



### **Upcoming Meeting**

**Date:** January 23, 2019

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

**Place:** [Olive Grove Restaurant](#)

**Topic:** Fire Pump Controllers

**Speaker:** Mark Barrick - STH

#### Meeting Format

6-6:30 Social

6:30-6:45 Announcements and Table Tops

6:45 Dinner Served

7:00-8:00 Speaker



CHAPTER AWARD OF MERIT

Recipient **2017-2018**

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### **MEETING LOCATION**



**Olive Grove**  
Restaurant & Lounge

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

**[WWW.BALTIMOREASPE.COM](http://WWW.BALTIMOREASPE.COM)**



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

## President's Report

I hope everyone had an enjoyable holiday season, got to share time with family and got some well deserved rest.

This month starts up our monthly meetings again now thru May. We have some great technical topics planned for the remainder of the meeting season so hopefully everyone will be able to join us

For the past several months, myself, Chuck and Chris from the chapter's board, have been working with representatives from Charlotte Pipe, The Joyce Agency, Milwaukee tools, the Copper Development Association and the UA 486 Plumbers & Steamfitters union personnel to plan a hands-on pipe assembly class that would allow engineers to assemble cast iron, PVC and copper piping.

Per the request of UA 486, attendance was limited to 25 people. I personally selected the people to be invited based on who have supported our chapter by attending meetings and attending our special events beyond just monthly meetings.

The event was held on January 8<sup>th</sup> at the UA 486 training center. It was a huge success! After signing waivers, then getting dressed with hard hats, vests, gloves and eye protection, attendees were allowed to connect copper pipe and fittings using pro-press type couplings using Milwaukee battery powered crimp devices. Attendees were able to cut cast iron pipe using a snap cutter. Then attendees connected a 90 degree ell to their piece of cast iron pipe using a stainless steel no-hub coupling.

There were also demonstrations from CDA personnel on how to prep and then solder and braze a 4" copper pipe. There was also a demonstration of using a pro-press coupling on to a 4" copper pipe.

The Charlotte Pipe person demonstrated how to cut a 4" cast iron pipe with snap cutter along with demonstrating how to assemble a 4" cast iron hub and spigot pipe with a second 4" cast iron pipe.

The Charlotte Pipe person also demonstrated the seven required steps on how to assemble a 4" PVC pipe and coupling using the primer and solvent cement. Please note, you do not glue PVC pipe, you use solvent cement ☺

This event was a pilot program to see how successful it would be. Well, with the huge success of last night's event, there is already discussions on how and when to hold the next similar event. Stay tuned.

If you'd like additional information on this event, please contact me.

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

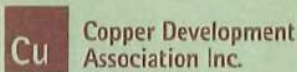


# PIPE ASSEMBLY TRAINING SESSION

## January 8th, 2019 4:00 P.M.



### SPONSORS



### AGENDA

4:00 pm to 4:30 pm  
Introductions, put on protective items, sign waivers

4:30 pm to 5:30 pm  
Copper Training

5:30 pm to 6:30 pm  
Cast Iron Soil Pipe Training & PVC training

6:30 pm to 7:00 pm  
Hands on Demonstration With  
Large Cast Iron, Copper & PVC Pipe

