ASPE
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BALTIMORE

**Monthly Newsletter** **MAY 2020**

# COVID-19 Update

**All Chapter events and meetings are cancelled through the end of May 2020.**

## *MAY VIRTUAL MEETING*

Available May 25th thru May 31st

*Recirculation System Design-Putting it all together-Contractors, Engineers & Contractors*

Previously presented by ASPE

*Details coming soon via email*

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## In This Issue


- Board of Directors - 2
- President Report - 3
- Membership Awards - 4
- WOA Report - 8
- VP Technical Report - 14
- Technical Report - 15-20
- AYP Report - 23
- Meeting Schedule - 37


ASPE CHAPTER AWARD OF MERIT
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Recipient

ASPE EDUCATION FUND CONTRIBUTOR
2018 - 2019

ASPE RESEARCH FOUNDATION CONTRIBUTOR
2018 - 2019

ASPE MEMBERSHIP RETENTION AWARD
2018 - 2019
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*Local Chapters are not authorized to speak for the Society. Newsletter questions please contact Jason Eagles*

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Newsletter Advertising:

- As a paid advertiser you will have your advertisement in the newsletter for a full year (9 editions) and company logo displayed on the Chapter website.
- Ads for the year will begin in the September issue and run through the May issue.
- All ads must be paid in full prior to the advertisement being included in the newsletter.
- Advertiser must provide ads in high resolution PDF format. Logo must be provided in .jpeg format 200px wide max.

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| ½ page | $500 |
| Bus. Card | $250 |

Please Contact Jason Eagles or Jeff Edwards

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

Kathy Dwyer
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**Jeffrey W. Edwards, CPD ,GPD**
**President**

# President's Report

This is my last President's Report for the 2019-2020 ASPE meeting season. It goes without saying none of us ever expected to experience what has transpired the past several months with the COVID-19 pandemic. I hope and pray everyone is still safe and healthy with greener pastures in our futures.

Our April virtual meeting was successful so our May meeting will be another virtual meeting from ASPE's video library that allows our members to still earn CEU's without the usual in-person meetings. May's meeting topic will be "*Recirculation System Design-Putting it all together-Contractors, Engineers & Contractors".* Similar to the April meeting, all chapter members will be contacted via an email from ASPE for additional information for this video meeting.

My last item this month is to announce that Richard "Dick' Wagner is retiring from his current board position as VP-Legislation. I've been a member of the Baltimore ASPE chapter for over thirty-three years and Dick has held that board position for at least that time frame. Dick received his forty-year membership award last year. Dick has had an amazing engineering career that was published earlier this year on our LinkedIn site. Dick was also the former Chairman of the National Standard Plumbing Code for many years. I want to thank Dick for all his support giving to me as chapter President, to the Baltimore ASPE chapter and for his outstanding work during his long and outstanding engineering career.

Please stay safe everyone.

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

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# Membership Awards

## PRESENTATION POSTPONED UNTIL FURTHER NOTICE

Dedication is defined as a solemn commitment of your time to a cherished purpose. It is a loyalty or allegiance to a cause. We cannot think of a better term that defines many of our members. Being a member of this society is a choice and often involves hours of time devoted to the local chapter. The Baltimore Chapter would like to recognize the following members for their dedication to our chapter. We hope to present these awards at a future meeting. We will make an announcement when possible.

