

November 2003



Plumbing Design Class

Date: Tuesday, November 18, 2003

Time: 5:30 - 9:00 PM - Dinner and Plumbing Design Class

Cost: Members ASPE, ASSE: No Charge
Non-members: \$15.00

Location:
PMC Center
14801 W. 8 Mile Rd.

Topic: Commercial Laundry and Kitchen Requirements

Speaker: To be announced

Sponsors:
American Standard
Balfrey & Johnston
Dave Watson Associates

Please confirm your attendance through the web site at aspeemc.org e-mail to jll.dirksen@akalm.com or fax Jill Dirksen at 313 202-7388

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PRESIDENT'S REPORT

**Douglas W. Cryer, CSI CIPE/CPD
President**



Although I wasn't there to witness it myself, I was told that the September meeting was great and I wondered what I had missed.

Following the October 28th meeting, I was overwhelmed. I really mean it. I had no idea what had been planned until I arrived at the Board of Director's meeting and was given a script. A what? Script? I said, "Esteban, you mean I have to do something other than direct the board meeting, open the technical meeting and make announcements?" "Yes", he told me. I do what I'm told and the night began.

Beginning? No. Continuation. So many people responded to Jill. She said approximately 78 people had responded (she keeps name records of all respondents). Awesome response.

Beginning with my announcements, which went unnoticed (potential bowling night, combined ASHRAE/ASPE meeting) with all you cardboard cutouts (only kidding) just looking at me, like deer in headlights, the meeting turned into a very well presented, entertaining, informative and enjoyable night for all the people who participated. Really. The meeting included participation that involved teamwork, combined thinking and ultimately solutions to some handout study problems. Mr. Norm Hall and his R.L. Deppmann staff had prepared four different problems with very different applications and given data. Some problems even had missing or additional extraneous information that did not pertain to the calculation, just to throw you off. I also must thank our presenters for all the information that was distributed to our attendees through printed material or just having experienced their presentation in person.

That October experience transcended into a conversation I just had with our December speaker, who exclaimed "that the bar has been raised with ASPE presentations". I can't promise the theatrics or role playing at every

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American Society of Plumbing Engineers

Eastern Michigan Chapter 2003-04 Technical Classes

*Held monthly at the
(except where noted)*

PMC of Detroit
14801 West 8 Mile Road
Detroit, MI 48235

September 23, 2003
Sanitary and Storm Piping

October 28, 2003
Domestic Water Distribution, Boosters,
Treatment and Sizing

November 18, 2003

Commercial Laundry and Kitchen Requirements

December 16, 2003
Domestic Hot Water Generation Design and Sizing

January 10, 2004
First Saturday Technical Review Course (8 hours)

January 20, 2004
Professional Plumbing Practices, Estimating
and Test Taking Skills

Friday, February 20, 2004
ASPE/ASHRAE Meeting at Compuware Arena for
Snow Melting and Plumbing for the Ice Arena

March 23, 2004
New Michigan Plumbing Code Review
with Mr. Robert Konyndyk

April 3, 2004
Second Saturday Technical Review Course (8 hours)

April 27, 2004 - Architectural and Structural
Interferences, Coordination and
Value Engineering Panel Discussion

May 25, 2004
Open Microphone Night for Vendors and
BBQ @ PMC Detroit

Thank you to our sponsors...

A special thank you to the following manufacturers' representatives for sponsoring this month's meeting. Let them know you saw their names here.

*George Johnston
Balfrey & Johnston*

*Dave Watson
Dave Watson Associates, Inc.*

*Mark DuFord
American Standard*

Mark your calendars for December 16 for Domestic Hot Water Generation Design and Sizing



December



| Sun | Mon | Tue | Wed | Thu | Fri | Sat |
|-----|-----|-----|-----|-----|-----|-----|
| | 1 | 2 | 3 | 4 | 5 | 6 |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 |
| 28 | 29 | 30 | 31 | | | |

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VP TECH REPORT

Jill J. Dirksen
VP Technical

Can you say, "standing ovation"? Boy, I can and I would like to extend one to our actors and playwrights for their efforts to make October's class more than just a meeting. Did you ever think that learning could be so much fun? Hopefully each and every individual does now! The way the actors portrayed a day in the life of someone in the plumbing industry was very three-dimensional. Often times, there is more than one way to look at a job, system, design, and even beyond that to everyday life! Also, the decisions that have to be made for completion of the job tie everything together.