7:00 pm to 8:00 pm  
Food, Beer, Wine, & Socialization

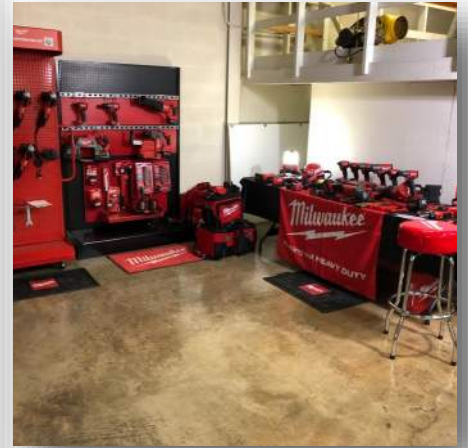


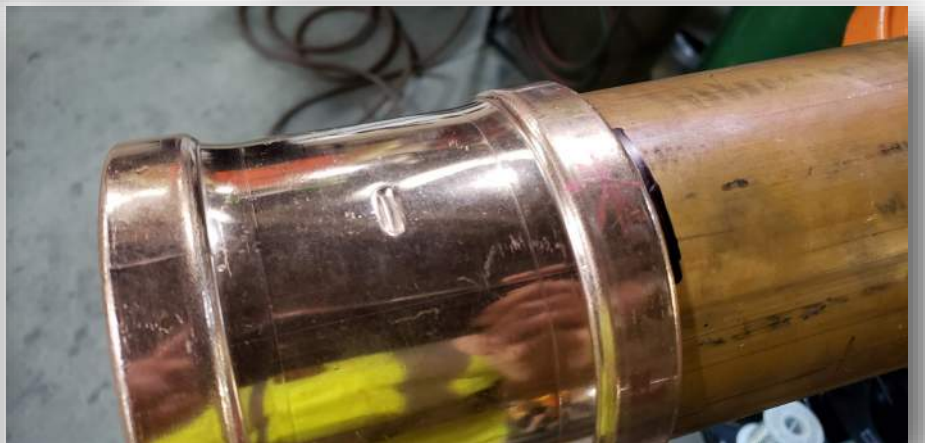
### INFO

Hosted by the  
Plumbers and Steamfitters UA Local 486  
and organized by the  
ASPE Baltimore Chapter

- ✓ Wear jeans, long sleeves shirts/jackets, no polyester, closed toe shoes
- ✓ Hard hats, safety glasses & vests provided
- ✓ Please plan to arrive promptly by 4:00 pm
- ✓ RSVP to Jeff at [JEwards@muellerassoc.com](mailto:JEwards@muellerassoc.com)

# JANUARY 8TH PIPE ASSEMBLY TRAINING SESSION









What is better than plunging into the Bay in January? Throwing your co-workers in with you! The Corporate Plunge is the best excuse to sneak out of the office early **fur** a good cause! Join us on Friday, January 25th for happy hour, live music, and a Plunge to show your support for the 7,782 athletes who train and compete throughout Maryland.



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Jason J Eagles  
VP Affiliate, Scholarship Chair, Newsletter

Dedication is defined as a solemn commitment of your time to a cherished purpose. It is a loyalty or allegiance to a cause. I cannot think of a better term that defines many of the members of the Baltimore Chapter of ASPE. Being a member of this society is a choice and often involves hours of time devoted to the local chapter. We certainly hope the Baltimore Chapter has supported your technical knowledge and allowed for networking opportunities with other plumbing professionals. Without the dedication of its members, we would not be as strong as we are today. Speaking on behalf of the board, we wish to thank and honor you for that dedication. This year we will be celebrating those with 10 Years or more of being an ASPE Member. This program is long overdue and I am proud to be a part of it. We will be handing out over 50 awards during the next several meetings. Anyone receiving an award is welcome to attend that meeting paid by the Chapter. Please spread the word and join us as we celebrate these milestones. Please see the following pages for the members being recognized.

### **Award Presentations**

10 Year Award– February 27, 2019

20 Year Award – March 27, 2019

30 & 40 Year Award – April 24, 2019

See pages 9-11 for award recipients and additional information



## **10 Year Awards – February 27, 2019**

Richard Grier  
Brent William Inners  
Philip Joseph Holthaus  
Robert Adam Kegan  
Patrick Joseph Plourde  
Eric Paul Sellers  
Benjamin John Ploskon  
Merton Harris  
Thomas J. King  
Michael Shacklock  
Bryan W. Ondrasik  
Kenneth J. Krach  
Andrea M. Crabb  
Jason Joseph Eagles  
Dan Galloway  
Donald John Yudiski  
Paul Edwin Abbott Jr  
Carlton Ross  
Thomas G. Schrieber Jr  
Walter Leo Miller  
Herbert John Heubisch

If you are receiving an award and attending this meeting, please RSVP on the website [www.baltimoreaspe.com](http://www.baltimoreaspe.com). The Baltimore Chapter would like to cover this expense to further show our appreciation. Please RSVP for the meeting online and use the bypass payment option when prompted. You will need to click on Member Ticket \$35 and follow the steps to payment where you can bypass payment.