## 10 Year Awards

Brian Crisp
Andrew Cahill
Patrick Giordano
George Wilburt
Abbas Lohrasbi

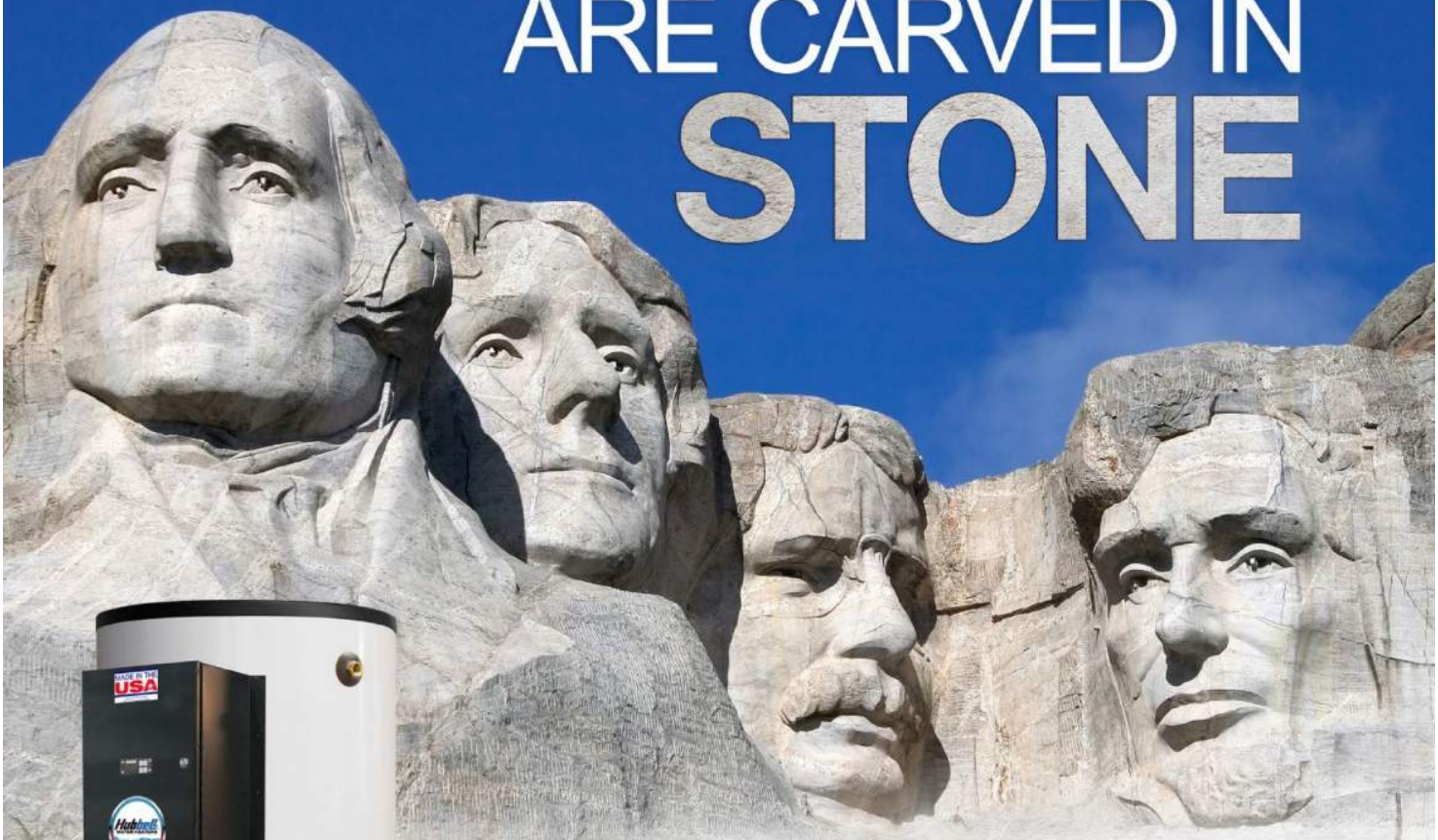
## 20 Year Awards

Richard Grier
Brent Inners

## 30 Year Award

Bob Ruskey

# GREAT LEADERS ARE CARVED IN STONE

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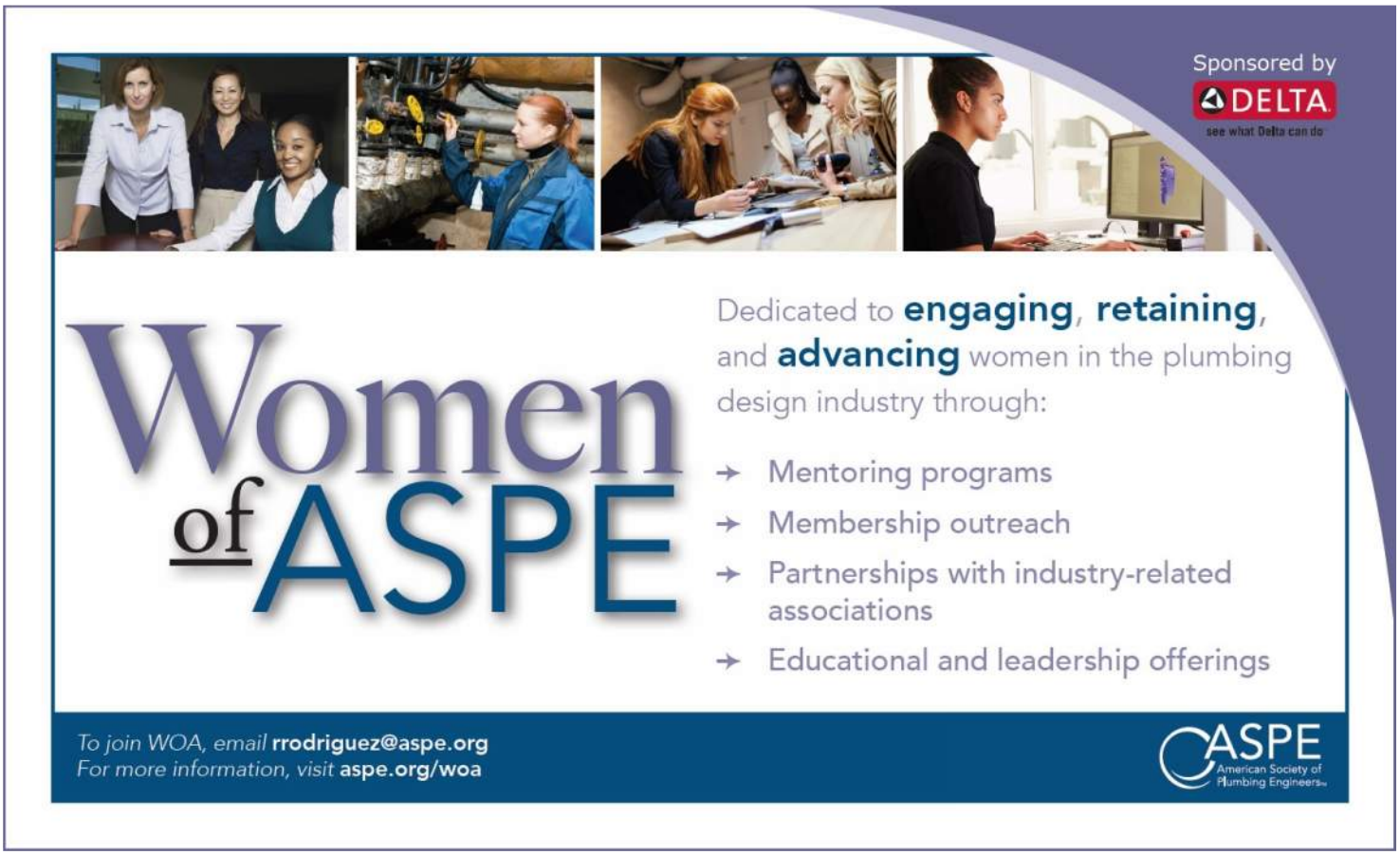
**Karen Schulte, PE, CPD, LEED AP BD+C**
**AYP & WOA Liaison**

# WOA Report

I'm really excited for our women of ASPE cooking event, however I realize with the current reality, we will not be able to hold the event at our originally scheduled date in May. While the Baltimore Chef Shop is a small venue and we were already limited to 15 attendees by the size of their kitchen, until it is safe for use to gather together, no matter what county (or District of Columbia) that you are coming from, we won't be able to hold the event. I'd like to thank the Baltimore Chapter, Delta and Barger Associates for their support of our chapters Women of ASPE as we work towards scheduling a new date for the cooking event. I look forward to seeing all your smiling faces when we can gather together in person safely!

The Baltimore Chapter of Women of ASPE would like to congratulate Dick Wagner on a successful career and thank him for his continued support of the Plumbing industry in Baltimore region and beyond. We wish you a retirement filled with joy and happiness!

