



B A L T I M O R E

Monthly Newsletter



NOVEMBER 2020

UPCOMING MEETING

November 18th 5:30pm-7:00pm

VIRTUAL MEETING

TOPIC: Valves 101

Speaker: Lauren Berenato - Jomar

REGISTRATION AVAILABLE AT:
<https://baltimoreaspe.com/>

A link to the meeting log-in will be sent to all registrants on Monday November 16th and again the morning of November 18th.

Meeting will be free to ASPE members

Non-member fee is \$20

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In This Issue

- Board of Directors - 2
- President Report - 3
- AYP EVENT- 9
- WSSC Update –12-13
- VP Technical Report - 16
- Tech Corner 17-19
- Legislative Report 23
- Education Report 23
- Membership Report -27
- Meeting Schedule - 30



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

President’s Report

Last month I started off my article speaking about how the temperatures were starting to cool down which was normal with it being the early part of October. Well, this past weekend, which was the first weekend in November, I spent 3 days in Ocean City playing golf and the temperatures were in the lower 70’s every day. That was sweet obviously but I still believe mother nature will pay us back since we hardly had any snow last year. Besides, this year is 2020 and we know how that is turning out for us.

Our October virtual meeting from Ed Ross/Jay Otto/QuantumFlo booster pump systems was another very good presentation. I believe we approached 30 attendees once again. This month’s meeting will be presented from Lauren Berenato from Jomar Valves presenting on Valves 101. For more information on Lauren’s presentation, please refer to Chuck’s article in our newsletter.

If you are looking for additional CEU’s, please know all our chapter sponsors offer many types of product video’s that earn you CEU’s. Please don’t hesitate to reach out to them if needed.

Speaking of CEU’s, ASPE is holding their digital 2020 Experience online on December 1st thru the 3rd. It’s basically an ASPE convention online with multiple technical seminars where CEU’s can be earned. For additional information, please go to ASPE.org.

Yesterday, Maryland’s Gov. Hogan mandated some stricter mandates because of new additional Covid-19 cases in the State. I hated to see with Thanksgiving just weeks away but safety for all of us comes first. I hope everyone has a happy and safe Thanksgiving.

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

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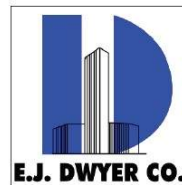


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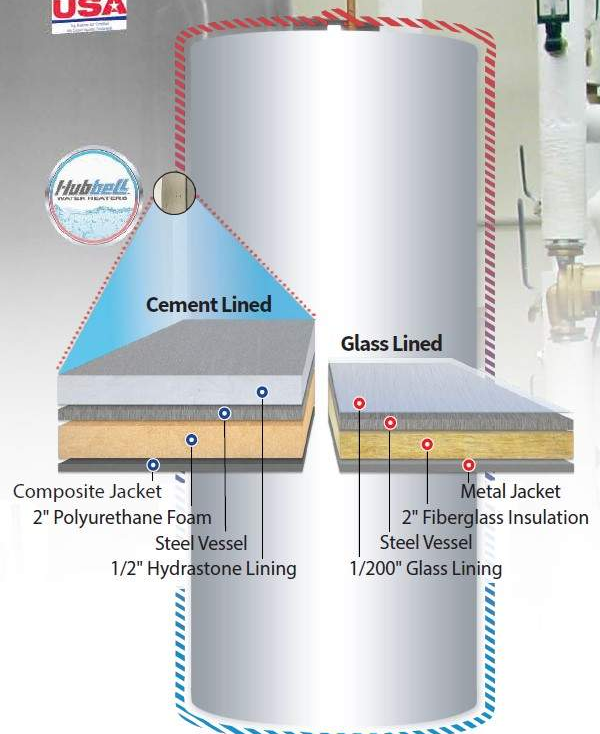
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**November 19, 2020
5:30-6:30PM**

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WSSC Plumbing/Gas Plans Review Submittal Overview

Earlier / Timelier / 2020 Process Improvements – Non-Residential Projects

Executive Summary

WSSC has made changes to facilitate earlier/timelier reviews of plumbing/gas plans for commercial projects (that require a review in conjunction with a plumbing/gas permit issuance).

