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Chapters are not authorized to speak for the Society

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January CHAPTER MEETING

Date: TUESDAY, January 14, 2025

NEW Location: Countryside YMCA
1699 Deerfield Rd
Lebanon, OH 45036
Tel 513.932.1424

Cost: \$20 online

Schedule: 11:30PM-1:30PM

Water Quality Testing w/ Solid Blend Technologies

Reservations: Make a reservation and pay for the meeting through the Chapter Website or email Bill Berger at bill.berger@kohler.com or John Fox at jfox@mwspec.com before noon on MONDAY, January 13th, so that a head count can be established. As always, guests are welcome.

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LOOKING AHEAD

Chapter Meetings to be held at Countryside YMCA, Lebanon, OH unless noted otherwise.

February 10th: Stainless steel push fit drainage w/ Josam

March 10th: Infection Prevention w/ Franke Sinks

April 14th: High Purity Water w/ Water Control Corporation

The ASPE Newsletter is published by the Southwestern Ohio Chapter of the American Society of Plumbing Engineers. Opinions expressed herein are those of the authors and do not necessarily reflect the views of the Society, the Chapter or the Editor.

## Presidential prose...



Welcome to 2025! Hopefully everyone has received the meeting update that we will be shifting our meeting day to the **2<sup>nd</sup> Tuesday of the month**. This is to share space with the Cincinnati ASHRAE meeting which coincided with our usual date of the 3<sup>rd</sup> Tuesday of the month. The date change will continue indefinitely in after 2025. We apologize to anyone this inconveniences, it is ultimately an attempt to accommodate those engineers, designers, and affiliate partners who would normally attend both meetings.

I am excited to welcome aboard a new VP Technical to our Board! We thank outgoing VP Technical Samuel Church (Corporate Equipment) for his service over the past year and look forward to continuing to grow the VP Technical position. Incoming to the position will James Fiorini, an engineer at Hixson. James brings a new depth of experience to the group within the pharmaceutical, food and beverage, and processing industries. We are expecting his contacts will allow for a greater range of technical presentations to our members.

Our next Chapter meeting will cover different water testing requirements and procedures. Please see the article from our new VP Technical later in this newsletter for more information.

As always we are open to programming requests, please reach out to a Board member or submit on the website YOUR ideas for a technical presentation.

The Board is exploring a golf outing of our own. Potentially to be hosted in September 2025, let Andrew know at [andrew.hemmelgarn@kzf.com](mailto:andrew.hemmelgarn@kzf.com) if that piques your interest. Andrew is not a golfer and is trying to learn what it takes to host a successful outing.

Upcoming Events:  
Next Chapter meeting – February 11, 2025

Thanks for being here, we like having you.

– **Andrew Hemmelgarn**  
**President**

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MANUFACTURERS' REPRESENTATIVES OF THE HIGHEST QUALITY PLUMBING AND SPECIALTY BUILDING PRODUCTS


## Technically Speaking...



### Technically Speaking

Welcome to the new year everyone! I hope it was merry and bright, and that everyone is fully recovered from our recent snow emergency. I'd like to thank Toju Omaghomi for her presentation last month. It's always great to hear from UC alumni.

For January's ASPE meeting, we are happy to welcome Solid Blend Technologies with their presentation on Water Quality Testing. Chris Miller, Amy Ruppert, and Douglas Dolder will be discussing what can be detected in water through testing and how to test for those components and contaminants. This is a useful presentation for everyone, but especially for those in industries with more sensitive water requirements such as food & beverage, hospitals, laboratories, or just general water treatment. We hope to see you there!

Cheers,

– **James Fiorini**  
**VP, Technical**

Looking to stay in touch  
with the Chapter



[www.southwestern-ohio.aspe.org](http://www.southwestern-ohio.aspe.org)

The Southwestern Ohio Chapter would  
like to wish a

*Happy Birthday*

to the following members celebrating  
their birthday this month:

**Steve Ashpaw, Deana Crawford, Dick  
Davis, Doug Dockus, Michael  
Graziani, Tim Lehman, Daryn  
Meadows, Michael Moll, Kevin Neal,  
Greg Pearson, Daniel Prince, Michael  
Rahe, Chris Schreel, Brian Selander,  
David Texter and Ryan Voss**

And the Chapter would like to wish a

*Happy Anniversary*

to the following members  
commemorating their ASPE  
anniversary this month:

**Bret Abner, Josh Cable, Dick Davis,  
Michael Heaton, Justin Hobing, Kevin  
Neal, Greg Pearson, Jack Rahn, Daniel  
Ross, Keith Schloemer and Matt  
Sciarretti**

# Legislative lingo...



## New Ohio Code change for Elevators regarding Sump Pumps.

The Elevator Code with Ohio revisions can be found here:

[dico bbs elevator rules eff july 1.pdf](#)

This is a bit more of an obscure rule change. Basically the elevator code changed from referencing the 2016 version to the 2019 version of ASME A17.1 SAFETY CODE FOR ELEVATORS AND ESCALATORS. Under "Note b" it says to "Section 2.2.2.5-delete the last sentence". That sentence is where we get our 50 gpm requirement per elevator. While Ohio has deleted that last sentence from the last few cycles, it has been best practice, per ASME, to provide 50 gpm per elevator. In the 2019 version, the wording is changed from "per elevator" to "per single hoistway or multiple hoistway." This clarifies that you don't need 100 gpm in a pit shared by two elevators. This is more important in other states that may still reference the last sentence in 2.2.2.5.

Table 4101:5-3-01

Promulgating Agency (Note a)	Standard Identification	Edition	Title
ASME	A 17.1 (Note b)	<del>2016</del> 2019	Safety Code for Elevators and Escalators
Note b	Section 2.2.2.5-delete the last sentence; <del>Section 8.6.11.10-delete the entire section</del> ; Section 8.11.1.1.2(a)- change to read as follows: Periodic tests, as required in 8.6, are not required to be witnessed by a general or special inspector.; Section 8.11.1.1.2(b)- change to read as follows: Periodic test reports shall be submitted to the division within five business days of the completion of the periodic test. The test reports shall be on forms prescribed by the superintendent and shall include the date and type of test(s) performed, detailed results of the test(s), and a statement as to any corrective action taken.		

– Jeremy M. Williams PE, LEED AP BD+C  
VP, Technical

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# ASPE YOUNG PROFESSIONALS

## Learn more about our group!

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- » Social and networking events
- » Professional development opportunities
- » Mentoring programs
- » And more!

For more info visit: [aspe.org/ayp](http://aspe.org/ayp)

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## Membership musings...



It is hard to believe that 2025 is here, hopefully you all are enjoying this snow and off to a great start on any goals that you have set for the new year.

Our first meeting of 2025 is on January 14<sup>th</sup> at Countryside YMCA in Lebanon on Water Quality Testing w/ Solid Blend Technologies.

We are 108 members strong this month with no new members to report on this month, we have 59 Full members, 16 Associate members, 30 Affiliate members, 2 Life members, and 1 Retired member.

A big thanks to all those who renewed last month including Melissa Angulo, Vanya Bistrekova and Thomas Kilbane. We appreciate your continued support.

We unfortunately do not have a member spotlight for this month but hopefully will have that lined up for February.

Total Membership		
	Jan 24'	Jan 25'
Buffalo-Niagara	42	44
Central Indiana	122	132
Central Ohio	106	125
Cleveland	94	98
Eastern Michigan	102	112
Evansville	33	42
Johnstown	30	31
<b>Kentucky Bluegrass</b>	29	36
Pittsburgh	95	101
Rochester	77	84
<b>Southwestern Ohio</b>	101	108
Toronto	108	103
Western Michigan	91	93
Region 2 Total:	1030	1109

Thanks,

**– Brian Selander  
VP, Membership**

Through the pipes...



- [Share Your Knowledge at the 2025 ASPE Tech Symposium](#)

If you are interested in showcasing your expertise by presenting a technical session, the call for presentations is open at [aspe.org/education-](https://aspe.org/education-credentiaing/cfp)



[credentiaing/cfp](https://aspe.org/education-credentiaing/cfp). The deadline to submit a presentation proposal is February 28, 2025.

- [Announcing the New CPDTs](#)

ASPE is pleased to announce that 30 plumbing industry professionals passed the 2024 Certified Plumbing Design Technician (CPDT) exam and can now use the CPDT designation after their name to signify their excellence in plumbing system design to employers, clients and peers.