Best Regards,
Karen Schulte, PE, CPD, LEED AP BD+C



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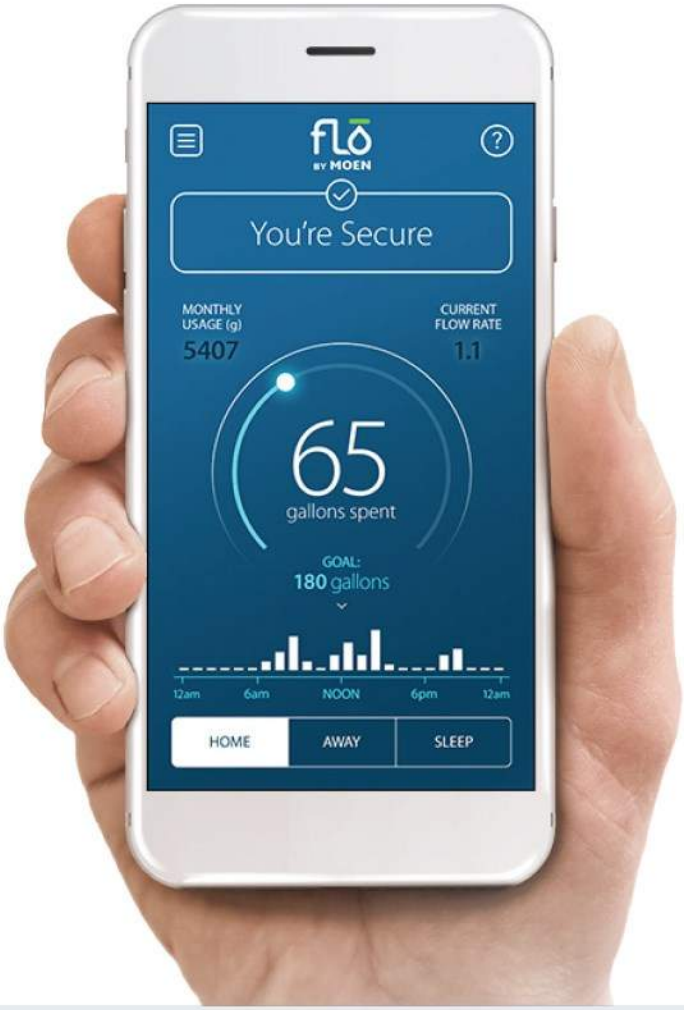



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**Chuck Swope, PE, CPD, LEED AP BD+C**
**Vice President—Technical**

# Technical Report

Greetings all! I hope that you and your families have stayed safe and are starting to see the light at the end of this long tunnel. Personally, I'm not exactly a social butterfly, so I wasn't as affected as some of our more outgoing members. The governor reported a downward trend in new infections over the last week, so I'm optimistic that we can have a decent summer. I'll just have to find other ~~excuses~~ reasons to remain socially distant.

I must admit that last months "Virtual Meeting" had me a little concerned, but now I can report that it was very successful! Pam Rosenberg and ASPE National generously offered our members and non-members a free webinar in lieu of meeting in person for April and May. April's Webinar, "The Engineer and Code Official Relationship: Common Plumbing Plan Review and Code Violations for Plumbing Systems" was chosen to help illuminate the role of a Plans Reviewer and their duty of enforcing the codes. I hope that those attended have an appreciation for the responsibility of the reviewer and what they are looking for.

Our May topic, tentatively scheduled for the 25th through the 31st, will be on "Recirculation System Design - Putting it All Together - Manufacturers, Engineers, and Contractors" This seminar will cover the components of a hot water recirculation system, proper selection of the water heater, ASSE standards and how they affect design and the differences in fixed vs variable speed pumping systems.

For those of you that may not know, the 2019-2020 season will be Dick Wagner's last season on the board. Dick is a charter member of the Baltimore chapter and has been involved for more than 40 years. He retires from his position as Vice President – Legislature and his ASPE national Legislative Committee. I've only known Dick for the past 10 years or so since I started regularly attending ASPE meetings, but what I can say is that he is a dedicated engineer with a wealth of knowledge. Dick has been valuable in his positions and has updated the chapter on the Maryland Plumbing Code changes and many other topics. I'm quite sure we will still see Dick at our meetings, so when we return in September, please take a moment to thank him for his contributions to the chapter and the engineering community.

Best Regards,

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

# ASSE Hot Water Temperature Control Devices

## Anti-scalding and control of Legionella growth take center stage.

*November 3, 2018*

Ron George

Scalding hot water from fixture faucets and fittings accounts for more than 25 percent of all scald burns in children. The elderly and the physically impaired also are at increased risk of scald burns because they have thinner skin and slower reactions. They often cannot recognize a hazard and get out of harm's way before a serious burn can occur.

**Control of scalding and Legionella bacteria**

I have always said, "Scald burns and Legionella bacteria growth in hot water systems, which can lead to Legionnaires' disease, are 100 percent preventable."

Scalding and Legionella bacteria can be controlled when domestic hot water systems are designed, installed and maintained to keep hot water storage and distribution temperatures above the maximum Legionella growth temperature of 122 F.

Appropriate temperature controls must be used at or near fixtures to reduce the maximum hot water delivery temperature from fixtures to 120 F or below.

**Single-handle shower controls to control scalding and thermal shock**

The attempt to prevent scalding and thermal shock injuries which often lead to slip and fall injuries was the driving force that brought about the invention of temperature control devices. In 1924, a plumbing manufacturer developed the first shower valve with a pressure-compensating element to address thermal shock common in two-handled shower valves.

