ASPE
American Society of Plumbing Engineers™
BOSTON

1973 - THE BOSTON CHAPTER - 2018
P.O. Box 111, East Walpole, MA 02032

Where Quality and Professionalism
are an every day standard!

Chapters are not authorized to speak for the Society

Volume 45, Issue 9

Next Meeting

TUESDAY,
May 8th, 2018

Metro Meeting Center
101 Federal Street
BOSTON, MA

WHAT'S IN THIS ISSUE

President's Report

This past April meeting we had our annual joint meeting with the Greater Boston Plumbing Contractor Association (GBPCA). We had a great turn out to the meeting! During this meeting, we were introduced to the new Interim Head of the Pluming Board Mr. Joe McNamee; where he introduced some new code changes. To read more about these changes, give Chris Currans article a read.

This past February 26th, 2018 and the following five Mondays, we held our CPD review class at ARUP's downtown Boston Office. I want to thank ARUP for hosting this event. I also want to thank Chris Curran, Joe Philbrick, Kenneth Charest, Jim Polando, Blair Chamberlain, Ethan Grossman, Kevin Lally, and Zach Rohlfs. These individuals helped make the CPD class a great success. They all put in their own personal time to help our members prepare for this exam; thanks again.

This year Kevin Lally has been nominated for the 2018 Bernard J. McCarty Keystone Award. The Keystone Award, named in honor of Boston Chapter Charter Member and ASPE Society Past- President Bernard J McCarty, is awarded to long time Boston Chapter members that have been instrumental in building and promoting the Boston Chapter of ASPE through their tireless effort, endless support and unwavering dedication to the chapter.

This year's June Social will be celebrating our 45th anniversary as a chapter. This event will be held on Friday June 15th at the Granite Links in Quincy, Ma. We will have a separate email coming out in the next few weeks, that gives out more information about this event. This event, will be open to guests.

Also, on June 1st and 2nd, the Boston Chapter will be hosting, our Region 1 meeting. We are looking for some sponsorships from our local affiliates, such as pens rulers, etc. If you are interested in donating anything, please let me know.

ASPE will be having there bi- annual Conference and Exposition starting September 30th. Registration has opened up, take advantage of the early bird special and register before August 28th. For more information, please visit ASPE's website http://expo.aspe.org/ASPE2018/Public/Enter.aspx

Lastly for our May meeting, we will be trying something new and having the meeting downtown after work. This meeting will be held at MMC (Metro Meeting Center) which is located on the 4th floor of 101 Federal Street. If this meeting, becomes well attended, the plan would be to have more at this location next ASPE season. The time frame for this meeting, will be the same as our regular dinner time meetings. We will have a Buffet Dinner with a beer and wine reception. The cost of this event will be $30; please note that with this cost, it will be open bar (beer and wine). The topic for this event will be the "Difference Between Non- Metallic Potable Piping systems, presented by Mr. Mark Lemire from Lubrizol.

Best Regards, Edward Nadeau,
ASPE Boston Chapter, President

Membership Report

New Boston Chapter Members

The Boston Chapter ASPE would like to welcome our five newest Chapter members:

Ariel Velagoshti	Associate Member	RDK Engineers	Andover, MA
Andrew May	Associate Member	WSP Engineers	Boston, MA
James Donegan	Associate Member	WSP Engineers	Boston, MA
Corey Post	Associate Member	F. W. Webb	Detroit, ME
Michael Trinidad G.E. P.E.	Full Member	Trinidad Engineering	Natick, MA

Membership Rebound...Sort of

You may recall that I reported last month that the Boston Chapter shrank by 14 members down to 274 in February. Even though we had five new members, 19 members did not renew their membership on time, thus the net loss of 14. I am happy to report that this month we again have five new Boston Chapter members. Additionally, five previously lapsed members finally renewed their membership so we are back up to 284 members as of April 6th.