## **20 Year Awards – March 27, 2019**

Robert E. Ruskey  
Cory S. Colassard  
David S. Crutchfield  
Robert A. Weaver II  
Michael J. Purtell  
Steve C. Trageser  
Kirby W. Slear  
Sherry A. Abbott-Adkins  
Kathleen M. Dwyer  
Daniel M. Booze  
John D. Stitz  
Robert J. Allen  
David R. Spencer  
Neil P. Stabley  
David Charles Van der Vossen  
Igor Z. Knizhnik  
Michael Kevin Hunt

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## **30 & 40 Year Awards – April 24, 2019**

### **30 Year Awards**

Charles E. Kozlowski  
Roy D. Ebersole  
Jeffrey W. Edwards  
Michael A. Brame  
Richard C. Goins  
J. Thomas Federline Jr.  
Jerry W. Rutkowski  
Frederick Koelber  
Daniel J. Gardner  
Michael P. Nelson  
Aaron L. Mullenax  
David R. Hoffman

### **40 Year Awards**

Donald F. Steiner  
Stephen Hudson  
John Richard Wagner  
Robert J. Stryiewski

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Congratulations to Baltimore AYP  
Axe Throwing Champion Brad Gratton!



Special thanks to Zurn for sponsoring axe throwing  
for Baltimore Chapter AYP members.

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## Did you know?

- ▶ Failure of a tank's protective lining is the #1 reason for tank replacement

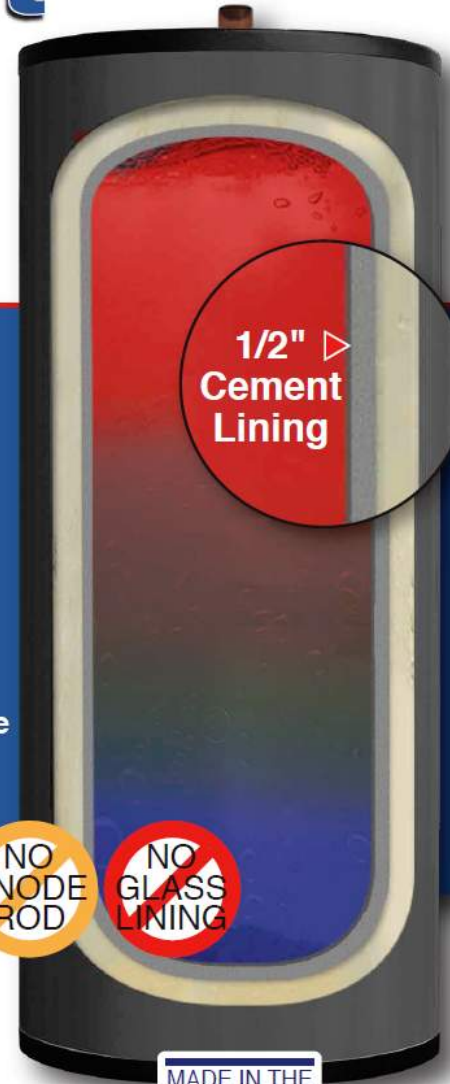
### Cement Lined

vs

- ▶ 1/2" thick Hydrastone is 100 times thicker than glass
- ▶ Evenly covers all internal surfaces without cracks or nicks
- ▶ Highly resistant to corrosion from the harsh effects of hot water
- ▶ 100% of all wetted surfaces covered by cement or non-ferrous material

### Glass Lined

- ▶ Only .005" mm thick, so there is less protection
- ▶ Does not cover all internal surfaces evenly
- ▶ Requires a sacrificial anode rod which draws corrosion towards it. Needs to be replaced annually



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

## Technical Report

Welcome to 2019 and the second half of the Baltimore ASPE Chapter Meeting Season! I hope all of your holiday plans were successful. Both our annual chapter holiday party and the December AYP event were fun events, well attended and both went off without a hitch; we’ve included photos of both events later in the newsletter. Our upcoming January Meeting Topic, Fire Pump Controller Applications, is a follow-up on the January 2018 topic, Fire Pump Design 101. Last year, Mark Barrick from STH covered the characteristics and applications of various fire pumps. This year he will cover the applications for the various types of fire pump controllers, from Full Voltage, Across-The-Line types to Variable Frequency Drive Controllers.