Shower faucets before then typically had two-handled faucets that allowed the water from the hot and cold-water system to be mixed in a mixing chamber. A two-handled faucet or shower valve would have sudden changes in temperature as other fixtures were used in the plumbing system, which caused pressure disturbances that, in turn, caused sudden changes in temperature — either hot or cold.

The two-handled design provided the opportunity for a bather to receive serious scald injuries if someone accidentally turned off the cold water first while bathing or

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showering, which would leave only the hot water flowing to the shower. The original design had a pressure-balancing piston to adjust for thermal shock.

### Adjustable limit-stops on shower valves

A couple of decades after the introduction of the pressure-balancing shower valve, newer designs of the valves entered the market. Other manufacturers developed additional safety components for shower valves, which included a maximum temperature limit-stop adjustment.

The limit stop adjustment allowed a single-handle valve to be manufactured and installed with a field-adjustable maximum temperature setting to a temperature at or below 120 F. The single-handle opened to the cold-water flow first and, as the handle was rotated farther, the valve added more hot water.

Hot water is often stored at or around 140 F, which was, and still is, the basis for water heater storage temperatures in many manufacturers' equipment sizing calculations.

### Thermal layering

In uncirculated hot water tanks, the stored hot water temperatures could rise significantly above 140 F due to thermal layering (heat rising to the top of an uncirculated water heater).

### Stacking

Another phenomenon that causes the hot water temperatures to rise significantly above the water heater thermostat set-point is stacking. It occurs when there are multiple, intermittent, short draws of hot water from a water heater, causing cold water to enter the bottom of the hot water tank. The thermostatic element senses the cold water and turns on the burner, even when the water at the top of the water heater is well above the thermostat setting.

### ASSE Temperature Control Device Standards

Each device covered by an ASSE product performance standard has specific applications as to where it is intended to be used. The authority having jurisdiction (AHJ) has the final approval of all installations but one must be aware of the code requirements and the application must allow the device for that application.

In addition, the installation must comply with the scope listed in the product standard. The installation also should comply with the manufacturer's installation requirements, which may be more restrictive than the code adopted by the local jurisdiction.

The ASSE Product Performance Standards for these devices are: ASSE 1016/ASME A112.1016-2011/CSA B125.16-11, Performance Requirements for Automatic Compensating Valves for Individual Showers and Tub/Shower Combinations; ASSE 1017, Performance Requirements for Temperature Actuated Mixing Valves for Hot

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Water Distribution Systems; ASSE 1062, Performance Requirements for Temperature Actuated Flow Reduction (TAFR) Valves for Individual Fixture Fittings; ASSE 1066, Performance Requirements for Individual Pressure Balancing In-Line Valves for Individual Fixture Fittings; ASSE 1069, Performance Requirements for Automatic Temperature Control Mixing Valves; ASSE 1070/ASME A112.1070-2015/CSA B125.70-15, Performance Requirements for Water Temperature Limiting Devices; ASSE 1071, Performance Requirements for Temperature Actuated Mixing Valves for Plumbed Emergency Equipment; ASSE 1082, Water Heaters with Integral Temperature Controls for Distribution Systems. (Currently finalized, awaiting board approval as of this writing.); ASSE 1084, Water Heaters with Integral Temperature Controls for Point-of-Use Applications. (Currently finalized, awaiting board approval as of this writing.); ASSE 1085, Water Heaters with Integral Temperature Controls for Use with Emergency Fixtures. (Currently under development as of this writing.)

ASSE recommends that design professionals, plumbers, owners, installers, maintenance personnel, specifiers, inspectors, engineers, educators, trainers and code officials use caution when determining which device is correct for a particular application or installation.

In some applications, installing the wrong device or installing the device in the wrong location can lead to potentially serious scalding situations, thus exposing the end user to potentially scalding hot water temperatures. Furthermore, installing the wrong device can lead to a false sense of security by the ultimate user. Therefore, it is extremely important to make sure installation of the proper device is in the proper location. It must be maintained in accordance with the manufacturer's installation and maintenance instructions.

**Description of Temperature Control Valve Applications**

Shower and Tub/Shower Combination Valves (ASSE 1016). Shower valves that comply with ASSE 1016 are automatic temperature and/or pressure-compensating valves intended to be installed at an individual shower or tub/shower combination fixture.

The model plumbing codes require all shower and tub/shower fixtures to have temperature controls that comply with ASSE 1016-2011/ASME A112.1016-2011/CSA B125.16-11, Performance Requirements for Automatic Compensating Valves for Individual Showers and Tub/Shower Combinations.

The user has access to the ASSE 1016 flow and final temperature controls. No further mixing should occur downstream of the ASSE 1016 device.

