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Chapters are not authorized to speak for the Society

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May CHAPTER MEETING

Date: TUESDAY, May 13, 2025

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

Cost: \$20 online

Schedule: 11:30PM-1:30PM

The History of Interceptors w/Streamkey

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, May 12th, so that a head count can be established. As always, guests are welcome.

All content displayed at ASPE meetings is copyrighted. No one may copy any part of it without permission of the copyright owner. Violation of this rule can lead to monetary damages.

LOOKING AHEAD

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

May 31st: FC Cincinnati Member Event

August 8th: Night Out with the Dragons

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...



FREE MEMBER EVENT! The Southwest Ohio Chapter is providing free tickets to watch FC Cincinnati taken on DC United on May 31 at TQL Stadium. Join us as a thank you for being a member of our Chapter. Tickets are available on our website and must be requested by May 16th.

Our May Chapter meeting will be our last of this 2024-2025 season, covering grease interceptors. I have had a few members request this topic so this should be educational for the whole Chapter. I know I occasionally get confused in the local code landscape of grease interceptors. Please see the article from our new VP Technical later in this newsletter for more information.

We have begun coordinating for our annual Night out with the Dayton Dragons. Please see Andy Monnig, atmonnig@heapy.com, if you'd like a ticket to join us on Friday, August 8th at 7:05pm. We hope to see you there!

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.

Upcoming Events:
 FC Cincinnati Member Event – May 31, 2025
 Night out with the Dragons – August 8, 2025

Thanks for being here, we like having you.

– **Andrew Hemmelgarn**
President

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Technically Speaking...



Technically Speaking

Happy May everyone! I hope everyone enjoyed Cinco de Mayo, despite it falling on a Monday. Our April meeting welcomed Brian Soderholm and his course on water treatment. Brian did a great job presenting an incredibly technical topic to a broad audience in an hour, and I personally took a lot away from it about system design and equipment selection.

Our May meeting is History of Interceptors, where Streamkey will discuss sizing, use, and materials of interceptors. For those who have designed drainage systems in kitchens and even breakrooms, this will be useful.

Cheers,

– **James Fiorini**
VP, Technical

Looking to stay in touch
with the Chapter



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:

**Daniel Daly, Kevin Hansman, Justin
Hobing, Alex Lee, Michael Moll, Andy
Monnig, Jeff Papania, Benjamin Scott,
Sara Sowers and David Wolfe**

And the Chapter would like to wish a

Happy Anniversary

to the following members
commemorating their ASPE
anniversary this month:

**Sean Duffy, David Hudson, Vicki Irvine,
Ray Leisten and Brett Mullins**

Legislative lingo...



Dialysis in Patient rooms

Had a lot of requests to put Dialysis boxes in patient rooms. Running into some grey area of the code that I see interpretations of on existing drawings. I wanted to spark discussion to get other points of view. First off, what code(s) applies specifically to Dialysis? FGI helps to define the space but not much on the plumbing outside of water quality requirements. Those are also more directed to dedicated Dialysis suites and typically have a dedicated RO. I am not writing about those; I am writing about portable dialysis machines with portable RO machines between the potable water and the dialysis in a patient room. Section 608 Protection of Potable Water System applies to protect the potable water from the “hazard” of the dialysis/RO setup. Specifically 608.3.1 shown below has “hospital fixtures” but it is not clearly defined. I am suggesting that dialysis equipment falls under “hospital fixtures” umbrella and therefore needs to be protected. Most machines I have seen recently have an “integral air gap” but no further information to give me a warm fuzzy that the system is protected That “meets” the requirements below if it is a true air gap as defined by code. If that machine is replaced by one that does not have the integral air gap or if that integral air gap is not functional, then what is protecting the potable water system? My ‘belts and suspenders’ solution are an RPZ or Vacuum Breaker. The push back recently is ‘my current facilities’ dialysis boxes don’t have those’. Just because it exists doesn’t

mean it is right. I am not 100% sure I am right, just falling on the side of caution. I am protecting the potable water supply, myself, the owner and the patient. Phew, if you got this far, thanks for your time and I look forward to further dialogue with you.