Just like many other types of projects, kitchen and laundry design have interviews with the owner, preliminary floor plans, equipment selection, coordination, and specifications. Something that would not be applicable to all plumbing applications would be a meeting with the Health Department to address their standards or compliance therewith. It is important to iron these things out in advance, for they could drastically change your layout and costs later on! Take for example a hotel owner may want something special, such as a display type kitchen. Or an owner may request a fully functional bar that had a round configuration in the middle of an open space. These types of layouts can and do prove to be difficult layouts with which to deal. Three compartment sinks, food waste grinders, soft drink dispensing systems, ice makers, grease interceptors, and many other specialized pieces of equipment are not typically used in a standard job, thus further increasing the knowledge for such things as frequency of use and how each piece functions to get the job done.

I have just returned from San Antonio, TX for the Technical Symposium. One of the sessions was related to the topic of fats, oils, and greases. This is also known as "FOG". The session covered the biofilms that grow in piping, ways to dispose of greases (brown grease), and improvements that have occurred due to technical research and advancements in the grease industry. The reason I mention this is because the technology we as a whole are creating is transforming grease into a different animal. Not only are we changing grease into a product that enhances the flavor and texture of our foods, but we are making it heavier than water! Now what is that going to do to your grease interceptor? Just a little food for thought! Really, no pun intended.

Something else to chew on... heh heh heh... would be ozone and its application in a laundry facility. Okay, so you may not chew on that, but do take note that this may be a way that an owner would like to see the system designed and installed. It does have its advantages such as usage of lower water tem-

peratures for laundry facilities, less corrosive to the equipment, and softens wash water. Just look at one of these aspects, such as lower water temperatures. This can be a large savings in water heating systems and allow linens to last longer. I invite you to join us for the November meeting to look at Kitchen and Laundry facilities. Make sure you bring your questions!

The RSVP's came in handy for the last meeting. As you can tell, we had a tremendous turnout. I was able to make a confident confirmation with our wonderful caterer. If you are like me, then you like getting your dinner. I wanted to make sure that everyone has the opportunity to get something, too. So keep the RSVP's coming! Again, I am going to **THANK** everyone for the responses! So far, we as a chapter are proving that we can grow our attendance from meeting to meeting. Let's keep this up! It is great to see everyone and meet new people.

If you plan to attend the meeting, I may be emailed at Jill.Dirksen@akahn.com. Or if you would rather fax me, please do so at (313) 202-7388. It does help out tremendously with the preparations for dinner. Again, if we do not have a reservation in place, there will be a small fee. This is due to the food that gets wasted when attendance is unable to be determined. We don't want to run out of food for anyone either! So please make sure to confirm with me you will be there. I anticipate seeing and meeting many more this month!

Night at the Races

Friday, March 19, 2004



Northville Downs

President's Report

continued from pg 1

meeting, but I know that our December meeting on Hot Water Distribution will be absolutely the most fun anyone has ever had at a, usually dry, ASPE technical meeting.

I must comment on a serious mistake that I made at our October meeting by not encouraging the attendees to visit the tabletops of our sponsors and thanking our sponsors for their never-ending support. So, better late than never, I want to personally thank K.L. McCoy, Quality Water & Air, R.L. Deppmann, V.E. Sales and Viega NA (my partner, Dann for carrying my load).

Another recent ASPE happening was the Technical Symposium in San Antonio, TX. Our Vice President Technical, Jill Dirksen, was there to attend the ASPE Domestic Hot Water Committee meetings. I hope she'll share her adventures (not including the airlines SNAFU) at the show and highlight the classes she attended in an upcoming newsletter article.

This month's topic for November 18th (yes, that soon) is going to be Laundry and Kitchen Requirements for our ASPE Hotel example application. At the time of this writing and printing, Jill and I are preparing the curriculum criteria and speaker selection. Ironically, in this city of hotels and restaurants it is very difficult to find presenters to lend their experience in design and construction to an audience of engineers, contractors, students and inspectors. I can assure you however, that we will have an informative meeting from our local pool of knowledgeable professionals who have done many

quality projects that we probably have dined or stayed at. Please refer to Jill's column for additional information on the November meeting.

Finally, I also want to commend our Vice President of Education, Bill Grayzar for his excellent monthly columns. All the formulas and example questions that Bill is covering and illustrating in his articles are applicable to daily work projects for pipe sizing and understanding various elementary principles of plumbing engineering in preparation for the CPD exam in April.

