatic Control and Pressure Reducing Valves

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Monthly Sponsorship Opportunities

The Baltimore Chapter of ASPE continues to have successful meetings and is looking to continue improving throughout the year.

The Chapter has the following sponsorship opportunities for each month:

Tabletop Presentations: $100 to provide a tabletop presentation of equipment or material relative to the plumbing profession. The tabletops will be set up from the beginning to the end of the monthly meeting and provides the opportunity to provide a brief (under 5 minutes) presentation.

Please make checks payable to the Baltimore Chapter of ASPE.
Contact Jeff Edwards or Kathy Dwyer if interested
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