2024 OPC

608.3.1 Special Equipment, Water Supply Protection

The water supply for hospital fixtures shall be protected against backflow with a reduced pressure principle backflow prevention assembly, an atmospheric or spill-resistant vacuum breaker assembly, or an air gap. Vacuum breakers for bedpan washer hoses shall not be located less than 5 feet (1524 mm) above the floor. Vacuum breakers for hose connections in health care or laboratory areas shall be not less than 6 feet (1829 mm) above the floor.

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



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Membership musings...



Our next chapter meeting is Tuesday, May 13th Noon to 1pm at the Countryside YMCA in Lebanon on The History of Interceptors. Don't forget your firm's co-ops are able to attend meetings for free, this is a great opportunity to let them see the great plumbing community we have here in southwest Ohio.

We have a **Free** ASPE Event coming up Saturday, May 31st at TQL Stadium to watch FC Cincinnati vs DC United at 7:30 pm. Go to the [website](#) to register for your ticket. We hope to see you there!

Did you know all ASPE Members are given an additional 90 day extension/grace period on their membership. This provides members online renewal access during this time. Keep in mind, that it does NOT change the memberships original valid to date.

The following members renewed in April and we'd like to acknowledge them for their continued support to our local chapter: Justin Beck, John Brochmeier, Brad Bruening, Travis Burke, Terry Cannon, John Fox, John

Graves, Nicklas Hanes, Bob McGinnis. Thank you all!

Our total membership is holding strong at 106 members this month down one affiliate member from last month. We have 58 Full members, 16 Associate members, 29 Affiliate members, 2 Life members, and 1 Retired member.

Total Membership		
	April 24'	April 25'
Buffalo-Niagara	42	45
Central Indiana	124	132
Central Ohio	111	130
Cleveland	91	97
Eastern Michigan	107	117
Evansville	35	41
Johnstown	30	33
Kentucky Bluegrass	29	37
Pittsburgh	97	105
Rochester	83	86
Southwestern Ohio	107	106
Toronto	110	110
Western Michigan	92	95
Region 2 Total:	1,058	1,134

Thanks,

**- Brian Selander
VP, Membership**

Through the pipes...



- [Registration Is Open!](#)

This year's premier professional development event for plumbing engineers and designers, ASPE's Tech Symposium is being held September 24–28 in Orlando, FL. Featuring 30+ education sessions with CEUs, a Product Show, and numerous networking opportunities, it's a can't-miss for any plumbing industry professional. [Register now>>](#)

BTW: When you make your hotel reservations, **please** use the hotel(s) listed for the event. This is most important to the Society.



- [Don't Miss Out!](#)

ASPE's second MedGas Workshop in 2025 will be held June 9–12 at Viega's state-of-the-art training facility in Broomfield, CO. You can register at [ASPE Education](#).



- [Save the Date!](#)

If you aren't able to take part in June's in-person MedGas Workshop in Broomfield, CO, you'll also have at least two more opportunities this year:

August 21–24 in North Andover, MA (hosted by Watts)

October 16–19 at ASPE's headquarters

To learn more about the ASSE 6060 training options, [visit aspe.org>>](#)



- [Get Your ASSE 6000 Renewal Training](#)

Our new online course provides four hours of instruction regarding changes to NFPA 99-2024 and meets the requirements of all ASSE 6000 credentials. [Get started now>>](#)

- [ASPE's Design Standards Committee Seeks New Members](#)

Do you want to help ASPE develop design standards for the plumbing engineering industry? Our Main Design Standards Committee is looking for two new members in the User interest group. To learn about our standards development process, the Main Design Standards Committee, and User interest group requirements, visit [aspe.org/publications-news/standards](#). Previous experience developing codes or standards is preferred.



- [ASPE's Book of the Month](#) program continues with the [Engineering Methodologies to](#)

[Reduce the Risk of Legionella in Premise Plumbing Systems](#) (eBook version). Through May 31, 2025, you can purchase the digital edition for 25% off the regular member price. Just enter the coupon code **memorialday** 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.

Through the pipes...

Spring is in full session, and the month of May gives us plenty of Reds baseball, the Kentucky Derby, Mothers' Day, Memorial Day, the Indianapolis 500 and more Water Cooler conversations. This month, we begin with a follow-up to a discussion from last month: dealing with plans examiners when **submitting Contract Documents for permit** and what can happen when questions arise that are outside a Design Professional's field of expertise. We start with our response to the last exchange...