Membership Reminders

According to the latest Revoke List I received from ASPE Society on 4/6/18, the following members are at risk of being dropped from our roster. If you are on this list, please call the Society Membership Office at 847-296-0002 and renew your membership over the phone. If you have renewed already, Thank You!

Mark Brady
Jacob Demers
Timothy McDonnell

April Renewals

Just a reminder to the following Chapter members having an April membership renewal date.

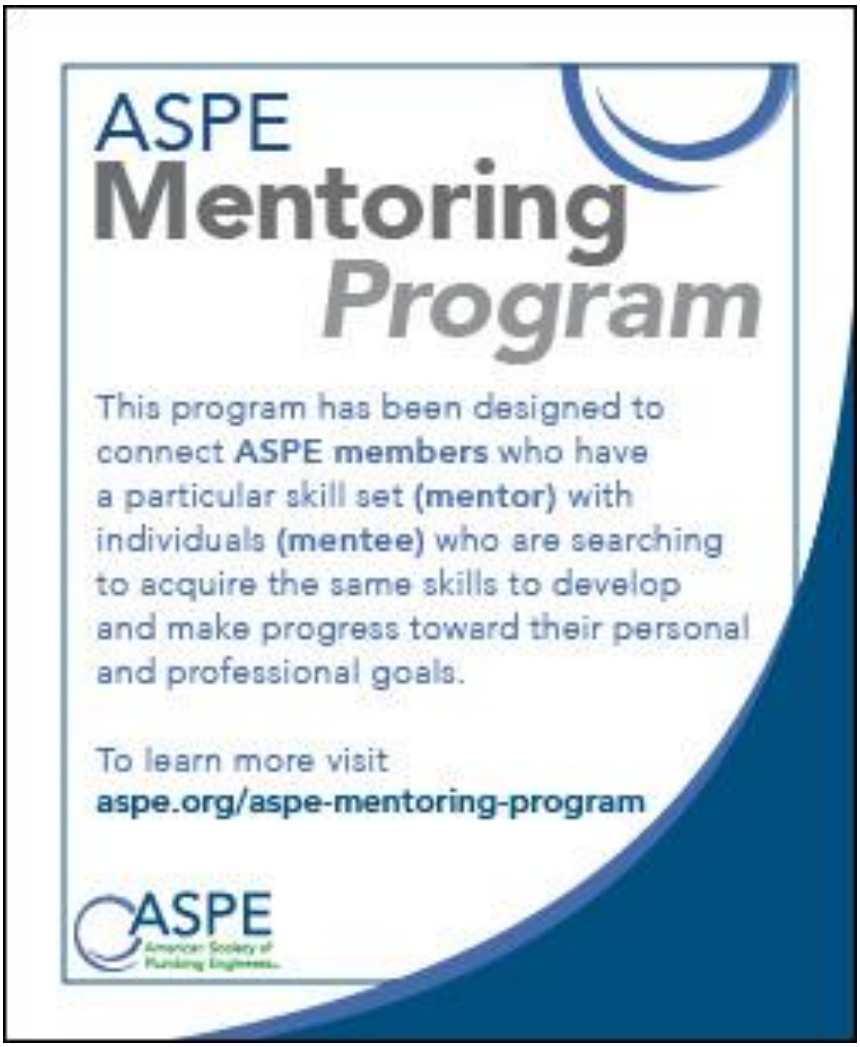
Charles Plummer G.E.
Gilbert Castera P.E.
Joseph Dinis
Laurence D. Johnston CPD
Richard Barbera
Steven L. Forte P.E., CPD
Andrew Powers
Patrick Shea

May Renewal Reminder

The members listed below have their renewal this month.
The easiest way to renew is to go online at www.aspe.org and click on the “Renew My Membership” link, log in, and pay online. It takes less time than it takes to look up your ASPE membership number on last year’s membership card. Just make sure you update all your contact information in the process. Thank you for your diligence in this matter.