WSSC is now set-up to review plans *concurrently* with the building design review and other trade reviews performed by Prince George’s and Montgomery Counties, as well as the City of Laurel.

The design team, more specifically the mechanical engineer, can submit directly to WSSC. This will allow the Plans Review to commence and progress all the way through to approval. The corresponding permit will not be invoiced and issued until a registered Master Plumber / Gasfitter is added to the permit and all required design/permit requirements are met.

WSSC will also accept plumbing plans ahead of water and/or sewer service connection and may allow for a “Ground Works Only” submittal in conjunction with a County issued ‘foundation only’ permit.

WSSC will not approve a full plumbing permit and the corresponding plans until the water and/or sewer service connections have been approved.

Background / Misconceptions / Entrenched Cultural Practices

Prior to 2018, only a Master Plumber/Gasfitter was allowed to submit for plumbing permit and plan review. As a sub-trade, the plumber is typically one of the last to be awarded; however, the plumber needs to be one of the first on the job and first to sink a shovel in the ground.

WSSC has never required that a building permit be issued prior to submitting for WSSC plumbing permit and plan review.

Changes in Plumbing/Gas Plans Review

WSSC approved Code Change in July 2018 to facilitate earlier plan submittals:

Engineer’s Submittal – Architect or Mechanical Engineer should submit *concurrently* with the building design review and other trade reviews.

Ahead of Plumber – in conjunction with the first bullet, WSSC will review the design plans and the permit application. The plans may progress to final approval, whereas the permit application will be held until the plumber is added and all design/permit requirements are met; then invoiced.

Ahead of Connections – when either or both of the civil designs for public water/sewer system (System Extension Permit {SEP}) and/or private water/sewer system (Site Utility {SU}) are not complete/ approved but the building construction has commenced, WSSC will begin the review. If the review progresses to the approval step and the civil design is still incomplete, WSSC will consider a “Ground Works Only” permit for certain projects.

Groundwork Only – For certain large-scale projects where the complete design is behind schedule, but the construction schedule calls for installation of the building’s foundation and the plumbing system’s “ground works,” WSSC may issue a “Ground Works Only” permit. WSSC will assess the status of the complete design and insist on reviewing the entire project where applicable.

The Applicant shall make one of the following declarations in the comments section of the Permit application:

Architect/Engineer submitting “Ahead of Plumber”

Architect/Engineer submitting “Ahead of Connections and Plumber”

Architect/Engineer submitting “Ahead of Plumber” and for “Ground Works Only”

Architect/Engineer submitting “Ahead of Connections and Plumber” and for “Ground Works Only”

Plumber submitting “Ahead of Connections”

Plumber submitting “Ahead of Connections” and for “Ground Works Only”

Rejection Prescreen and Disapproved Review Fees – July 2019

Rejection Prescreen Fee – applicable for first/any submittal not meeting minimum requirements/ checklist (Floor plans, riser schematics, fixture/equip. schedule)

Disapproved Review Fee – applicable after 3 disapproved reviews, due on fourth submittal.

All electronic submittals – Sept 2019

Outreach Efforts to Date

MBIA, WSMAPA, ASPE (Baltimore and DC Chapters)

Five Announcements

3 – Newsletters (Spring 2018, Fall 2018, Spring 2019)

1 – Announcement - July 2019

1 – Reminder – Late August 2019

Word of mouth, repeating customers, folks in a time jamb, etc.