Thank you for your responses and the drawing of the Domestic Pump/Riser Room. While adding a note to require the various contractors to coordinate their work in the room, we might suggest that you not show the fire riser or call it out on the Plumbing Contract Documents. If the Architect is going to create a sheet for the sprinkler contractor, let the fire protection be shown only in one location (which you can refer to on your Drawings). While you might show the fire riser in background, do not call it out or label it on your Plumbing Contract Documents.

My firm splits the Fire Protection into a separate trade with separate sheets. And we often don't get awarded the FP scope in our commercial projects (FYI: We do have a PE who does sprinkler work). The Owner or GTC will typically do a separate design/build contract for the sprinkler. I do get flow test reports and check the civil utility plans for where the water comes in and waste goes out. Those flow tests go in my calculations folder, but not on my plans.

I'll often tell an Architect that a space/area they've allotted for sprinkler looks small to me, or that it won't fit both the domestic and the sprinkler equipment/piping. But when they ask me how big it needs to be I always have to refer them to the sprinkler designer/ contractor because all I know is that a fire pump is big and has certain requirements for access and clearance. But I also know that sprinklers don't need as much pressure as a shower or a flush valve to work.

The sprinkler contract isn't usually awarded until after the MEP had gone in for permits. Which is the case in this apartment project I originally reached out about.

My primary concerns with putting sprinkler "stuff" on plumbing sheets are that I did not prepare that information, nor was it completed under my supervision, so I shouldn't be asked to sign off on it. And the fact that sprinkler and NFPA criteria is outside my area of expertise. I just didn't want to

jeopardize my reputation, my seal and my livelihood.

• At what point does a firm's **using the credentials of a design professional** enter into areas of expertise and additional compensation? That is the question posed by a Cooler...

I work at a MEP engineering firm as a plumbing and fire protection designer. I'm also licensed as a master plumber and gas fitter. One day the managing director approached me and asked me if the company could use my license to bid for a project doing inspections. I agreed, assuming it was a small scope of work so I didn't think anything of it.

A couple of weeks later the director tells me that he won two contracts totaling a dollar amount of \$1 million and that I would have to go to New York City to perform these inspections one to two weeks in a month.

I do not have a license in New York and I would have to sit for their written exam and take the practical exam. The firm would pay for the exam and all associated fees. No permits will need to be issued, but every inspection would have to be carried out by a me as a master plumber and I would have to sign and approve every inspection report filed to the city using the New York City master plumbing license. It is called local law 152 for New York City. This would be for 26 buildings in the city. Between the 2 contracts, they have billed about a year and a half of work of inspections.

So far, I have not signed anything nor agreed to anything on paper.

So, I feel like I'm entitled to compensation since they're using my license to get this work and if they didn't have a master plumber working for the company, they would have to subcontract out the work to an actual plumbing company and not make as much profit.

When I asked for compensation, they refused, and the manager basically told me that I was being compensated enough, and that they were not going to share in any of the money that they receive from the contract, and that's just the way it is in Engineering.

I only have about 4 years in the engineering field; before that I was a Plumbing Contractor. My questions are:

Am I being taken advantage of?

Is this sort of thing normal in the field of engineering?

Because of the situation I'm contemplating on quitting but I'm hesitant because this is a good opportunity for me because I'm able to do and learn fire protection and they are training me to become a project manager.

Let us make sure that we understand the situation. You hold a master plumber and gas fitter license. Is that license in the jurisdiction that your firm has secured an inspectional contract? Have you signed any permit or other applications related to the project? As you describe the situation, it appears that the company used your credential(s) in some manner to assist them in obtaining an inspection contract.

However, if you have not actually signed any permits or other jurisdictional documentation, then you have not taken on any liability associated with your license. They company only used your experience as a master plumber to show that the team had significant knowledge and background to enable them to provide inspection services.

However, if you have actually utilized your license to permit these projects, then yes you should be compensated for the right to use your license. Because the work is being performed under your license, you have taken on responsibility and liability for the projects.

This is similar to when one of us was still in the contracting world. He was a project manager/estimator for a mechanical contracting firm. The firm was successful in winning several contracts in areas that they did not hold license, but I did. Hence, he utilized his license under the firm's name, utilizing their bonds and insurance.