Louis J. Caraglia CET
Harold R. Denham
Shaun Michael Dunn
Richard J. Jaros CPD
Kyle Joseph Kalinowski
Greg McCarthy
Michael Shneer CPD
Frank G. Teebagy P.E., GPD, FASPE
Fernand M. Tomaz
Richard D. Urell

By John Callahan, CPD, V. P. Membership, Boston Chapter ASPE



ASPE Mentor Program

This program, which is available to all members of the Society, has been designed to connect ASPE members who have a particular skill set (mentor) with individuals (mentee) who are searching to acquire the same skills to develop and make progress toward their personal and professional goals

Who Is a Mentor?
A mentor is someone who can help the mentee develop skills for success and long-range career planning, is able to be a good listener, is willing to share experiences and views, is willing to commit time and effort, provides an "open door" to questions and problems, points out both strengths and opportunities for improvement, and has a vested interest in the growth and development of their mentee.

Benefits to the mentor:
- *Satisfaction in helping someone mature, progress, and achieve goals*
- *Meeting and sharing experiences with other mentors*
- *Personal ongoing support to help the mentee succeed*
- *Personal fulfillment through contribution to the Society and the individual*

Who Is a Mentee?
Having a mentor can contribute to a successful and satisfying career. Without a mentor, that learning occurs mostly through trial and error. With a mentor, even experienced professionals can benefit from the experiences and expertise of someone who has withstood the trial and can help the mentee avoid the mistakes. Similarly, those new to the industry will discover that being a mentee shortens the learning curve for acquiring the skills and knowledge most critical to a fruitful career.

Benefits to the mentee:
- *Discover new talents about yourself*
- *Career satisfaction*
- *Expand your personal network*
- *Maximize your strengths*

NEXT MEETING

WEDNESDAY, ARPIL 18th, 2018

Metro Meeting Centers,
101 Federal St, 4th Floor,
Boston, MA

Speaker: Mr. Mark Lemire from Lubrizol

Differences Between Non-Metallic Potable Piping Systems

PROGRAM SCHEDULE

Social Hour	**5:00 – 6:00**
Dinner	**6:00 – 6:45**
Chapter Business	**6:45 – 7:00**
Speaker / Technical Session	**7:00 – 8:30**

MENU

TBD

MEETING RESERVATIONS

$30.00 ONLINE Reservation

(Please use the electronic invitation sent to you)

$40.00 W/O Reservation

Retired & Currently Unemployed Members Free

Please reserve by WEDNESDAY, May 2, 2018

Technical Report

Hello again Boston Chapter. Spring has finally sprung! …and there was much rejoicing. That said, it is also time for your favorite part of spring. Reading the May edition of the VP Technical article. You know it's true, and trust me, I won't let it go to my head.

Our chapter year is starting to wind down, as we only have a couple months left until the summer break. The May meeting coming up is our last until the Fall, and that is followed by our June Social, which will also be our 45th anniversary celebration. See elsewhere in this newsletter for information regarding that event. But, I do encourage all to attend, as it should be a very good evening out. Speaking of good evenings out, I want to thank the GBPCA for hosting us on Wednesday April 18th. And equal thanks out to Mr. Joe McNamee from the MA Plumbing Board. Mr. McNamee spoke to us about ongoing changes at the board, upcoming changes we can look forward to, and other insider information. The highlights of which are as follows:

- There is a new Executive Director of the Plumbing Board, and it is Mr. Larry Lemieux. Mr. Lemieux has been a plumbing inspector in Barnstable for years, and is also an active board member for the New England Plumbing, Gas, & Mechanical Inspectors Association.
- Joe Peluso is still actively working with the board and is handling gas issues on a part time basis. He can still be reached at this time at Joseph.Peluso@ma.gov
- There is a brand new board policy "Regarding the Installation of Water Recycling Systems", and it was enacted on April 4, 2018. These systems shall still require a variance, but the intent of the policy is to clarify the system requirements and to streamline the process. A number of copies were handled out at the meeting, and you should be able to request a copy from the board.
- Swimming pool water can now be drained to sanitary, but this does require a variance & prior approval by the local sewer authority.
- Venting for condensing type water heaters shall no longer be allowed to utilize PVC piping. The flue piping shall be only approved products made of Stainless Teel, CPVC, or Polypropylene.
- There will be futher allowances for plastic piping usage in mixed use buildings (residential buildings that also have office components.) Kitchenettes in the office space may be allowed to utilize CPVC piping in lieu of cast iron.
- There is a possibility that the current allowance for plastic piping in residential buildings 10 stories and under may be reduced back to 6 storeys.
- The board is looking for input from the engineering community to help reevaluate our fixture units & drainage fixture units. The board recognizes that these numbers have not changed in decades, while the water usage in commercial fixtures has reduced continuously over the years.
- The process to renew product listings with the board has been further simplified.
- The new Board Policy for "Emergency Eyewash and Emergency Showers" as enacted by the board on February 7, 2018 was discussed. Questions were asked from the floor as well. Questions included:
    * Do existing emergency (tepid) water systems need to be brought up to code when being modified? The answer was that only the portion being modified would need to be brought up to code.
    * How long are the maximum runouts from the recirculated main? As indicated in the policy, runouts shall not exceed 15 feet total developed length from the recirculated main to the fixture.
    * May point of use instantaneous heaters be used to provide tepid water to emergency fixtures? Yes. As long as within 15 feet, they do not need to be recirculated, however all fixtures require weekly flushing to prevent stagnation of dead legs.

Thanks again to Mr. McNamee and to Wayne Thomas for joining him in answering our questions.

Our next monthly chapter meeting is to be held at the Metro Meeting Centers in Boston, MA – 101 Federal Street, 4th Floor.

Tuesday May 8th, 2018 @ the Metro Meeting Centers in Boston, MA – 101 Federal Street, 4th Floor.

Main Topic – "Differences Between Non – Metallic Potable Piping Systems"

Presenter – Mr. Mark Lemire - Lubrizol - Mark is a piping systems consultant for Lubrizol.

This course reviews the various plastic piping materials approved for potable water systems and when to specify each.

Course outline:

Plastic piping systems
Systems approved for potable water
Codes and standards
Pipe dimensions and composition
Cell classifications and material properties
Joining methods
Chlorine resistance and oxidative degradation
Material precautions
How to specify plastic systems

As always, if anyone has any ideas for topics, would like to make a presentation, or has any other suggestions, please feel free to reach out to me at chris_curran@aha-engineers.com.

Upcoming Technical Events:

June 2018 – June Social/ASPE Boston Chapter 45th Anniversary celebration. This will be held at the Granite Links Golf course in Braintree, MA. Not a technical event, but worth mentioning.

The ASPE bi-annual Conference and Exposition is coming up soon (September 30th), and registration is now open. Get in early for early bird savings, and to get your hotel room, as limited numbers of rooms have been blocked out. Get in early for all discounted prices. This should be a great event as always and is right in downtown Atlanta. Register here.

Yours Truly, Chris Curran, VP Technical, ASPE Boston Chapter

Index of Paid Advertisers

CALENDAR OF EVENTS

Date	*Event / Holiday*	*Location*
May 2, 2018	Mass Plumbing Board Meeting - Variances & Waivers, 1st Meeting	1000 Washington Street, Boston
May 8, 2018	*ASPE Boston Chapter Monthly Meeting - Differences Between Non-Metallic Potable Piping Systems*	*Metro Meeting Center 101 Federal Street, Boston*
May 30, 2018	Mass Plumbing Board Meeting - Exam Waivers/CORI Reports, 2nd Meeting	1000 Washington Street, Boston
June 6, 2018	Mass Plumbing Board Meeting - Variances & Waivers, 1st Meeting	1000 Washington Street, Boston
June 15, 2018	*June Social - 45 Anniversary*	*Granite Links, Quincy*
June 27, 2018	Mass Plumbing Board Meeting - Exam Waivers/CORI Reports, 2nd Meeting	1000 Washington Street, Boston
July 4, 2018	Mass Plumbing Board Meeting - Variances & Waivers, 1st Meeting	1000 Washington Street, Boston
July 25, 2018	Mass Plumbing Board Meeting - Exam Waivers/CORI Reports, 2nd Meeting	1000 Washington Street, Boston
August 1, 2018	Mass Plumbing Board Meeting - Variances & Waivers, 1st Meeting	1000 Washington Street, Boston
August 29, 2018	Mass Plumbing Board Meeting - Exam Waivers/CORI Reports, 2nd Meeting	1000 Washington Street, Boston