These devices are intended to control the water temperature to wall-mounted or ceiling-mounted hand-held showers; showerheads; body sprays, either in the individual shower or tub/shower combination fittings; and tub spouts, when part of tub/shower combination fittings.

There are three different types of shower valves meeting this standard: pressure-balancing, thermostatic (mechanical and electronic) and combination pressure balancing and thermostatic.

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The showerhead flow rate must not be less than the manufacturer's published minimum flow rate for the valve (device). The temperature limit stop must be set at the time of installation and may need to be periodically adjusted for variations in water temperatures. These devices provide both scald and thermal shock protection.

### Hot Water Distribution Systems (ASSE 1017)

Temperature-actuated mixing valves for hot water distribution systems are used for controlling in-line water temperatures in domestic hot water systems to a relatively uniform temperature.

These valves should comply with ASSE 1017, Performance Requirements for Temperature Actuated Mixing Valves for Hot Water Distribution Systems or a comparable CSA standard listed in the code. When used, installation of these devices should be at or near the outlet of the hot water source only.

These valves are designed to provide a relatively uniform water temperature to the hot water distribution system, which makes setting maximum temperature limit stops in the system more reliable than a system without a mixing valve where uncirculated water heater discharge temperatures can vary by more than 30 F greater, or 15 degrees less, than the water heater thermostat set-point.

ASSE temperature-actuated mixing valves allow the water to be stored and distributed at higher, more stable temperatures, extending the amount of hot water available and also reducing the chance of Legionella bacteria growth in the tank and distribution piping. (See ASHRAE 188 and ASHRAE Guideline 12.)

These valves are not intended for point-of-use applications because of the large temperature variation. Valves must be sized to match the flow requirements of the system and not sized based on the pipe size (see Table 1). Further mixing downstream is allowed to provide final temperature control to protect against scalding. These devices used alone do not provide thermal shock protection or adequate scald protection.

To prohibit the cross-flow of hot or cold water through the valve, supplementary check valves should be installed for devices that do not include integral check valves by the manufacturer.

### Individual Supply Fittings — TAFR Valves (ASSE 1062)

Temperature-actuated, flow reduction (TAFR) valves, when used, should be installed on the discharge outlet of the fixture fitting or integrated into fixture fittings.

These valves must comply with ASSE 1062-2006, Performance Requirements for Temperature Actuated Flow Reduction (TAFR) Valves for Individual Fixture Fittings.

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They are intended for use in-line with, or integrated into, individual plumbing supply fittings such as showerheads, bathtubs, whirlpool bathtubs, utility sink faucets, kitchen sinks and lavatory faucets.

They are designed to automatically reduce flow down to a trickle within five seconds of outlet temperatures greater than a preset actuation temperature not to exceed 120 F (48.9 C). During the five-second response period, the bather may be exposed to temperatures more than the setpoint of the device.

After actuation, the device is required to have a trickle flow, which allows the temperature controls on the faucet to be adjusted to a lower temperature to reset and open the device automatically at a predetermined lower temperature, or with the use of a manual reset mechanism.

These devices can be used on existing fixtures such as the showerhead associated with an older-style two-handle, nonpressure or temperature-compensating shower valve to provide scald protection. Typically, a TAFR device is used in an existing installation where no other form of scald protection is provided.

TAFR valves are not intended to be installed in place of devices complying with ASSE 1016, ASSE 1017, ASSE 1066, ASSE 1069 or ASSE 1070. These devices provide an additional level of scald protection only and do not provide thermal shock protection.

Caution: These valves automatically reduce discharge flow to a trickle if water temperature exceeds a preset limit. This trickle can be as much as 0.25 gallons per minute (0.95 L/m). When this device is installed on a bathtub spout and the outlet temperature exceeds the preset limit, and if the bathtub drain is closed, the bathtub could fill with extremely hot water from this allowable trickle.

Caution: Some ultra-low-flow showerheads may still have a full spray pattern when the flow through this TAFR device is reduced.

**In-Line Pressure-Balancing Devices for Individual Fixtures (ASSE 1066)**

Automatic pressure-balancing in-line valves are used to equalize incoming hot and cold-water line pressures. This minimizes mixed water temperature variations due to pressure fluctuations when used in conjunction with a mixing valve or two-handle valve set.

These valves must comply with ASSE 1066, Performance Requirements for Individual Pressure Balancing In-Line Valves for Individual Fixture Fittings. They are not designed to limit the maximum outlet temperature at the point-of-use. These devices provide thermal shock protection for pressure disturbances only and do not provide scald protection if the incoming hot or cold-water temperature changes.