During the course of events, he decided to separate from his employer. He offered to continue to cover the permitted work in exchange for compensation.

However, the firm did not believe that they needed to provide said compensation. Upon leaving the firm, he contacted the jurisdictions involved and advised them that he no longer would be responsible for the permits. The jurisdictions then informed the firm that they could no longer proceed with the work until they obtained appropriate licensure. It took the firm several weeks before they found someone willing to permit the projects and allow work to continue.

At the risk of saying, "Hindsight is 20-20," the questions you have posed should admittedly been asked to your manager/firm when the subject was first broached with you. That would have been the ideal time to establish what the process entailed

and that all would be in agreement on how the procedure was to be executed. With that said, we can offer the following:

While the manager may believe you are being compensated sufficiently, they are not compensating you for utilizing your licensing credential in this manner. We do not believe that you have been employed by them to carry licensure for the firm. So, utilizing your license status is over and above your employment as a design professional. If you were to terminate your relationship with the company, would they still be able to accomplish the inspectional work?

While we cannot place ourselves in your shoes, it is a decision that you must make. If your relationship with the firm is beneficial to you and you have not taken on added responsibility and liability, is this best for you? On the other hand, if you believe that you are being unfairly treated, why allow them to take advantage? You need to carefully weigh your options and do what you believe to be the best for you and your career.

Observing from the 30,000-foot level, we believe you are being taken advantage of. It is your license, not the firm's. If they obtained the work based on your licensure, compensation should occur if you have taken on additional risk and liability. But one must pick and choose when to open this can of worms.

Many things go on in the profession that could be considered unprofessional; it all depends on the mix of personalities. If the shoe was on the manger's foot, how would the manager react? We are not offering legal advice, nor are we presenting ourselves as attorneys. We are just offering our thoughts.

This is something that you must address based on your moral and ethical beliefs. It is your career, not the managers. But proceed with caution and give it careful consideration.

We hope this helps you in your considerations. You will have to make your own decision but carefully consider ALL things from a liability perspective as well as from a career point of view.

- Next, we have a Cooler who hopes we can help them be **flushed with success**. Case in point:

As per the 2020 New York State Plumbing Code, Table 604.3, a siphonic water closet flushometer valve requires 35 PSI.

If the water closet equipment spec sheet lists a lower pressure requirement, is there any section in the plumbing code that would allow for the

plumbing design to be designed for the lower pressure? This would be helpful to avoid a domestic water booster pump on certain projects where the available pressure is close to what is required.

*For this specific project, the water closet equipment cut sheet lists **25 PSI minimum** and the flushometer lists 15-80 PSI.*

Typically, the code references the manufacturer's installation instructions. The minimum standard code cannot address every possible combination of materials and installation, so it defers to those manufacturer's instructions.

The note in Table 604.3 does not indicate whether 35 PSI is flowing or static. A flowing pressure of 35 PSI would require a higher static pressure. Hence, pipe size and frictional losses become a more prominent concern.

As for the comment, "The water closet equipment spec sheet lists 25 PSI minimum," we would take that to mean a flowing pressure of 25 PSI. The flushometer can operate with a minimum flow pressure of 15 PSI but cannot exceed 80 PSI as mandated by code.

- Next, we have a question that is truly the pits...**air intake pits**, that is. Have a look...

I have an outside air intake pit with area/floor drains at the bottom. My question is whether these should go to the storm or sanitary system. The intake pit is open to the outdoors at grade level, and it serves air handlers in the basement of the building approx. 15 feet below grade. There is also a man door in the basement for access to the intake pit. As there is potential for maintenance personnel to enter the intake pit and spray it down, my opinion is that these area/floor drains at the bottom of the pit should tie into the sanitary system, even though they may also collect storm drainage. Thanks for any and all input/experiences with this.

In our judgement, you are correct. There is always the risk of introducing contamination into the stormwater system from such activities. In the case of window washing, the contaminants are generally controlled by the window washing crew in their buckets, with the waste dumped into a sanitary receptor (service sink). The roof may be hosed off with a power washer (but we will not hold our breath on it occurring). The same might be valid for the Outside Air Intake Pit, but do not hold your breath on it occurring.