Identified Areas of Improvement

Roll-out – an “Informational Flyer”

Discuss and Gain Buy-In – Internally

Discuss and Gain Buy-In – Counties (incl. City of Laurel)

Continual Outreach by *All* to development community

Fine Tune WSSC responses and interactions (e.g. Permit app ahead of connection; contact applicant (via phone or email) asking question: “did you submit early seeking to get a jump start on plan review”

FAQ’s



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

Technical Report

I hope you all have enjoyed our virtual meetings as much as I have this year. I was worried that our attendance would drop, but I'm happy to report that our meetings are as strong as ever. However, I will admit that I miss the comradery (and crab cake dinners). I'd like to thank Ed Ross from QuantumFlo and Jay Otto from Otto Sales again for a very informative seminar on Booster Pump selection. The points that Ed made about using the ASPE Handbook to properly size a booster pump are as important as ever. Remember, ASPE recommends applying the 80/20 rule (on average 80 percent of the time a booster system is operating at 20 percent capacity or less) and the 70% method (which helps calculate the best energy selection based on a 70 percent flow capacity with one pump out of service) when selecting a booster pump system.

This month we have Lauren Berenato from Jomar Group to present on Valves 101. This topic is intended bring all of us back to the beginning and take a closer look on how to select the best valve for your application. I'm sure that even our most seasoned members will find new information in her presentation. Lauren has been with Jomar Group since February of 2019 and is the national specifications manager for the commercial plumbing division of the company. She connects the twenty-three manufacturer's representative agencies in the United States with Jomar to help advance the plumbing and hydronics industries to the most efficient methods of developing their systems. Prior to working with Jomar, Lauren served as the national business development manager with another valve manufacturer. She has been involved in the plumbing and hydronics industries since 2016. Lauren is also member of ASPE, ASA, and AIM/R; within ASA she is involved in the emerging leaders division, plumbing division as well as women in industry division. Lauren serves on the ASPE Region 1 Board as the affiliate liaison member.

Best Regards,

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



Manufacturing Changes in Copper Alloys and Their Performance in the Field: A Dive Into Brass, Bronze, and Dezincification

October 20, 2020

Compliance with the updated lead free laws for domestic water led manufacturers to change their copper alloy compositions and machining processes. As a result of these changes, new brass and bronze alloys were introduced to the commercial plumbing market in 2008. Unfortunately, some of these manufacturing changes have resulted in poor field performance when installing valves. The goal of this white paper is to present the changes in the manufacturing of copper alloys and to address dezincification susceptibility as a result of the updated lead free laws.

Changes in Manufacturing to the Commercial Plumbing Industry

The 2011 revision of the Safe Drinking Water Act reduced the maximum allowable lead content that comes in contact with potable water. The United States Environmental Protection Agency (EPA) states, "Section 1417 of the Safe Drinking Water Act (SDWA) establishes the definition of 'lead free' as a weighted average of 0.25 percent lead calculated across the wetted surfaces of a pipe, a pipe fitting, plumbing fitting, or fixture and 0.2 percent lead for solder and flux."¹ This lead free standard revision required full field acceptance by January 2014. Therefore, manufacturers decreased the lead content in their potable water application products. The new lead free industry standards caused manufacturers to make adjustments in their tooling, manufacturing processes, and alloy compositions for brass and bronze products. When developing these new copper alloys to meet the new standard, manufacturers need to prioritize dezincification resistance. In order to maintain a malleable alloy, lead was replaced by other metallic or crystalline elements such as bismuth, silicon, or by increasing two elements to create a binary alloy. The resulting changes in alloy composition affected soldering practices and valve performance in the field.

Field Performance of Bismuth, Silicon, and Binary Alloys

Bismuth is a metallic element with similar properties to tin and lead. This metal has a similar malleability to lead, making it easy to machine, which is a benefit to the manufacturer. While bismuth maintains better machinability, it is a brittle material and may lead to complications in the field if used in an application where lead is present. For example, when a bismuth based alloy is soldered at higher temperatures in the field, it results in the alloy cracking in the field over time. Over the past decade, manufacturers of bismuth based alloys have adjusted their formula to prevent cracking.

This article originally appeared in *Plumbing Engineer*, a TMB Publishing publication. For more articles like this, please visit www.phcpros.com.