After serving 4 years with the US Marines. Mark started his 27-year career as a professional firefighter with the Montgomery County Fire Department. Through his career he was promoted through the ranks and became a Fire Marshall, working in complex structures (taking building from conception to completion.) After retiring from the department, Mark joined STH, Inc. as a member of the Fire Team in 2011 and now serves as the lead for this division. Mark conducts training classes for their engineering partners, contractors and many different AHJ’s in the MD/DC/VA area. Mark’s years of experience with the fire service has made him a huge asset for his company and their partners in the engineering field

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Mechanical/Electrical Engineering




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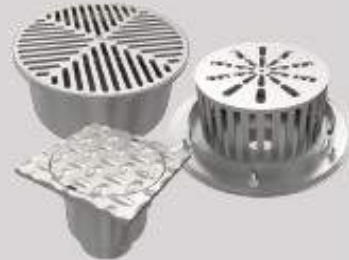
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Karen Schulte, PE, CPD, LEED AP BD+C  
AYP & WOA Liaison

Attention WOA members:

UPCOMING EVENT ON JANUARY 29TH  
SEE NEXT PAGE FOR DETAILS



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Contact Karen Schulte for more information on the Baltimore Chapter AYP and WOA  
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# Paint Night



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## ANOTHER WAY TO LOOK AT ADA

Since man has walked the earth, there have been challenged and disabled people that had to adapt to their environment. As the years went by, people developed devices to make it easier to get around, whether it was a life time or temporary disability. The Americans with Disabilities Act (ADA) became law in 1990, but several years before the federal regulations were mandated, many states had their own regulations that were similar to the federal regulations of 1990. These regulations were developed when it was realized that people born with physical and/or mental challenges needed some special design conditions that included accessible plumbing fixtures. It was expected at the time that a large percentage of people in the US would likely have some disability (broken arm, broken leg, temporary hearing loss, poor vision, etc.) in their lifetime and could benefit from these modifications and fixtures.

In the early 1980's our firm was hired to design a new school for physically and mentally challenged students in Anne Arundel County for 1st through 12th grade students. The school system had a building that was being used by these students, but space was limited. The principal of the school asked the entire design team to meet with the students at their existing facility and try to understand the children's challenges. I can still remember meeting with these students and based on their physical condition it was very hard to imagine how to accommodate their needs. After the meeting, we all met with the principal who explained what we needed to do to help these students in their future life. The principal made it clear that these children want to grow up to live as normal a life as any other American. The bottom line was to design a school that looked partly like a house, partly like a mercantile/business complex (food stores, offices, fast food, etc.) with the remaining space as a typical school. These students, even today, could visit someone's house or a small private office toilet room where there would be non-handicapped plumbing fixtures in the rooms. How do they deal with these challenges? So the task for the design team was to provide as many different types of devices that students could encounter, so they could be taught how to handle the situation without a problem. Some of the devices included, different types of light switches in each room, and different looking thermostats throughout the school. Plumbing fixtures were the most challenging. The ADA fixtures required by state regulations were provided, but all others were special in different ways. There were 53 different plumbing fixture types scheduled for this school that was designed to accommodate a maximum of 200 students. All various types of commercial and residential water closets, urinals, lavatories, and sinks were used. Faucets of every type were used; cross handle, push button, self-closing, single lever, wrist handles, etc. The plumbing fixtures provided an educational challenge and was monumental in helping these students live a normal life without constant assistance. In the group toilet rooms that are used in a school, every fixture and trim in each school's toilet room was different. When a challenged student needed to use the facilities they needed to recall how to use the fixtures for their benefit and learn from that experience for the time when they would encounter that fixture in another building.

About 20 years after the school opened we went back to the school to see how things were functioning. There was a new principal at the school, but he had been on staff since the school opened. All the plumbing fixtures and trim were the same original type and they still used the facilities for educational purposes. This school has been honored for the great work they have done for their students and how they taught their graduates how to handle some of the challenges they would face every day in their life.