The Southwestern Ohio Chapter would like to congratulate one of its own in this accomplishment. **Benjamin Cahall, CPDT**, was one of the 30 who successfully earned their certification. **Congratulations to you, Benjamin.**



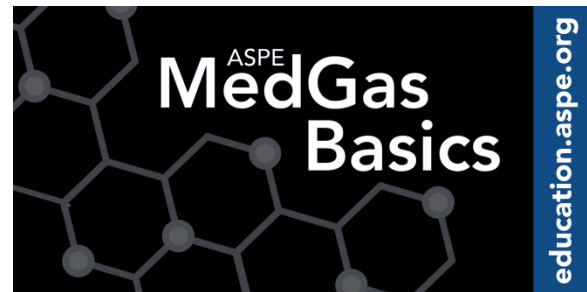
- [Get Help Toward Your Degree](#)

ASPE's Alfred Steele Scholarship, for ASPE members and their immediate families, awards up to \$5000 to deserving engineering students each year. The deadline is January 31. [Apply now>>](#)



- [Get ASSE 6060 Training Next March](#)

The first in-person MedGas Workshop in 2025 will be held at ASPE's headquarters in Rosemont, IL, just a short ride from Chicago's O'Hare Airport. [Register now>>](#)

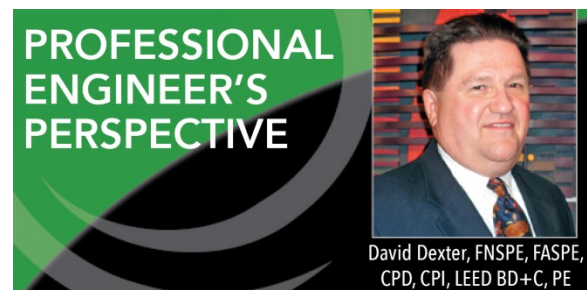


- [Curious About MedGas Design?](#)

ASPE's new MedGas Basics classes provide an introduction to medical gas system design for those looking to get into this exciting specialty of plumbing engineering. [Visit ASPE Education to learn more>>](#)

- [ASPE's Plumbing Engineering Design Handbook, Volume 4, Is Now Available](#)

ASPE is pleased to announce that the latest updated volume in the Plumbing Engineering Design Handbook series, Volume 4: Plumbing Components and Equipment, is now available as a convenient eBook. The PEDH is one of ASPE's most valuable member benefits, and ASPE members can access all four volumes as eBooks for free. [Learn more>>](#)



- [Who Has Responsibility for What?](#)

Our own David D Dexter explains how the design and construction teams can work with the AHJ to ensure that plumbing systems protect public health. [Learn how>>](#)



● **ASPE's Book of the Month** program continues with [Advanced Plumbing Technology](#)

[II](#) (eBook version).

Through January 31, 2025, you can purchase the digital edition for 25% off the regular member price. Just enter the coupon code **resolution** when you check out.

The discount is only valid on the digital version of the publication, and the coupon code can only be used once. If you are purchasing multiple items, the discount will be applied only to the assigned publication.

Don't forget to enter the coupon code when you check out to receive the discount.

## MATHCOUNTS®

On Saturday, February 8, 2025 (a change in date this year), the **Greater Dayton MATHCOUNTS Competition** will again be held on the campus of Wright State University. Our Chapter will be lending an assist to the Dayton Society of Professional Engineers (with members functioning as proctors, scorers and runners). To lend a much-needed hand (it is appears there will be a 50% increase in schools competing in 2025), please contact Competition Coordinator Kyle Stankowski at [kgstanko@mtu.edu](mailto:kgstanko@mtu.edu).

Last month, we offered the following problem for your amusement:

*Chiquita and Rhonda are each building a snowman. Chiquita and Rhonda are each building a snowman. Rhonda tells Chiquita that she is making each of her 3 balls of snow 20% smaller than the one below it. Rhonda starts by making the base ball with a diameter of 20 inches.*

*Chiquita planned to do the same thing as Rhonda, but she misunderstood what Rhonda meant when she said "...20% smaller than the one below it." Chiquita made her first ball the same size as Rhonda but then decreased the **volume** by 20% for each subsequent ball. How much taller is Chiquita's completed snowman than Rhonda's completed snowman? Express your answer as a decimal to the nearest tenth.*