The Holidays are approaching fast and our meetings November and December meetings are being moved to accommodate Thanksgiving and Christmas, so time is short this month and so is this commentary, which from this long-winded writer is a welcome change.

See all of you very soon.

Doug

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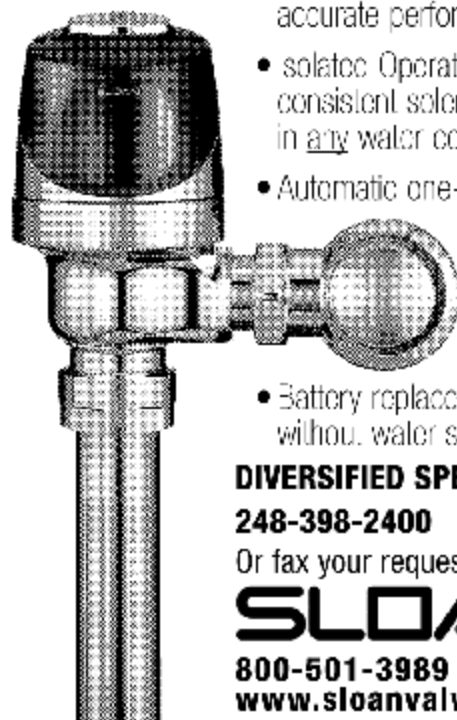
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Professor Plumber sez...

**Bill Grayzar, CPD
VP Education**

Answers to last month's questions:

Laminar flow is: ("**B**")-Smooth flow parallel to the pipe wall.

Turbulent flow is: ("**D**")-Flow with a Reynolds number in excess of 4000.

Transitional flow is: ("**C**")-Flow with a Reynolds number generally between 2100 and 4000.

The topic for the November ASPE meeting is Commercial Laundry and Kitchen Requirements. This month I would like to discuss backflow prevention in brief. Backflow prevention is required for numerous applications in both kitchens and laundries.

As backflow prevention relates to the CIPE/CPD Exam, you will need to understand how contamination or pollution of a potable water supply can occur and the appropriate preventative measures to protect against it.

Backflow Prevention:

Backflow prevention is the protection of the general public's potable water from contamination and pollution. A "contaminant" is a toxic substance that could affect the health and life of the consumer. A "pollutant" is a nontoxic substance that does not represent an actual health hazard, but impairs the water quality with respect to odor, taste, aesthetics, or other characteristics.

Contamination or pollution of the general public potable water supply can occur through cross-connections, back-siphonage, back pressure, or back-flow. It is very important to understand the dangers posed by each. With an understanding of the danger posed, the proper equipment and installation can be provided to safeguard the quality of the general public's potable water.

A "cross connection" is a piping arrangement that has a physical connection or the probability and possibility of a connection between two separate systems, one of which contains potable water, and the other of which contains contaminated or polluted fluids, gases, or substances.

"Back-siphonage" results from a negative or reduced pressure in the potable water supply. Some common causes of back-siphonage are undersized piping, water line breaks or repairs that lower the pressure upstream from the service point, reduced pressure on the suction side booster pumps, and lowered pressure in the city mains due to high flow rates such as during times of fire fighting or flushing of the main line.

"Back pressure" occurs when the potable system is connected to a non-potable system in which the pressure of the non-potable system exceeds the potable system.

"Backflow" is the flow of water or other fluid, mixture or substance into the potable water system from any source or sources other than the intended source. It can be caused by back-pressure or back-siphonage.

The correct application of a preventative device required to protect the potable water supply is based upon the correct assessment of the degree of hazard and whether back-pressure and /or back-siphonage will occur. There are three degrees of hazard: severe, moderate, and minor. A severe degree of hazard exists where a cross connection or probable cross connection involves any substance in sufficient concentration to cause death or illness. A moderate degree of hazard exists where a cross connection or probable cross connection involves any substance that has a low probability of becoming a severe hazard or would become a nuisance if introduced into the potable water systems. A minor degree of hazard is one where an existing connection or the high probability of a connection being made between the potable water system and any pipe, fixture, tank or receptacle intended for carrying or holding potable water has a low probability of becoming contaminated.

Professor Plumber sez...

continued from previous page.

Backflow prevention devices:

There are six types of piping and mechanical devices you should know for backflow prevention: air gap, barometric loop, atmospheric vacuum breaker, pressure vacuum breaker, double check valve, and reduced pressure backflow device.