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### Thermostatic Temperature-Limiting Devices with Downstream Mixing Permitted (ASSE 1070)

Water temperature-limiting devices are intended to limit the hot or tempered water temperature supplied to fittings for fixtures such as sinks, lavatories, bidets or bathtubs to reduce the risk of scalding.

These devices must comply with ASSE 1070-2015/ASME A112.1070-2015/CSA B125.70-15, Performance Requirements for Water Temperature Limiting Devices. They are intended to supply hot or tempered water to plumbing fixture fittings or be integral with plumbing fixture fittings supplying hot or tempered water.

These devices shall have fixed (nonadjustable) temperature setting; or temperature setting that can be adjusted and locked in position; or adjusted with the use of a tool to protect against adjustment by the user; or further mixing downstream is allowed.

These devices have an integral water temperature-limiting capability. The user control allows the outlet temperature to be adjusted up to a maximum temperature of 120 F (49 C). They provide scald protection only and do not provide thermal shock protection.

### Mixing Valves for Plumbed Emergency Equipment (ASSE 1071)

Temperature-actuated mixing valves are intended to be used as a component to provide tepid water for emergency eye wash, eye wash/shower, drench showers and combination units that comply with the requirements of ANSI Z358.1.

These valves must comply with ASSE 1071-2012, Performance Requirements for Temperature Actuated Mixing Valves for Plumbed Emergency Equipment. These valves, by themselves, do not meet the requirements of ANSI Z358.1.

They consist of a hot water inlet, a cold-water inlet, a mixed water outlet, a temperature controlling element and a means for adjusting the mixed water outlet temperature while in service. These valves also have the means to limit the maximum outlet temperature under normal operating conditions.

Provisions shall be made so that the temperature cannot be inadvertently adjusted. These valves shall include a means of preventing cross-flow. Ideally, these devices are intended to be installed as close as possible to the plumbed emergency equipment. These valves provide scald protection only and do not provide thermal shock protection. They provide cold water bypass flow in the event of hot water failure.

Note: ASSE 1071 devices should be installed at individual fixtures. Emergency plumbed equipment must be flushed frequently, per industry standards, or per the water management or water safety plan to minimize stagnant water.

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**Nikita Patel, EIT, MBA**
**AYP Liaison**

# AYP Report

Last year, I started a very fun project for our LinkedIn page doing interviews with various chapter members. I was very excited when it was time to interview Dick because he had a big reputation in my world of med gas and plumbing in general. To celebrate his retirement, I'd like to share some of the highlights with you again. Congratulations, Dick!

Q: How long have you been a member of ASPE?

A: I am one of the charter members of the Baltimore ASPE Chapter, so I've been an ASPE member since 1974.

Q: What is a project that you really enjoyed and why?

A: While I was working at Poole & Kent, I worked on a number of projects in Bermuda. One project required me to be on-site full time for over a year during construction. When I told my wife that I was going to Bermuda for an extended time, she said, "Not by yourself!". P&K provided for my wife and our two daughters to stay with me.

Q: How did you move into the plumbing field?

A: I got into Mechanical Engineering in high school at the Baltimore Polytechnic Institute, and in 1952, I started college as a sophomore at Johns Hopkins University. I worked as a Draftsman at Bendix Radio and Glenn L. Martin Company. There, I worked on a mine-laying jet seaplane, but the Navy eventually switched to nuclear submarines. I moved to the sales office of Honeywell Controls designing HVAC control systems for commercial projects. Later, I took a job with Whitman, Requardt & Associates as a Design Engineer because I wanted more overall experience in Mechanical Engineering. One of my projects was writing an O&M Manual for mechanical systems for a space satellite radar facility that they had designed for Bendix. The last chapter in the manual was for the fire protection system, which was two manual fire extinguishers in each of the 17 floor sections of the building. I finished this chapter on a Friday, but on the following Monday, I was advised that the building had been almost totally destroyed by a fire over the weekend. The original design engineer for this building had left the company at this point, so I was elevated to Chief Mechanical Engineer for the redesign. At the completion of this job, P&K, who was the mechanical contractor on the project, did offer me a job, but I declined at the time. After, WR&A, I worked at Albert B. Gipe Associates for two years before I ran into the VP of Poole & Kent at a trade show. I asked about employment and was hired soon after as a Project Design Engineer. While working with P&K, I joined ASPE and became their liaison to the National Standard Plumbing Code pubhslihed by the Plumbing Heating Cooling Contractors Association. I was on the technical committee for both NSPC and NFPA 99. I originally proposed nitrogen purging to the NFPA 99 committee. Eventually, I decided to open my own LLC company and work as a consultant. I have been the engineer member for the Baltimore County Plumbing Board since 2011, and I now have a Baltimore County Master Plumber-Gasfitter License.