Codes require the plumbing engineer to provide the ADA plumbing fixtures as stated in the regulations and challenged students also need to learn how to use these specific plumbing fixtures. But remember, plumbing engineer designs must meet code requirements and the owners expectations and needs. This may require looking outside-the-box to accomplish these tasks.



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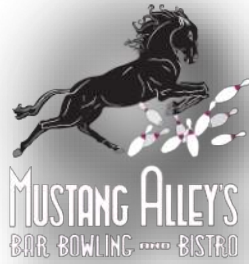
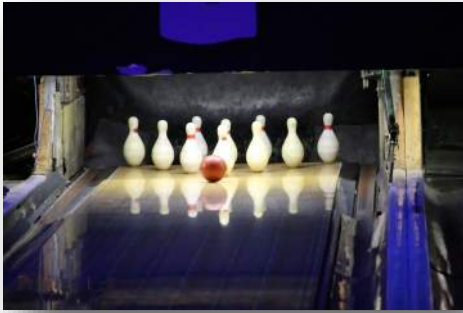
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## Solving Overpressure Problems with a Variable Speed Fire Pump Controller

(By William Stelter and James Peterkin, PE - Originally published in Plumbing Systems & Design September 2011)

The selection of a fire pump for a specific design flow and pressure should be relatively easy if you have an accurate test curve for the available water supply; however, oftentimes overpressures occur at no flow due to inaccurate or nonexistent water tests, as well as wide suction pressure swings between static and residual conditions and higher shutoff pressures on fire pumps. These problems now can be solved by controlling the discharge pressure of a fire pump with a variable-speed electric controller or a pressure-limiting diesel driver.

In the past, main relief valves were used in an attempt to control overpressure conditions. The results were poor at best since they would open during the weekly testing required by NFPA 25: Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems. During the testing, the rated flow of the fire pump was typically dumped outside the building, and besides wasting approximately 1,000 gallons per minute for 10 minutes, or 10,000 gallons a week, this also presented a hazard to anyone walking by or working around the external discharge pipe when the pump was turned on.

Then, in the 2003 edition of NFPA 20: Standard for the Installation of Stationary Pumps for Fire Protection the use of main relief valves to control the discharge pressure of the fire pump was prohibited with the addition of paragraph 5.7.4.2 (now 4.7.7.2 in the 2010 edition). At the same time, the standard allowed the use of variable-speed pressure-limiting control with the addition of paragraph 5.7.4.3 (now 4.7.7.3 in the 2010 edition) as a better means to control overpressures.

The first Underwriters Laboratories (UL)-listed variable speed electric fire pump controller was introduced by Master Control Systems in 2003 and was shipped by the end of that year. In 2004, Clarke Fire Protection Products introduced the first pressure-limiting device (PLD) diesel engine.

NFPA 20 further expanded on the requirements for variable-speed electric fire pump controllers in the 2007 edition by adding a new section (10.10). In 2008, Factory Mutual adopted these latest changes and approved its first variable speed electric fire pump controller. Since then, many fire pumps have been successfully provided with variable-speed electric controllers or pressure-limiting diesel drivers.

For centrifugal pumps, the pressure changes by the square of the speed. Thus, using a pump that is rated for 132 pounds per square inch (psi) at rated flow and 148 psi at no-flow pressure, the pressures will be lowered to  $0.9 \times 0.9 = 0.81$  times the full speed values, if the speed is reduced by 10 percent. This reduces the pressure at rated flow from 132 psi to 107 psi and the pressure at no-flow from 148 psi to 120 psi.

For electric motors, a variable-frequency drive (VFD) is used in the electric fire pump controller to change the speed of the motor. The VFD converts the incoming AC power at 60 hertz (50 Hz outside the United States) to DC power and then recreates AC power at its load terminals to run the motor at the appropriate frequency commanded by the internal control loop. Since the speed of the motor is directly proportional to the frequency supplied to it, operating the motor at 54 Hz instead of 60 Hz will run the motor at 1,620 revolutions per minute (rpm) instead of 1,800 rpm.