In none of these scenarios have any unnatural contaminants been introduced into the stormwater waste system. While chemical (soap) cleaning

might be possible, it is a cost that most likely will not occur. These are maintenance functions that seem nice and probably should happen. However, most maintenance departments have full schedules without adding these activities.

- We now have a Cooler attempting to reconcile **the meeting of code concerns past and present with design reality**. Give the following some thought...

Are you aware of the new wording in the 2024 OPC regarding elevator sump pump discharge? If it is a hydraulic elevator, it must pass through an oil separator per OPC 301.6 and OPC 1003.4. I just spoke with a Plumbing Inspector supervisor, he states they had been discussing this with the Chief Building Official and they can no longer accept the oil smart alarm panel of sump pump discharge, and just now starting flagging this on plan reviews. He also said we could appeal the ruling with a formal Adjudication order.

Below is a code comparison of what changed between 2017 and 2024 (as always, highlights ours). Nothing changed between 2015 and 2021 IPC wording. Because Ohio deleted the "and hydraulic elevator pits" and deleted the exception, it is not clear that they are required. It would be clear if they kept "and hydraulic elevator pits" and simply deleted the exception.

1003.4-2017 Oil interceptors required. At repair garages where floor or trench drains are provided, car washing facilities, and factories where oily and flammable liquid wastes are produced and hydraulic elevator pits, oil separators shall be installed into which oil-bearing, grease-bearing, or flammable wastes shall be discharged before entering into the building drainage system or other point of disposal.

Exception: An oil interceptor is not required in hydraulic elevator pits where an approved alarm system is installed. Such alarm systems shall not terminate the operation of pumps utilized to maintain emergency operation of the elevator by fire fighters.

1003.4-2024 Oil interceptors required. At repair garages where floor or trench drains are provided, car washing facilities, and factories where oily and flammable liquid wastes are produced, oil separators shall be installed into which oil-bearing, grease-bearing, or flammable wastes shall be discharged before entering into the building drainage system or other point of disposal.

Exception: Deleted.

First, the Section 1003.4-2024 no longer calls out "Hydraulic elevator pits." It does address repair garages with floor or trench drains, car washing facilities and factories where oily or flammable liquid wastes are produced. A separator is required to remove the oil-bearing, grease-bearing or flammable liquids from the waste stream before discharging into building drainage system or other point of disposal. The exception discussed in Section 1002.4-2017 is no longer applicable and has been deleted.

One must look at ASME A17.1 – Safety Code for Elevators and Escalators for requirements related to elevator sump pits and pumps. The Ohio Plumbing Code restricts the discharge of deleterious materials into the waste system. Hence one shall not discharge oil-bearing, grease-bearing, or flammable wastes into the building waste system. This would include hydraulic oil. However, in accordance with ASME A17.1, elevators no longer use hydraulic oil, they are restricted to hydraulic fluid. Hydraulic fluid is normally a bio-degradable and inflammable fluid, not an oil-based fluid, thus not requiring an oil separator. Without an adjudication order, there is nothing to appeal to the State. One could request a formal interruption from the Board of Building Standards.

As for exception removal, a design could include an oil minder sensor/alarm, but for what purpose? As there is no oil-bearing waste, only a bio-degradable fluid would the alarm recognize the fluid. Secondly, while it might be nice to have an alarm, it cannot turn off the pump for life/safety reasons.

Without a documented reason, we are not sure why the concern. The need for an oil separator has been discussed for many years. Without a specific requirement for one associated with an ASME A17.1 elevator, the separator is not needed or required. Remember, the discharge from the elevator pump system must be indirect to the waste system. Hence the separator would be exterior of the elevator shaft, part of the waste system if provided.

Remember, the OPC is the **minimum** standard-of-care. If a design professional knows of a potentially hazardous situation, regardless of whether or not it is addressed by the code-in-force, they have a duty to act and proceed accordingly.

• We now come to a subject that can be a gas: **fuel supply to a boiler.** Just follow the discussion:

I'm working on a boiler replacement where the intent is to replace "like for like." I got an email from the boiler rep saying that the last three boiler installations he witnessed failed at startup and the

fix was to raise the gas pressure and add regulators within 10 feet of the boilers. He suggests I do this on my current project. He couldn't offer an explanation as to the cause of the failure and I'm not one to simply react to a "fix"; I'd rather find a solution and understand exactly what is happening.