Legislative Report

The State Board of Examiners for Plumbers and Gasfitters (The Board) will be having a public listening session on Wednesday, April 25th, 2018 at 9:00am. This meeting will give the general public the opportunity to present proposed revisions regarding 248 CMR 3.00 – 11:00. Meeting location will be at 1000 Washington Street, Boston, Massachusetts, 02118

The Board have enacted the following new policies:
1. Emergency Eyewash and Emergency Showers (Enacted February 7, 2018)
2. Installation of Water Recycling Systems (Enacted April 4, 2018)
Please find the enclosed copies of the above enacted policies.

BOARD POLICY
REGARDING THE INSTALLATION OFWATER RECYCLING SYSTEMS
(Enacted April 4, 2018)

1. Introduction

The Board of State Examiners of Plumbers and Gas Fitters ("Board") has voted to issue this policy to promote the safe and effective installation of water recycling systems. Per the Plumbing Code, the Board, via its special permission process, permits the installation of several types of water recycling systems, including dedicated gray water systems, black water systems, and on site wastewater treatments systems. See 248 CMR 10.14(j)(2). The purpose of this policy is to remind licensees and the public of the different options available when considering such a system as well as the prerequisites which must be met for the Board to grant its approval.

2. General Rules

A. Acceptable uses for a water recycling system

Water recycling systems are approved by the Board as dedicated systems, meaning that they are specialized plumbing systems separate and apart from the typical plumbing systems found in a building. Water recycling systems the Board approves are used for the following purposes:

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1. External or internal irrigation;
2. Composting;
3. For use in liquid cooling systems; and
4. Flushing toilets and urinals;

At this time, the Board does not generally approve the use of a water recycling system to serve fixtures used as part of a potable water system, as such water must be safe for human consumption.

B. Potable water supplies must be protected.

The purpose of a water recycling system is to reuse water that typically must be removed from a building or property because it, or its contents, are no longer useful, have served a completed process, or must be removed for safety or sanitary purposes. As a result, public safety requires that such waste water may not contaminate to the potable water system which is used for drinking or other domestic purposes. Accordingly, all water recycling systems must be designed and installed with backflow protection, air gaps, and other such measures to ensure that there is no cross connection with a potable water system. To facilitate future installations and to avoid confusion with the potable water system, all piping associated with water recycling systems must be clearly marked so that there is no confusion with pipes carrying potable water and/or pipes carrying waste water to a building drainage system or other point of disposal. The following is required to meet this goal:

1. Piping used in the potable water system must be painted with three inch bands of green every ten feet and wherever the piping penetrates walls, floors, and ceilings;
2. Piping used in the water recycling system must be painted purple and must be labeled “non-potable water”; and
3. Recycled water being utilized for the flushing of toilets and urinals must be dye colored blue to distinguish it from potable water.

C. Water used in water recycling system must be treated

The Board shall only approve water recycling systems where provisions have been taken, such as by filtering or other such treatments, to ensure that the recycled water does not contain contaminants that might be harmful to public health or to the environment.

D. Water used in a water recycling system cannot interfere with a building’s storm water drainage system.

Unless the only water to be used in a water recycling system is clear water waste from condensation or natural precipitation, the system must be designed to ensure any overflow goes directly into a building’s sanitary drainage system and not into a storm drainage system.

3. Rules for Specific Water Recycling Systems

While the Board reserves the right to impose additional requirements where it deems necessary to preserve public health and safety, the following provisions shall apply to Water Recycling Systems approved by the Board.