First, let's determine how big each of Chiquita's snowballs is. We know the first ball has a diameter of 20 inches, thus its volume is  $(4/3)(20/2)^3\pi = 1333.3333\pi$  cubic inches. This means that the second ball has a volume of  $0.8(1333.3333\pi) = 1066.6667\pi$  cubic inches, and the third ball has a volume of  $0.8(1066.6667\pi) = 853.3334\pi$  cubic inches. The diameter of the third ball can be found by determining its radius ( $V = (4/3)\pi r^3$ ) and then multiplying by 2. Thus, the diameter of the third ball is:

$$853.3334\pi = (4/3)\pi r^3$$

$$r = 8.617 \text{ inches}$$

$$d = 2(8.617) = 17.235 \text{ inches}$$

Following the same process, we find that the second ball has a diameter of 18.566 inches. We already knew the diameter of the first ball to be 20 inches. By adding 20, 18.566 and 17.235, we find the height of Chiquita's snowman to be 55.801 inches.

We calculate the diameters of Rhonda's snowballs with the same process, so we can quickly find her snowman's height to be  $20 + 16 + 12.8 = 48.8$  inches.

Thus, the difference in height is  $55.801 - 48.8 = 7.0$  **inches**, to the nearest tenth.

For this month, with the competition fast approaching, we offer the following in a timely manner:

*MATHCOUNTS competitions are very different from tests students take in class. For a MATHCOUNTS competition, a score of 23 out of 46 (or 50%) is absolutely fantastic! The Target Round of a MATHCOUNTS competition has four pairs of problems. If we're told that a student answered exactly half of the Target Round questions correctly, and answered one question in each of the pairs of questions correctly, how many different combinations of questions could they have answered correctly? (For example, one combination is questions #1, 3, 5 and 7).*

The solution will appear in next month's newsletter. Good luck; we know you can get it.

## [Around the water cooler...](#)

● The holiday season has come and gone, and a new year is now with us. So why not ring in 2025 with another round of Water Cooler discussions? We start with a Cooler who has a question that is driven by a response from last month's discussions concerning the **Ohio Building Code**. Read on:

Last, month the response to the final conversation included the following item from the Ohio Building Code concerning the application of Alternative Engineering Design (AED):

**106.5.3 Technical data.** *The registered design professional is to submit sufficient technical data to substantiate the proposed alternative engineered design and to prove that the performance meets the intent of this code.*

*Without throwing shade at Plumbing Plans Examiners (PPE), I have found while PPEs are usually sound on the technical application of the Ohio Plumbing Code (OPC), many simply do not have a strong background in Plumbing Design or Technology. For those PPEs that do not understand these engineering concepts, how does the OBC intend for design professionals to address this situation?*

How does the OBC intend for design professionals to handle this situation?

Quite simply, this is not the OBC's concern.

But from our experience, we can offer the following:

When submitting an AED to a PPE, per OBC 106.5.3, it is now required to be accompanied by supporting documentation to explain how the design satisfies the intent, if not the letter, of the code.

Once the AED documents have been submitted and the PPE has had sufficient time to review them, it might be a good practice for the EOR to reach out to the PPE and verify their understanding of the AED and acceptance of it. It is usually better to be proactive (in a polite and professional manner, of course) than to wait for the PPE to contact the EOR

If the PPE does not understand the AED, the EOR can discuss the design and, at need, submit revised/additional supporting documentation.

If the PPE does not understand the AED and elects to reject it for that reason, the EOR may find it necessary to take the matter to the Chief Building Official (CBO). If the CBO will not overturn the rejection, then the EOR may find it necessary to seek adjudication. Most CBOs and PPEs will handle this procedure in a professional manner. But human nature being what it is, you may encounter a CBO or PPE that considers adjudication as a direct affront to their abilities and offices. Or they simply do not want to appear lacking in their understanding of engineering principles.

And we will say nothing further about this.

● **Domestic hot water recirculation systems** can have a unique set of parameters for a design professional to consider. Take a look at the inquiry posed by one Cooler:

*I had a question I'd like to ask you concerning domestic hot water recirculation systems:*

- *For return pipe temperature at 120F or below, what is the typical design target velocity (fps) rate on the return line to size of the circulator pump?*
- *Do you feel that this is standard practice in your area or best practice?*
- *If not standard practice, what velocity value have you seen from drawings from other plumbing projects that represents standard practice?*

It is difficult to approach this problem in the manner your questions attempt to lead us. But we can offer the following:

Depending on the project's specifics, 120F would be the normal return temperature. However, if Legionella is a concern, the return temperature would be 124F or higher.