I'm sure you've experienced this and have some insight into what is happening.

Without additional details, it isn't easy to offer any suggestions. So, we will have to address this in general terms. As we understand the situation, the new boiler (based on the boiler representative's comments) is somewhat sensitive to the gas pressure being delivered to it. However, there is no mention of the gas requirements for the boiler's proper operation. Not knowing the gas pressure available to this facility, can it be elevated from x to y? Is it a pressure problem or a volume problem? The newer boiler may have a specific gas flow volume requirement that the piping system is not sized to accommodate. Hence, the boiler representative suggests raising the gas pressure and then regulating that pressure back down near the boiler. This would elevate the volumetric amount of gas going to the boiler.

While the replacement may be "like for like," the designs may differ significantly. The newer controls may have tighter pressure requirements and a difference in volumetric gas demand.

We know of an emergency generator system that could not pass the load testing. It had the recommended gas pressure, but would drop off under load. It turned out that the utility had an overflow restrictor in the gas service. This restrictor caused the pressure to drop and limited the volume of available gas flow. Once the restrictor was removed, the system worked as intended.

Pressure and flow are interdependent. We suspect the issue is not so much the pressure as the delivered gas volume at that pressure.

You're right; I didn't give you much to go by. The manufacturer's literature of the new boilers calls for a max input of 2000 mbh each. There will be 4 boilers total. The rep could not say the new boilers need more than this for startup. We have a 6" oz pressure Schedule 40 metallic pipe from the regulator - meter assembly to the mechanical room which is about 100 feet from the meter. This pipe serves only the boilers in the mechanical room. I've sized using the chart - less than 2 psi - 150 feet equivalent length - and the 6" pipe has a capacity of 15,600 cfh. Which to my pea brain, should be sufficient even if the boilers require a

max input of 3,000 mbh. I will run the 6" header full size and branch off with a 3" pipe (2,610 cfh) to each boiler. This seems to work on paper but I'm wondering what, if anything I am missing? Would increasing the 3" pipe to 4" (5330 cfh) make any difference?

Thank you for the additional information. Generally, gas systems operate on inches of water column (wc) or psig. It is unusual, at least to me, to use ounces for gas pressure. Converting 6 oz to inches of wc would result in about 10.38 inches. While knowing the boilers' mbh is useful, you still need to look at the manufacturer's technical requirements for gas pressure. Do you have the spec sheet for the boiler? Typically, a commercial boiler requires 14 inches ± of wc. At 6 oz, the pressure is approximately 3.6 inches of water column below that 14-inch mark. Additionally, one must consider the expected pressure drop with the piping under load.

You indicated that a sizing chart for "less than two psi" was being used. You should use a chart for less than 1/2 psi, which should be utilized (1 psi is approximately equal to 28 inches of water column). We suspect that the 6-ounces is the available street pressure. If so, how could the sales representative expect you to increase the pressure and regulate down at the boiler? The pipe sizing does not seem unreasonable for an anticipated load of 8000 MBH with each boiler fed by a 3" branch from the 6" header. You indicate that the 6" header has a capacity of 15,600 cfh (assumed based on the chart) or 15,600,000 mbh (assuming 1000 but per cfh)—the 3" pipe capacity stated to be 2610 cfh or 2,610,000 btu's. The 3" might cut it close when the pressure drop is considered. The 4" at 5330 cfh or 5,330,000 btu's would be a better selection.

Depending on the manufacturer's technical requirements and the availability of a gas pressure above 6 ounces, the incoming pressure may be increased to 14 inches of water column. This would be considered a standard design, using the appropriate chart. The chart should indicate the anticipated pressure drop per hundred feet of equivalent piping length, which will help you evaluate the system better.

So, can the pressure be elevated to, say, 14 inches of water column, or are you limited to 6 ounces? What are the technical requirements of the boiler gas train? Depending on the technical specifications of the boiler gas train, we would not expect a pressure regulator to be needed in the beach piping to the boiler.

- Here is a Cooler concerned with means-and-methods when it comes to **balancing a domestic hot water system**. Have a look...