Silicon is a crystalline element with similar properties to carbon and germanium. When silicon is added to zinc and copper alloys, it dissolves into the alloy. As a result, this increases the hardness of the alloy and leads to increased tool wear during the machining process. Silicon has a lower conductivity than bismuth or binary alloys, which leads to a slower heat transfer when soldering or brazing a silicon copper alloy. Installers need to take extra care and attention during installation to guarantee proper heating and soldering procedure to ensure high-quality solder joints.² Manufacturers often recommend the application of a special tinning flux to the alloy, allowing for an easier soldering process while installing fittings and valves made from silicon based alloys.

Binary alloys offset the removal of lead with the addition of two metallic elements. The most commonly added metallic elements by manufacturers are zinc and copper. The addition of these metallic components, with corrosion inhibitors, allows valves to solder at the same temperature as before the low lead laws of 2011, eliminating the need to make adjustments to traditional soldering practices.

The addition of zinc can be harmful to a copper alloy in an open loop system due to dezincification susceptibility. However, advancements in manufacturing resulted in brass having the same dezincification resistance as bronze after undergoing a heat treating process. While both brass and bronze are copper based alloys, there are key differences between the two in material composition.

Bronze Alloy Elements

Bronze is an alloy comprised primarily of copper and tin. Other metals are often added to bronze alloys, such as aluminum, bismuth, manganese, nickel, and zinc. Non-metals also make up the composition of a bronze alloy such as phosphorus or silicon. Bronze alloys typically contain less than 15 percent zinc in their alloy composition and the principal alloy is neither zinc nor nickel.³

Brass Alloy Elements

Brass is an alloy consisting of predominantly copper and zinc⁴ and is comprised of two molecular phases, referred to as alpha and beta. The higher zinc content led manufacturers to develop new technologies in manipulating the molecular phases of the brass alloy to help combat dezincification. The process of heating and slowly cooling the brass alloy results in a predominately dezincification resistant alpha phase.

Terminology for identifying a brass valves can be a bit confusing as silicon bronze material technically falls under the subgroup as a high-strength brass.⁵ Therefore many engineers may have a “bronze” lead free valve written into their specification when the alloy material is actually a brass alloy. Traditionally, only brass valves are perceived as being susceptible to dezincification. However, bronze valves are also susceptible to dezincification when they are installed in harsh water conditions, such as in bodies of water off the Colorado River, water with a pH above 7, as well as water with a high concentration of chloride.

This article originally appeared in Plumbing Engineer, a TMB Publishing publication. For more articles like this, please visit www.phcpros.com.

What is Dezincification?

Dezincification is a process in which zinc is selectively removed from an alloy, leaving behind a porous, copper-rich structure that has little mechanical strength. Manufacturers must design and produce items preventing dezincification susceptibility to their products. A method of fortification of the alloy compound would be a heat treating process. These products are tested to the ISO 6509 standard to ensure they meet proper levels of dezincification resistance.

Dezincification Testing

ISO 6509 is the international testing standard to determine dezincification depth of copper alloys with zinc when exposed to fresh, saline or drinking water. This method of testing is intended for copper alloys with a mass fraction of more than 15 percent zinc. The results of testing against ISO 6509 reveal the depths to which zinc was removed from an alloy, displaying its susceptibility to dezincification.

Conclusion

Lead free laws have changed the way manufacturers create and machine their copper alloys. The adoption of the 2011 Safe Drinking Water Act introduced new copper alloys comprised with the addition of binary elements, bismuth or silicon. With the changes in available brass and bronze alloys, it is important for engineers to review their specifications in detail to ensure the copper alloys in their specification, whether bronze or brass, are not only dezincification resistant but are also not a concern for failure during installation.

References:

1. "Use of Lead Free Pipes, Fittings, Fixtures, Solder and Flux for Drinking Water." EPA, Environmental Protection Agency, 27 Jan. 2020, www.epa.gov/sdwa/use-lead-free-pipes-fittings-fixtures-solder-and-flux-drinking-water.
2. "Recommended Practice for Soldering of No-Lead Copper Alloys." Official Site of Copper Development Association, Inc. (USA), Copper Development Association Inc. , 2014, www.copper.org.
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5. *The Copper Advantage: A Guide to Working with Copper and Copper Alloys.* The Copper Development Association, Copper Development Association Inc., 2010, www.copper.org/publications/pub_list/pdf/a1360.pdf.