A. Residential/Small Water Recycling Systems.
A residential/small water recycling system, typically used for single and multifamily residences as well as small commercial environments, has a maximum flow of 400 gallons per day; and shall generally adhere to the following characteristics:

1. The water it recycles comes from the following sources exclusively:

A. Condensation - Water waste generally clear and free from chemicals or other contaminants which was produced by fire sprinkler systems, air conditioning equipment, drip or overflow pans, boilers, pools, and other devices which utilize water or create condensation;
B. Used water out-flowing from a clothes-washer, shower, bathtub or bathroom sink (aka Grey Water); or
C. Natural precipitation such as rainwater and snow that has not been contaminated by use.

2. The water recycling system meets one of the following criteria:

A. The full system (other than the actual installation) has been product-accepted pursuant to 248 CMR 3.04: Product, Design, and Testing Standards; OR
B. It has been designed by a Massachusetts Professional Engineer. The design shall assure that the installation, pipe sizing, dimension, treatment of Waste Water, and any other aspects meet the requirements for proper functioning, safety, and any other applicable provisions of 248 CMR 10.00. Once installed, the Massachusetts Professional Engineer must provide a written certification that the installation complies with the stamped drawings and specifications.

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B. Commercial/Industrial Grade Water Recycling Systems.

A commercial/industrial grade water recycling system, typically used for larger commercial and industrial installations as well as schools and stadiums shall generally adhere to the following characteristics:

1. The system may utilize any type of waste water that has been appropriately treated to remove contaminants that might be harmful to public health or to the environment; and
2. The system must be designed by a Massachusetts Professional Engineer. The design shall assure that the installation, pipe sizing, dimension, treatment of Waste Water, and any other aspects meet the requirements for proper functioning, safety, and any other applicable provisions of 248 CMR 10.00. Once installed, the Massachusetts Professional Engineer must provide a written certification that the installation complies with the stamped drawings and specifications.

5. Requirements for formal approval

A. Special permission must be obtained from the Board prior to obtaining a permit to commence installation of a water recycling system from the Inspector of Plumbing who will have ultimate jurisdiction over the installation.

B. Once granted special permission by the Board, final approval of the water recycling system shall be granted by the Inspector of Plumbing having jurisdiction over the installation. This Inspector shall not be responsible for approving or inspecting design specifications, which are considered approved based on the Special Permission granted by the Board; however, the Inspector shall inspect the water recycling system to ensure the installation adheres to the provisions of 248 CMR 10.00.

C. When used for external purposes, such as for irrigation systems, the approval of other agencies may be required in order to complete the installation of a Water Recycling System, such as the Massachusetts Department of Environmental Protection, the Massachusetts Water Resources Authority, and/or a local board of health or similar authority having jurisdiction. It shall be the duty of the licensee seeking a plumbing permit to determine the role of such authorities prior to commencing with installation.

D. Approvals of other agencies shall not be deemed to supersede the requirements for a Permit as well as full inspection by the Inspector of all components and connections of a Water Recycling System. If the approval of another agency would necessitate a violation of the plumbing code, the code must be followed unless a variance is granted by the Board.

BOARD POLICY
EMERGENCY EYEWASH AND EMERGENCY SHOWERS
(Enacted February 7, 2018)

Background: The purpose of this policy is to address a minor inconsistency within the Board's regulations governing emergency eyewashes and showers. Specifically, 248 CMR, by way of a reference to 527 CMR, adopts an industry standard which appears to conflict with a component of the plumbing code. Per 248 CMR 10.13 (1) (l) 7. [with regards to Emergency Eyewash Stations]:

"Existing laboratories shall be compliant with the most recent provisions of 527 CMR 10.02(2): *Fire Extinguishers"*

527 CMR 10.02(2) is adopted by the Board of Fire Prevention Regulations and states:

"Drench/Deluge Showers, Hand Held Body/Face Washers and Deck Mounted Drench Hoses shall be installed in accordance with ANSI Z- 358.1 and 248 CMR.