An "air gap" is the unobstructed vertical distance through free atmosphere between the lowest opening in any pipe or faucet conveying potable water to a tank, fixture, receptacle, or other device and the flood rim of the receiving vessel. Air gaps are suitable for all hazards. A well-designed and properly maintained air gap is the most positive means available for protection against backflow due to back-pressure and/or back-siphonage.

A "barometric loop" is a piping arrangement designed based upon the principle that atmospheric pressure cannot raise a column of water more than approximately 34 feet, even when it is subjected to a perfect vacuum. Constructing a loop in the potable water supply line that rises 35 feet or more above the highest point in the non-potable system forms the piping arrangement. A barometric loop is suitable for minor hazards and is effective against back-siphonage only, and should never be used where there is a possibility of back pressure. The barometric loop is rarely used because of space limitations.

The "atmospheric vacuum breaker" is the most commonly used, but most misunderstood of the available types of devices. It is a relatively simple device that uses a disc-float assembly to seal off the atmospheric vent area when water is flowing. It is applicable only for intermittent service, where it will be under pressure for only short periods of time. The atmospheric vacuum breaker is suitable for minor hazards and is designed to prevent back-siphonage only; it is not effective at all against back-pressure of backflow.

A "pressure vacuum breaker" is a device consisting of one or two positive seating check valves and an internally spring-loaded, disc float assembly installed as a unit between two shut-off valves and

fitted with properly located check valves.

Applications for the pressure vacuum breaker are similar to those for the atmospheric type devices except that they are suitable for minor to moderate hazards and can be used under conditions of continuous pressure.

A "double check valve" assembly consists of two independently acting, internally loaded check valves. It is effective against backflow caused by either back-pressure or back-siphonage. It is suitable for minor to moderate hazards and is applicable where there is a low degree of hazard, where the effect will be only a change in the color or taste of the potable water.

A "reduced-pressure, backflow-prevention device" is an assembly consisting of two independently acting, internally loaded check valves separated by a reduced-pressure zone. A differential pressure relief valve is located within the reduced pressure zone to maintain the reduced pressure and to discharge water to the atmosphere in the event of a malfunction within the device. This device is suitable for moderate to severe hazards and its typical applications include those where the potable water source is considered to be toxic and capable of causing illness or death.

Listed below are the backflow and back-siphonage devices in the order from most to least effective in protecting the potable water supply:

- Air Gap
- Reduced-pressure device
- Double check valve assembly
- Atmospheric vacuum breaker
- Pressure vacuum breaker
- Barometric loop

Have a wonderful Thanksgiving and look for more calculations in the December ASPE newsletter regarding Domestic Hot Water Generation Design and Sizing.

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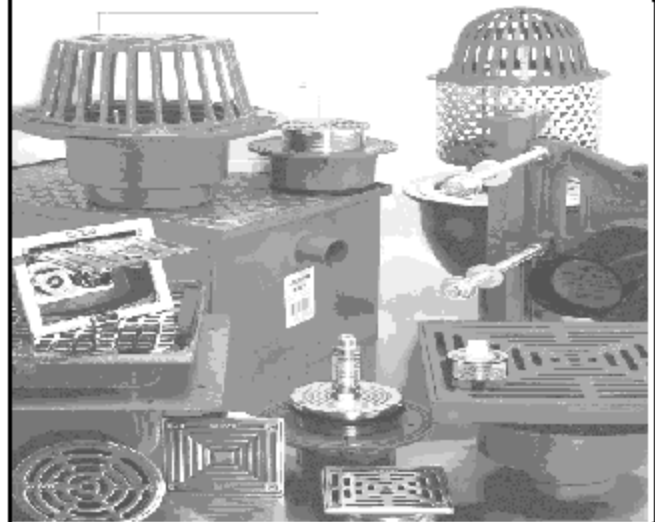
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Powers Process Controls - pressure equalizing & thermostatic blending valves, fotopanel, hydropanel, electronic plumbing, self-actuated temperature regulators, pneumatic temperature controllers, **Haws Drinking Faucet Company** - emergency showers & eye wash fountains, drinking fountains & water coolers, **Coyne-Delany** - flush valves, sensor plumbing, **J.D. Gould** - electric solenoid valves, bronze & stainless steel