By adjusting the speed as the flow changes, the discharge pressure of the fire pump can be held constant for any flow. This is done with a control loop that monitors the discharge pressure and compares it to the set point or set pressure saved in the VFD. This can be done easily in the field. If the pressure is too high, the control loop slows the speed of the motor. If the pressure is too low, it speeds up the motor. Of course, as is the case with any closed-loop system, care must be taken to ensure that the system is stable under all flow conditions, not just a few points.

For diesel engines, a pressure-limiting device is added as an accessory package to reduce the engine speed only when the discharge pressure of the fire pump is greater than the factory set point of the PLD. At this point, the engine throttle is adjusted to reduce the speed, and thereby the pressure, to the set point.

## Reasons for VFD's

### Eliminate PRV's

In the past the only way to solve overpressure problems was to use PRVs...but no more! Variable Speed Controllers can vary the speed of the motor based on what pressure you desire. Need 170 psi? Done with the press of a button. 171? No problem. VFD's can hold the pressure to within 1 psi exceedingly accurately. And on top of this, you can eliminate drain risers and make your building PRV free at long last.

### Genset Savings

NFPA-20 2010 paragraph 9.4.3 allows the voltage drop to be no lower than 15% while starting, or 30% in bypass. Given this, a typical application for a 150 hp motor utilizing soft starting, a gen-set manufacturer's sizing program would select a 250 kW gen-set. For the same application, the program would select a 125 kW gen-set when using a variable frequency drive and a primary reactor bypass with a 30% starting voltage drop, effectively cutting the gen-set in half.

It is important to remember that the average cost / kW is \$300 - so cutting 125 kW from your generator by using Variable Speed Fire Pump Controller equates to an average savings of \$37,500!

### High Rises

High rise buildings are a perfect application for Variable Speed to work its magic. It can eliminate PRVs, solve overpressure problems at no-flow, eliminate storage tanks, and even eliminate a zone!

### Poor Water Supply

Imagine that you have a city water supply of 65 psi, but when it flows it drops to 26 psi! This large difference in pressure would normally require your entire building to be laced with PRVs, which turns out to be quite expensive both in terms of initial and future costs.

Fortunately, with the advent of Variable Speed Fire Pump Controllers, all you need to do now is set the pressure you desire on the VFD drive and you're done. Variable Speed Controllers flawlessly handle the steep transition by varying the speed of the motor.

### Loop Systems

Large Loop Systems are ideal for Variable Speed because, while flowing, the system pressure may be 165 psi but may dramatically increase to 220 psi at no flow. Because of the large area that must be supplied, this is quite common. The application of Variable Speed solves this problem by changing the speed of the motor as necessary, enabling engineers to design at the residual pressure and not worry about static pressure!

### Dual Water Supplies

In a system where the water supply changes drastically, say from a tank to city water, the pressure changes can be tremendous. For example, consider a job with a tank at 0 psi that needed 150 psi from either the city water supply or the tank at design. It also has a 50 psi rise to shutoff from the pump, as well as a 100 psi static city water supply: this adds up to a 300 psi no-flow condition. Variable Speed is able to run the motor at  $\frac{1}{4}$  speed from the city water supply and reduce this pressure to the desired pressure of 150 psi



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Andrew Cahill — Membership

## Membership Report

Back at it in 2019. I hope that all of you enjoyed and safe and happy holiday season. For the first time, I elected to take almost two weeks of personal time for the holidays. While it was a relaxing 14 days, the January 2 dig-out was a challenge.

No new members to report in December, and down 2 to 111 after the 12/6 report. Baltimore remains 5<sup>th</sup> in region 1, with Montreal on our heels at 101. Perhaps the December EOM reports yield better results.

Let me know if I can be of assistance to anyone interested in joining ASPE. You can direct them to <https://www.aspe.org/join> or email me at [andrew.cahill@uponor.com](mailto:andrew.cahill@uponor.com).