The inconsistency between 248 CMR and ANSI Z-358.1 is as follows:

248 CMR 10.13 (1)(l) 4 to 6 states:

4. The permanently mounted shower shall be capable of discharging a continuous spray at a rate of 30 gallons per minute and;
5. The systems shall be tempered to between 70 degrees F and 90 degrees F and be installed in a manner that prevents the stagnation of water in the piping that supplies permanently mounted showers and face/eye wash stations and;
6. An exception to the tempered water requirement is: in existing buildings where tempered water is inaccessible, cold potable water shall be permitted with prior permission of the fire prevention safety officer and the Inspector."

ANSI Z-358.1 allows a permanently mounted shower to discharge a minimum of 20 gallons per minute for 15 minutes at a temperature between 60 and 90 degrees.

It is the interpretation of the Board that the purpose behind the flow rate and temperature requirements is to prevent stagnation in piping servicing emergency eyewash and emergency showers. Further, it is the opinion of the Board that an installation in compliance with ANSI Z-358.1 generally meets this goal. Accordingly, the Board shall interpret the adoption of

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ANSI Z-358.1 by way of 248 CMR 10.13 (1)(l)7 as an alternate code compliant installation method which does not require compliance with 248 CMR 10.13 (1)(l) 4 to 6 when the following guidelines are adhered to.

The Policy will also clarify locations where emergency equipment is required:

248 CMR 10.13 (1)(l) 1. a. to c. states:

1. The systems shall be required in every school, college, university, or building laboratory newly constructed or renovated, or any room used for similar purposes wherein:
   a. corrosive or flammable liquids are handled;
   b. chemicals are stored or used; or
   c. where open flame devices are used.

OSHA requirements for emergency eyewashes and showers are found in 29 CFR, 1910.151 (c) and states:
Where the eyes of body of any person may be exposed to injurious corrosive materials, suitable facilities for quick drenching of flushing of the eyes and body shall be provided within the work area for immediate emergency use. If persons would not be exposed to injurious corrosive materials, as indicated in the Material Safety Data Sheets (MSDS) for each product, emergency equipment would not be required.

Summary: Under this policy, the Board is creating specific guidelines for the installation of emergency eyewash and emergency showers using tempered water and cold potable water which shall be deemed to comply with 248 CMR and its related adoption of ANSI Z-358.1. Additionally, this policy also creates guidelines for multiple fixture installations and to prevent stagnation of the potable water system supplying these fixtures

Policy:

I. New construction and/or substantial renovation projects consisting of six or more emergency fixtures where persons may be exposed to injurious corrosive materials.

A. A tempered water source shall be supplied in conjunction hot water generation and reduced in temperature to the ANSI Z-358.1 range (60 – 100 degrees F) by means of an adjustable tempering valve approved for emergency systems with domestic hot and cold makeup in order to insure a constant turnover of source water and prevent stagnation in the tempered water piping loop, and;

B. The tempered water loop piping for the emergency fixtures shall be capable of discharging a minimum of 20 gallons per minute for each emergency shower for 15 minutes with the system piping being sized for two emergency showers operating simultaneously, and;
C. The tempered water loop piping must be routed throughout the building in such a manner that supply piping to each emergency equipment fixture connection shall not exceed a developed length of 15 feet, and;
D. The permit holder shall provide the local plumbing & gas inspector with a signed document from the owner or owner's agent assuring weekly flushing operation of each fixture as required by ANSI Z-358.1 and OSHA will be of long enough duration to empty the volume of supply water from the circulated tempered piping loop main to the fixture outlet.
E. Additional design features for emergency systems may be designed by a Massachusetts registered professional engineer. The design shall assure that the piping installation, including pipe sizing, dimension, and other aspects, meet the requirements for proper functioning and safety. Once the installation is complete but prior to final inspection, the installer must provide the Inspector with a written certification by a Massachusetts registered professional engineer that the installation complies with the design drawings and specifications. The Inspector shall not be responsible for approving or inspecting design specifications, but must ensure the installation adheres to the provisions of 248 CMR

II. Existing facilities and smaller renovation projects consisting of five or less emergency fixtures where persons may be exposed to injurious corrosive materials.