We've had some projects with poor balancing done by the installing contractors, so on the larger projects I want to tighten up the spec language to give it both teeth and direction on standards, but having a 3rd party TAB contractor do the work and provide a report.

Our HVAC team uses the AABC National Standards, Total System Balance, which has a domestic standard in it per the description or the latest version.

Does ASPE publish any kind of similar standard? Can you recommend one standard over the other?

We are not aware of a specific ASPE standard for balancing the domestic hot water return system. As you indicated, the AABC National Standard addresses balancing a system without regard to HVAC or domestic water, balancing is just that... balancing.

The biggest issue is that the design professional has to establish the design flow rate setting for each balance valve and label it on said valve. Additionally, the balancing must be accomplished when the domestic system is in the "Closed Loop" condition (meaning that no fixture flow can occur). As plumbing is a closed system when no fixture is operating but becomes an open system once any flow from a fixture occurs. In the open condition, the flow through the return system will fluctuate as the hydraulics within the system change.

We always used the AABC National Standard in our plumbing specification. The trick is finding a TAB contractor that actually does the balance work specified. And additionally selecting balance valves that can be balanced to low flows. We would generally not go below a flow of 1-gpm because of the accuracy issues for flows lower than that.

- We have a design professional with a cautionary tale **concerning allocating space for future equipment replacement**. Give this some thought...

I want to remind anyone that does central plant space planning allowance, especially for medical air and vacuum equipment that it is recommended to have a space concrete pad equal to the largest medical air or vacuum equipment for replacement purposes. You'll save a heartburn in the future when you come back in 15 - 20 years to replace the equipment. I've seen too many designers ignore

this requirement. Does anyone if this is required in any codes or manufacturer's installation requirement.

Please don't miss this item.

While it might be commendable to consider future heartburn, neither the manufacturer nor the codes typically consider it. In 15-20 years, the equipment configuration will likely have changed. So, unless you have a crystal ball, thinking something that may or may not happen seems like a waste of time and money.

To our knowledge, codes do not address the specifics of installation; they are a minimum standard concerning life safety issues. The manufacturer's installation instructions would address the current equipment, but not some future configuration.

We do need to convince the architect to locate the central plant/mechanical room in a way that allows for service and replacement. We are not holding our breath on this.

• What are the **sizing criteria for a supply loop for reverse osmosis water** serving humidifiers? That is the question posed by a Cooler:

Can anybody help me on process of determining the loop flow for an RO system serving humidifiers? I know the total demand (about 2 gpm) and manufacturer gave me a limit of 5 fps. I presume I need to have a loop flow that is something greater than that but doesn't break the bank for the pump. It is a loong loop (about 600 feet).

Generally speaking, the velocity in the polymer piping should be between 3 and 5 fps. Given that it is a polymer pipe material, it can handle higher velocities, but the manufacturers are concerned about "water hammer." The water hammer results from the "quick" closing of valves on the served equipment. So, if you exceed the above-suggested

velocity, appropriately restrain the piping system to handle the water hammer pressure wave.

Size your piping loop to handle the peak load of the humidifier demands at the desired velocity, allowing for the frictional pressure drop within the piping. This regular flow through the piping system would have a zero-humidifier demand. As humidifiers cycle on and off, the flow and velocity will vary depending on the number of humidifiers that draw RO water simultaneously.

• What protections come into play for a **backflow preventer placed immediately upstream of hose bibbs and emergency stations** installation? Have a look:

I am currently working on a project that involves potable water service to hose valves and emergency eyewash/shower stations. The design intent is to connect to the incoming service water downstream of a backflow preventer. Is there an additional BFP required on the piping to the hose valves and EESS?

If we understand you correctly, you are talking about the "containment" backflow preventer that protects and separates the public from the facility's potable water systems as the service enters the building. Downstream of that device, you have hose valves or hose bibbs, and at least one Emergency Eyewash Shower Station (EESS). As the hose valves or hose bibbs have threaded hose connections, you must provide a hose thread vacuum breaker at a minimum (this can be specified as integral with the hose bibb). As for the EESS, there would not be any submerged outlets, so backflow isolation would not be required.

Parting thought...

A mother's love for her child is like nothing else in the world. It knows no law, no pity, it dares all things and crushes down remorselessly all that stands in its path.

-Agatha Christie

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