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Christopher Imhof, PE, CPD
Education Committee Chair, VP - Legislative

Legislative and Education Reports

Legislative

WSSC Water has extended the solicitation period for 2021 code development cycle until March 9th, 2020. I am the Technical Standards Engineering Manager for WSSC Water and if you have any comments or questions please send me an email, christopher.imhof@wsscwater.com

Montgomery County is in the process of adopting the 2018 International Green Construction Code (IGCC), the comment period ended October 5th. Montgomery County has established targets to reduce greenhouse gas emissions 80 percent by 2027 and by 100 percent by 2035. The building sector comprises 50 percent of the County's community-wide greenhouse gas (GHG) emissions. Improving the efficiency of new and existing buildings is a critical step that the County seeks to take to meet its GHG reduction goals. Adoption of the 2018 IgCC will be an important tool in the County's multi-faceted approach to achieve net zero energy buildings.

You can read the 2018 IGCC for free on the ICC website,

<https://codes.iccsafe.org/content/IGCC2018>

Montgomery County Department of Permitting Services has moved! The offices are no longer located in Rockville, the new address is,

Department of Permitting Services
2425 Reddie Drive, 7th Floor
Wheaton, Maryland 20902

Education

The Chapter is currently working with the Engineers Club of Baltimore to organize our 2021 Engineers Week Event. This will be the 3rd year the Chapter has hosted an event for engineers week. The event will take place the last week of February and will be hosted virtually.

Regards,

Chris Imhof, PE, CPD
Vice President – Legislative
Education Chair

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Brian Crisp, CPD
Vice President - Membership

Membership Report

Hello again folks! Our second digital meeting for the year is in the books, I hope everyone enjoyed the relaxed dress code and free beer and wine (that you had to provide yourself) again.

Is everyone excited to attend the 2020 ASPE Digital Experience? It's free for all members so I encourage everyone to make time to at least some of the educational sessions. The agenda can be found at <https://education.aspe.org/2020conferenceagenda>.

Just a reminder, if you let your membership lapse (for financial reasons or otherwise), as long as you renew within a year of when your membership expired, you can maintain your tenure. If you have any questions about this, feel free to reach out to me.

No new members to speak of this month but Baltimore is holding steady at 115 current 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
vpmember@baltimoreaspe.com



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2020-2021 ASPE Baltimore Chapter Meeting Schedule

Date: **September 23, 2020**
Speaker: Niki Patel -Sherman Engineering
Topic: NFPA 99

Date: **October 28th, 2020**
Speaker: Ed Ross -QuantumFlo
Topic: Booster Pumps

Date: **November 18th, 2020**
Speaker: Lauren Berenato –Jomar Valve
Topic: Valves 101

Date: **December 16th, 2020**
Speaker: James Wall –CISPI
Topic: Installation Standards of Cast Iron Piping

Date: **January 27th 2021**
Speaker: BJ Schrader/Laura Loziuk –McWane
Topic: Cast Iron and PVC Piping Value Engineering

Date: **February 24th, 2021**
Speaker: Ken Isman –UM
Topic: Fire Protection Standpipe System Design

Date: **March 24th, 2021**
Speaker: Jeff Henscheid –PVI
Topic: Water Heater Sizing, Construction & Efficiency

Date: **April 23, 2021**
Event: Annual Golf Outing

Date: **April 28th, 2021**
Speaker: TBD
Topic: Engineering Liability

Date: **May 26th, 2021**
Speaker: TBD
Topic: TBD



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

kdwyer@ejdwyer.com

NOTE: ONLY APPLICABLE WHEN WE RETURN TO OUR REGULAR IN PERSON MEETING EVENTS