*Did you know that engineering firms may offer reimbursement to employees for affiliation with professional organizations such as ASPE? In fact, participation with local chapters is often encouraged and provides significant benefits. In addition to the ability to attain CEUs from monthly educational seminars and networking opportunities with other industry professionals, members are provided with a volume of the Plumbing Engineering Design Handbook for each year of participation – a key resource in completing CPD testing. Have a conversation with your firm’s principal about your options for joining ASPE.*



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## CPD Review Class 2019

**The Washington DC and Baltimore ASPE Chapters** will be providing a Joint Baltimore-Washington, DC ASPE Chapter CPD Review Session on Saturday, February 16, 2019 at the training center of E.J. Dwyer Co. in Annapolis Junction, MD. (Note: A bad weather make-up date is scheduled for the following Saturday, February 23rd.) The session will be from 9:00 AM to 3:00 PM (or longer as needed) with a lunch break. Bagels, juice & coffee in the morning and lunch will be provided by the good people of E.J. Dwyer Co. Directions to the office in Annapolis Junction (north of Laurel) may be found on their company website at [www.ejdwyer.com](http://www.ejdwyer.com) under Contact Us or by clicking google maps link: <https://goo.gl/maps/4nEvRNG6kEK2>

Any ASPE member interested in attending this session is required to forward an e-mail to either Kathy Dwyer or Ned Dwyer at the following respective addresses: [kdwyer@ejdwyer.com](mailto:kdwyer@ejdwyer.com) and [ndwyer@ejdwyer.com](mailto:ndwyer@ejdwyer.com)

### Please take notice of the following:

- Registration for the CPD Exam (through ASPE) opens December 1, 2018 and closes March 22, 2019. Link to website: <https://aspe.org/CPDExam>
- Note the reference to any ASPE member, since it is generally more economical for one registering to take the CPD exam to be an ASPE member prior to registering for the exam. Please contact a local ASPE Chapter VP Membership ASAP to become a current member;
- ASPE members not classified as Full shall be subject an exam eligibility evaluation by Society that may take as many as five business days. (You may wish to take the initiative and visit the ASPE web-site and preview the requirements for Full membership to see if you would qualify for Full membership); and
- The ASPE CPD Exam is scheduled to take place April 5 and/or April 6, 2018.

Attendees to our review class are expected to bring to the review session at a minimum a calculator, writing materials, a copy of the CPD Review Manual and a hard copy of all attachments that may accompany any future e-mail follow-up responses. NOTE: CPD Review Manuals will be available for purchase (at a discount) before and following the CPD Review Session.

I look forward in seeing you at the review class.

Sincerely,

*David Bailey*

David M. Bailey, CPD, GPD, FASPE

DATE: February 16, 2018 from 9AM to 3PM  
LOCATION: E.J. Dwyer Co. 10910 Pump House Road, Annapolis Junction, MD 20701  
CONTACT: Kathy Dwyer – [kdwyer@ejdwyer.com](mailto:kdwyer@ejdwyer.com) – Mobile: 443-250-0285  
Ned Dwyer – [ndwyer@ejdwyer.com](mailto:ndwyer@ejdwyer.com) – Mobile: 443-250-4275  
Main Office – 240-553-0112

# 2018-2019 ASPE Baltimore Chapter Meeting Schedule

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Date: **September 26, 2018**

Speaker: Craig Boyce - Kemper

Topic: Legionella, ASHRAE 188, and Minimizing Risk

Date: **October 24, 2018**

Speaker: Chris Imhof - WSSC

Topic: WSSC 2016 Code Update

Date: **November 28, 2018**

Speaker: Jesse Rodriguez -Aqua Treatment Services

Topic: Rainwater Harvesting for Potable Reuse

Date: **December 12, 2018**

Event: Holiday Party

Location: [Mustang Alley's](#)

Date: **January 23, 2019**

Speaker: STH

Topic: Fire Pump Controller Applications

Date: **February 27, 2019**

Speaker: Sherman Engineering Company

Topic: Lab Specialty Gas Sources and Distribution

Date: **March 27, 2019**

Speaker: Highland Tank

Topic: Grease Interceptor Design

Date: **April 24, 2019**

Speaker: Ultra Pure Water Systems

Topic: Evoqua

Date: **April 26, 2019**

Event: Golf Outing

Location: [The Timbers at Troy](#)

Date: **May 22, 2019**

Speaker: EJ Dwyer

Topic: Digital Mixing 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

[jedwards@muellerassoc.com](mailto:jedwards@muellerassoc.com)

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