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A.O. Smith-water heaters, boilers, commercial & residential, **American Plumber**-water filtration products, **Bemis/Church**-plastic, wood and medic-aid, residential & commercial toilet seats, **Boatz Plumbingware**-steel lavs & tubs, **Howell Metal**-copper tubing, **Jones Stephens Corp**-plumbing specialties, **Little Giant Pump Co.**-sump, sewage & condensate, **Mansfield Plumbing**-plumbing products, china/steel/brass, **Plastic Trends**-PVC SDR 35 gasketed 4"-24", PVC SDR26 heavy wall gasketed 4"-18", PVC SDR 35 solvent weld 4"-24", styrene solvent weld 3"-6", PVC/DWV solvent weld 8"-24", **Phunco**-specialty products, **Royal Quickstop**-fire protection systems, **Swirl-way**-acrylic whirl-pool tubs, **Vandem**-no hub cast iron soil pipe and fittings

Aero Mfg-stainless steel sinks, **Bradley Corp.**-washfountains, emergency, patient care & security fixtures, **Central Brass**-faucets & plumbing brass, **Chronomite**-point of use water heaters, **Dwyer Kitchens**-compact kitchens, **Halsey Taylor**-electric water coolers & drinking fountains, **Leonard**-shower & water mixing valves, thermostatic & pressure balanced, **Mc Guire**-brass fittings, **Santana**-toilet & shower compartments, **Truebro**-trap & supply covers

Armstrong International-"Flo-Rite Temp" & "Flo-Direct" instantaneous water heaters, thermostatic mixing valves, air vents, drainers, radiator valves, pressure reducing valves, heating & cooling coils, hose stations, steam traps, steam specialties, condensate pumps, steam system optimization services, **Humidifiers**-water spray-fogging types, steam-electronic & gas fired, steam to steam, **Check-All Valve**-specialty spring-loaded check valves, **Circle S Products**-steam & air separators, flash tanks, **Crane Environmental**-deaerators, high purity water systems, membrane based filtration, reverse osmosis (RO), softeners & filters, **Hydro-Thermal**-direct injection steam heaters, **Kumhle**-safety & relief valves, **Lattner Mfg.**-gas/electric steam & hot water boilers, **Marlo Coil**-heating & cooling coils, **Sentry Equipment Co.**-plate & frame, brazed heat exchangers, **Valleygroup**-ceramic insulation & corrosion protection

Nibco-copper & plastic fittings, plumbing valves, pressure rated valves, industrial plastic fittings & valves

Allrich-steel tube, oil & gas-fired boilers. Low pressure steam, hydronic and volume hot water heating systems, **Autotrol**-water purification by deionization. Capacities up to 20,000 gallons per day, **Hobby Valve Co.**-low/standard range thermostatic mixing valves 1/2" to 4", **Lawler Valve Co.**-low/standard range thermostatic hot water mixing valves, emergency shower valves, temperature and pressure balanced mixing valves 1/2" to 2", **Rappalt**-copper-fin hydronic and domestic hot water supply boilers, booster heaters & storage tanks. Sizes from 30 MBTU to 4,000 MBTU, **Rund Manufacturing**-commercial & residential gas-fired and electric hot water heaters & booster heaters, **T Haw-Pak**-cutom in-slab & underfloor heating designs & materials for radiant floor heating, snow melting and de-icing systems, **Valley**-commercial water softeners with metered & non-metered regeneration control, pre-wired and pre-plumbed multi-tank systems

A.C.Tech-variable speed drives, **Advance Thermal**-removable insulation & acoustical covers, **ITT Bell & Gossett**-hydronic specialties, centrifugal pumps, heat exchangers, heat transfer plgs, pressure booster, domestic water heating, variable speed systems, vertical turbine, submersible pumps, **Cemline**-ASME tanks, hot water storage, packaged water heaters, stone steel lined tanks, replacement tube bundles, unfired steam generators, **ITT Domestic Pump**-condensate return, vacuum & pressure powered pumps, boiler feed systems, **Dow Heat Transfer Fluids**-Dow Therm SR-1, **Dow Frost**, **Dri-Steam**-steam injection, gas to steam, steam to steam, electric steam, evaporative humidifiers, ultrasonic fog humidifiers, **Griswold Controls**-coil hook-up kits, constant flow limiting valves, filter, solids separators & filter systems, **Highland Tank**-oil & water separators, **ITT Hoffman Specialties**-steam traps & specialties, condensate return pumps, pressure regulating valves, **ITT McDonnell & Miller**-boiler safety controls, level controls, flow switches, **Metraflex**-flexible pump connectors, expansion joints & guides, non-slam check valves, ball & butterfly valves, **MP Pumps**-self priming pumps, engine driven pumps, **Peterson Equipment**-"Petes" pressure/temperature test plgs, **Preso**-annular/venturi flow meters, **Vertiflo**-pedestal mount sump pumps, **Vibration Eliminator**-vibration control bases, spring isolators, **Watts Radiant**-radiant floor heating systems, snow melting systems, **Welsler Instruments**-pressure gauges, thermometers, recorders **Wessels**-ASME storage tanks, bladder tanks, glass lined storage tanks, glycol fill systems