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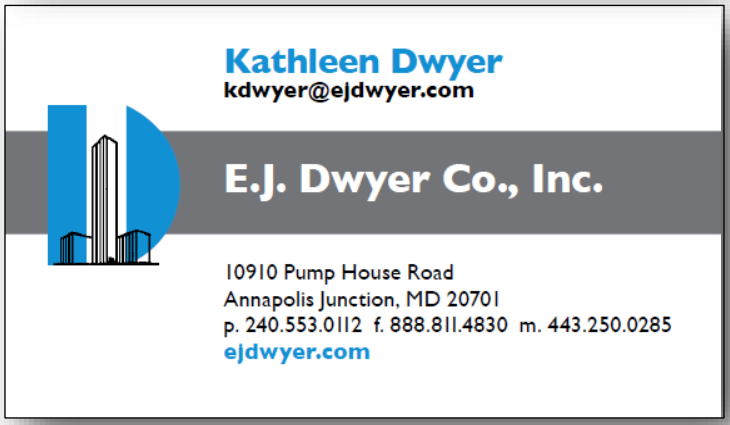
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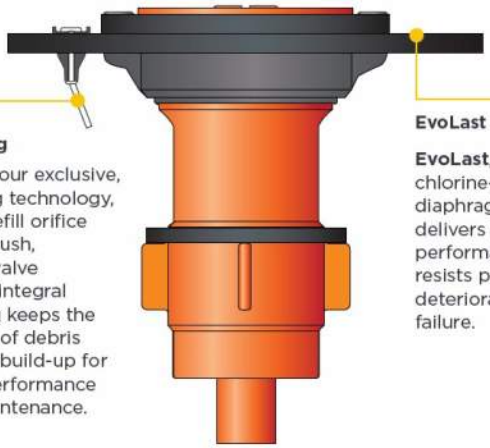

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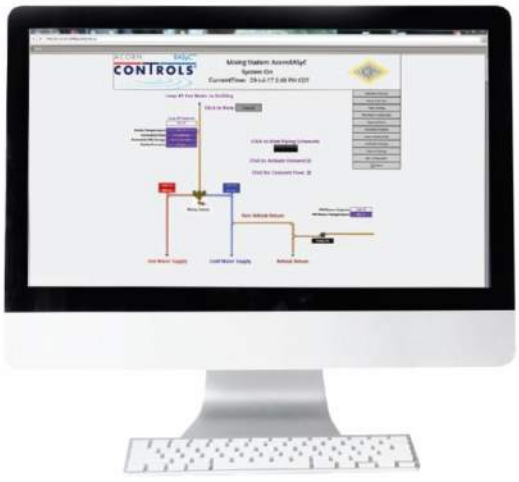

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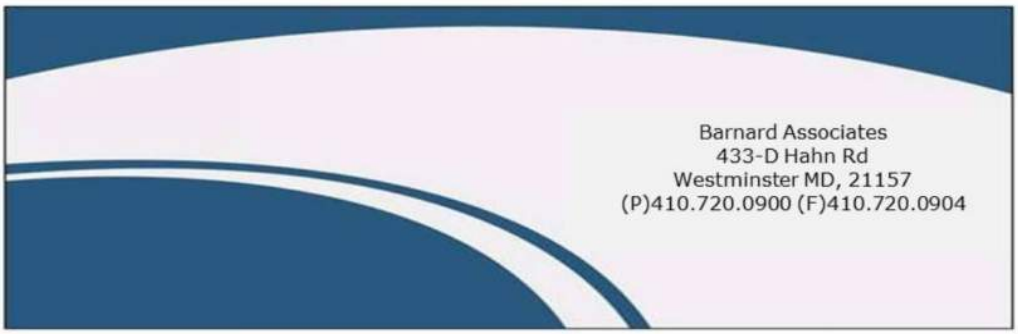


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# 2019-2020 ASPE Baltimore Chapter Meeting Schedule

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**
Cancelled

Date: **April 22, 2020**
Virtual Meeting

Date: **April 24, 2020**
Event: Golf Outing
Cancelled

Date: **May 27, 2020**
Cancelled
Virtual Meeting Available 5/25-5/31

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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.

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