A. Whenever tempered water is available and may be utilized, the standards associated with new construction and substantial renovations shall apply.
B. Each Emergency showers shall be capable of discharging a minimum of 20 gallons per minute for 15 minutes with the system piping being sized for two emergency showers operating simultaneously, and;
C. The piping shall be installed in such a manner that supply piping from the main to each individual emergency equipment fixture connection shall not exceed a developed length of 15 feet, and:
D. The permit holder shall provide the local plumbing & gas inspector with a signed document from the owner or owner's agent assuring weekly flushing operation of each fixture as required by ANSI Z-358.1 and OSHA will be of long enough duration to empty the volume of supply water from the circulated tempered piping loop main to the fixture outlet.
E. Additional design features for emergency systems may be designed by a Massachusetts registered professional engineer. The design shall assure that the piping installation, including pipe sizing, dimension, and other aspects, meet the requirements for proper functioning and safety. Once the installation is complete but prior to final inspection, the installer must provide the Inspector with a written certification by a Massachusetts registered professional engineer that the installation complies with the design drawings and specifications. The Inspector shall not be responsible for approving or inspecting design specifications, but must ensure the installation adheres to the provisions of 248 CMR

By Luther Thevenin, CPD, VP Legislative

BEYOND THE WATER HEATER

Centralized Storage Water Heaters and Reducing Risk of Legionella throughout the Building Domestic Hot Water Piping System

An Evidence Based Discussion by Paul Bothner

LEGIONELLA IS NOT NEW. VALUABLE RESEARCH BEGAN MORE THAN 40 YEARS AGO

In the past few years, the topic of Legionella in building plumbing systems has received a great deal of attention in the media and in marketing channels due in no small part to the release of the new ASHRAE 188 Legionella control standard. Despite the amount of recent discussion, the subject of Legionella is more than 40 years old and many hundreds of Legionella specific and related laboratory and site research projects have been conducted since the late 1970s. As early as the mid?1990s, the UK Department of Health published a Legionella guideline, followed by consensus guidelines from the World Health Organization, the United States Department of Labor through OSHA, ASHRAE, and the health departments of many countries. These guidelines are very similar in recommendations and, although research continues, the information remains pertinent and accurate.

THE CONCEPT OF "OLD WATER"

Legionella contamination in sections of a building's hot water distribution system can all be traced back to one thing: the continual occurrence of "old water." This phrase describes water that no longer has chlorine residual and, as a result, microbial growth can no longer be controlled. Those areas of the building's domestic hot water system that are repeatedly exposed to "old water" for extended time, and especially concurrent with warm water temperatures, are prime candidates for microbial contamination and biofilm formation.

Water that leaves a treatment plant is safe to consume but is not sterile. It contains small numbers of microbes whose growth is kept under control by free chlorine or chloramines as water leaves the treatment facility. Some amount of free or residual chlorine remains when the water enters a building's piping system. Whether or not this remaining free chlorine will decay before the water is used is affected by a number of characteristics that are unique for every building.

Characteristics contributing to chlorine decay and eventually "od water" include:

-The level of existing bacterial contamination; determined by the level of accumulated and distributed sediment and biofilms

-The level of corrosion (particularly iron) in the system due primarily to system age

-A high ratio of surface area to water volume and the rate of water circulation across these surfaces. The greater the surface area relative to the water volume, the greater the rate of chlorine decay due to surface decay kinetics

-High water temperature. Elevated water temperature increases chlorine reaction and chlorine decay

-The initial level of residual chlorine

-Extended residence time of water in the system and inadequate replacement with fresh water; either universally or localized in low use zones or dead end piping

To get the full article on the ASPE Atlanta Website go to http://aspe-atl.com/news.php?id=24