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Alsons-shower heads, hands showers & accessories, **Campbell Mfg.**-water system & filtration products, **CTS**-copper flange adapters, **Flint & Walling**-well pumps, jet pumps, water conditioning, **Laco Industries**-fluxes, sealants, penetrants, caulk, putty, **PHD Mfg.**-pipe hangers, strut & accessories, **Raychem**-heat tracing products, pipe freeze protection, **Seminole**-pipe nipples, couplings, steel fittings, **Stadler-Viega** - in-floor radiant heat, potable water pex, **Topp Industries**-fiberglass and poly basins, **Viessmann Mfg.**-boilers, controls & energy management, **Ward Mfg.**-malleable & cast iron fittings, wardflex, **Waterless**-waterless urinals, **Zoeller Pump Co.**-sump, sewage & wastewater pumps & accessories

Anaco-no hub couplings, transition couplings, SV gaskets, **Aquarius** - acrylic & gel coat shower/tub-shower surrounds, **Chicago Faucet**-residential, hospital, industrial, commercial, lab & decorative faucets, **Eemax**-electric tankless water heaters, **Geberit**-commercial product division, sensor flush valves & faucets, pressure assisted toilet systems, metering faucets, **Guardian Equipment**-emergency eye wash & shower equipment, **Husky** - heavy duty & mid-range no hub couplings, **Intersan Mfg.**-stainless steel and polyresin washfountains, **Orion Fittings**-corrosion resistant piping systems, high purity water & dilution tanks, **Stern-Williams Co.**-terrazzo mop sinks & shower floors, drinking fountains, **Tyler Pipe**-Tyler soil pipe & accessories, Rufwall systems

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AC Fire Pump Systems - horizontal split case, end suction & in-line fire pumps, ul & fm packaged systems including skids & pre-fabricated houses, **Floway Pumps** - vertical turbine fire pumps, **Cla-Val** - fire control valves, ul & fm, **Guardian** - Guardian fire equipment, hose equipment and brass, **Xerxes** - underground water storage tanks, **Modern** - pressure & steel water storage tanks.
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Apollo - ball valves, butterfly valves, pneumatic & electric actuators, mixing valves, pipeline strainers, **Colonial**-PCV/CPVC/PVDF/PP ball valves, PVC butterfly valves, PVC/CPVC unions and PVC/CPVC strainers, **Conbraco**-backflow preventers, safety relief valves, check valves, plumbing and heating products, **IPS**-plastic pipe cement, primers and cleaners, test plugs, **Josam**-roof & floor drains, cleanouts, carriers, grease traps, oil interceptors, trench drains, Blucher SS drainage system, **Lasco**-Sch 40 & Sch 80 PVC & CPVC and PVC DWW fittings, **Murray**-hose clamps, **Oil Creels**-polyethylene piping systems, **RP&C Valve**-800 & 1500 class forged steel gate, globe & check valves, 1690 & 2690 class y-pattern globe & check valves, needle valves, boiler blowdown valves, **Safe-T-Cover**-freeze & vandal protective enclosures for backflow preventers, **Shaw Valve**-150 & 300 class high performance butterfly valves, **Sloan Flushmate**-pressure assist flushometer tanks, **Speelman**-emergency eye wash & showers, mixing valves, sensor faucets, metering faucets, lav faucets, shower heads, pressure balanced shower valves, **Sunroc**-water coolers & fountains, **Techno**-check valves-wafer, swing, elastomer hinged, plastic & metal construction, **Watson McDaniel**-steam traps, regulators, pressure motive pumps, steam separators, exhaust heads, clean steam products

Watts Regulator Co. -regulators, control valves, relief valves, backflow preventers, ball valves, gate valves, butterfly valves, hydronic valves, tempering valves and other plumbing specialties

ASPE NEWS

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