The material type drives the return velocity. Generally, for copper, the target velocity would be 5 fps. However, according to the Copper Development Association (CDA), elevated temperature should see a lower velocity. Higher velocities can be utilized, depending on the material type. However, as the velocity goes up, so does the pressure drop experienced. Flow and pressure are interrelated.

The use of the CDA guidelines is generally considered best practice. But design is very much an engineer's discretionary decision. The engineer must consider the best temperature, material, and acceptable velocities for the application.

● Since we're on the subject of **domestic hot water**, let's consider another question from another Cooler:

*I've done a lot of research on different techniques on sizing/balancing a hot water return system - however, does anyone have a really good summary of the best method? The system I have is a hot water return main that has 5 loops connecting into it as it goes back to the circulating pump. Thoughts and resources are appreciated!*

*I want to avoid undersizing the return piping and oversizing the circulating pump.*

We need more clarification regarding the "hot water return main that has five loops connecting into it as

it goes back to the circulating pump." What is the source of these five loops, the hot water supply distribution system? Or are these loops tapped off the "return main and returned to the same return main?"

If the five loops come from the hot water distribution and are controlled by a return assembly; balance valve, check valve, and service valve, then you need to simply sum up the flow rates as they enter the return main. However, if they are tapped off the return main and then returned to that same return main, you will not have any circulation in those loops without a pump on each loop. Yes, I have seen such installations without pumps without some motive force, such as a flow restrictor; those loops have no actual circulation.

Sizing the return piping involves summarizing the load at each return interconnection and considering the velocity along with the load. Also, remember that this is a return system; the pump will only see the total flow when there is no draw from the fixtures (closed loop). As various fixtures draw off of the system, the hydraulics of the system will kick in. The greater the draw-off, the less work the return circulating pump will do until it reaches the "churn" stage. In the churn stage, the pump will generate heat from the water contained within the body. A VFD-controlled pump should be considered; it allows for this variable flow. While generating heat within the pump body is not desirable, it is not permanent as the system's hydraulics continually change.

- We do live in a climate where freezing temperatures are prevalent during the winter months. So one Cooler asks a related question concerning a **fire protection water storage tank**:

*Is the fire water tank heated electrically or hydronically to prevent freezing? How is the heater's capacity sized?*

It depends on the size of the tank and the location and jurisdiction in which it is installed.

Depending on the piping connection locations, one is not overly concerned with surface and wall freezing in a large tank. However, heating and insulation would need to be considered in smaller tanks, where the contents of the tank could freeze over time in proper conditions.

Protecting the fire water from freezing can be accomplished via electric heating elements, electric mats installed within the tank, and electric heating maintenance cabling around the tank below the insulation. One could also use steam or hydronic

as a heat source. This approach would necessitate coils within the tank to distribute the heat energy.

If you can accept surface freezing, adjust the storage volume to compensate for the anticipated ice volume, as the volume of usable fire water must be maintained.

- Storage of commodities can often generate their own set of particulars in **sprinkler system design**. Consider the following from one Cooler:

*I have a fire suppression question for you.*

*NFPA 13 section 4.3.3.2 describes the Ordinary Hazard (Group 2) classification where "stockpiles of contents with moderate rates of heat release rate (HRR) do not exceed 12 ft. and stockpiles of contents with high rates of heat release that do not exceed 8 ft.*

*I'm trying to find any data available that describes what should be considered **moderate HRR** and **high HRR**. I'm working on a hardware store in Oklahoma where they are planning an indoor lumber retail area, so the materials will generally be finished lumber products on open shelving. The flow test came in pretty poor (80 psi static, but 40 psi residual at 1061 GPM), so the sprinkler contractor is raising alarms that the owner will likely need to deal with some restrictions to try and get the system to a classification of Ordinary Hazard Group 2 (OH2). We had originally called out Extra Hazard Group 1 (EH1; High-Piled Storage Combustible Storage Class III), but I'm told that would be cost prohibitive due to a need for a fire pump and large storage tank.*

*I'm tasked at this point in determining if the storage height is limited to 8 feet or 12 feet. The lower height at 8 feet will be problematic for the owner because it will limit his inventory. The existing building (being renovated) is about 16 feet high to the roof, so the 12 feet limit seems appropriate. So is lumber considered a moderate HRR or a high HRR? And if it is considered high HRR, would in-rack sprinklers allow them to increase the height and stay in the OH2 classification?*

Contained within NFPA 13 we will find a number of sprinkler and storage parameters that must be taken into consideration for rack storage of commodities as well as provide response to your concerns along the way.

Let's start by determining what commodity classification we are dealing with. Per NFPA 13 (as always, highlight ours):

**20.4.3.1** A Class III commodity shall be designed as a product fashioned from wood, paper, natural

fibers or from Group C plastics, with or without cartons, boxes or crates, and with or without pallets.

Next, we refer to table 4.3.1.7.1 which lists basic discharge criteria for miscellaneous storage. For Class III commodities, we have the following requirements:

Type of Storage: Solid-piled, palletized, bin box, shelf, single-, double-, or multiple-row rack and back-to-back shelf storage

Storage height: Less than or equal to 12 feet

Maximum ceiling height: None

Design from 19.2.3.1.1: OH2

In-rack sprinklers: No

Inside hose: 0, 50 or 100 gpm

Total combined inside and outside hose: 250 gpm

Now, we'll consider the rack storage system. As you really did not provide us with any specifics on the shelving other than it being considered open, we'll have to address this in general terms. Again we turn to NFPA 13:

**20.5.3.1.1** Shelving material that is less than 50 percent open, or placement of loads that block openings that would otherwise serve as the required flue spaces, greater than 20 sf in area shall be treated as solid shelf racks.

Within section 20.5.3 of NFPA 13 you will find additional criteria that addresses single and double row racks, aisle space and flue space you will need to review and consider in your design.

Section 20.9 covers building construction and storage: heights and clearances. As your query did not provide this information, we can only refer you to this section for additional consideration.

Also contained within Section 20.9 are criteria for the minimum distance a sprinkler deflector can be placed above a commodity placed on a rack storage system:

**20.9.6.1** Unless the requirements of 20.9.6.2 through 20.9.6.4 are met, the clearance between the deflector and the top of the storage or contents of the room shall be 18 inches or greater.

And Chapter 26 details the various protection criteria for rack storage systems. The level of protection will be dependent upon commodity being stored, the height of the rack storage system, the geometry of the storage racks themselves and sprinkler type being employed.

As you can see, there is not a "one size fits all" solution for this situation, with many moving parts in play.

"So is lumber considered a moderate HRR or a high HRR?" There is not a clear-cut answer to this question. Different types of wood have their own heat release rate. Without knowing what type(s) of wood are being stored, we really can't advise any further.

Also, you would be advised to be sure that the lumber in question is not being treated (as a protection measure) or finished in some way. The material used may require a higher level of sprinkler protection.

And, as always, do get with the Owner's insurance underwriter to verify if they have any specific requirements of their own that must be incorporated into the design.

## Parting thought...

I hope that in this year to come, you make mistakes because if you are making mistakes, then you are making new things, trying new things, learning, living, pushing yourself, changing yourself, changing the world. You're doing things you've never done before, and more importantly, you're doing something.

**-Neil Gaiman**

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 **Cold Water Recirculation**



Last year, we implemented our thermal actuator technology into the CircuitSolver® Union Cold Water balancing valves. These valves are installed in domestic Cold Water recirculation systems to mitigate the risk of Legionella and other bacterial growth. Cold water recirculation is becoming more prominent in hospitals to reduce water stagnation and ensure residual chlorine is distributed but can be beneficial to any commercial building that could experience periods of low flow or non-use.



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- 300 GPM+, minimal pressure loss
- Self-cleaning, long-lasting, low maintenance
- Automatic membrane integrity verification (Meets strict EPA guidelines)



  
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A TOTAL, STATE-OF-THE-ART HOT WATER SYSTEM, ENGINEERED TO DELIVER A SUPERIOR LEVEL OF USER SAFETY, INFECTION CONTROL AND COMPLIANCE, FROM MECHANICAL ROOM TO THE POINT OF USE.



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**THE BRAIN<sup>®</sup>  
DIGITAL  
RECIRCULATION  
VALVE**

*Digital hot water temperature control that delivers unparalleled accuracy, stability and safety to mitigate the risk of Legionella and scalding.*



**RADA DIGITAL  
FAUCET**

**RADA DIGITAL  
FAUCETS**

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**PROGRAMMABLE  
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