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July 2011

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ALSO INSIDE:

- Test driving Energy-saving Circulators
- Mechanical Piping Systems
- Specifying Today's Drinking Water Solutions
- Delany Products: Setting Sights High

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U.S. Fire Administration Report on School Fires,
August 2007, Vol 8, Issue 1 findings.

*Average per year

Laws, Codes & Standards Compliance

- ADA 4.19.4, ICC/ANSI A117.1, ADAAG 606.5
- International Building Code (IBC) Chapter 8
- General Services Administration (GSA) P-100
- 2009 US Army Corps of Engineers/Military Facilities Specification (ASTM E84)
- IAPMO PS94 2008 Sec. 3.5 ASTM E84 25/450 Testing

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Volume 39, Number 7, July 2011

FEATURES



Feeling Flush

Building owners today are demanding better flush valve performance and water conserving flush volumes. **Story on page 90**



Connecticut Wholesaler Test-drives New Energy-saving Circulator

New products with breakthrough technologies can carry the promise of increased sales and profits, as well as, perhaps, greater jobsite productivity or application efficiency. **Story on page 94**



Mechanical Piping Systems: Keeping Your Structure Safe and Maintainable

Maintenance concerns are easily addressed in piping systems that have been installed with grooved mechanical pipe joining products. **Story on page 98**



Specifying Today's Drinking Water Solutions

The marketplace for drinking water solutions in commercial applications has evolved significantly in the past few years. **Story on page 102**



Delany Products: Setting Sights High

Delany Products is a company that takes pride in producing hand-crafted valves, and is second to none in quality, service, dependability and delivery. **Story on page 106**

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Images courtesy of Zurn

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Editor's Letter

John Mesenbrink, editorial director
editor@plumbingengineer.com

The green police

Last month, I talked about how to sell green and energy efficiency. And on the business side, there comes a time when users have decisions to make regarding energy efficiency: Is efficiency too tough to sell? How do I present a palatable energy efficient solution to my customers? What are the up-front costs? What is the return on investment (ROI)?

As specifiers of this equipment, engineers need to be aware of products labeled "green," when, in fact, they aren't as advertised. I believe that there is, to a certain extent, a case of "greenwashing" — the deceptive use of green PR or green marketing in order to promote a misleading perception that a company's policies or products are environmentally friendly — going on in multiple industries.

And I'm sure you'll hear the word "green" again during the upcoming 2012 presidential campaign. What exactly is green? What are its measurables? I think a term like energy efficiency will be accepted more because products can be measured — Btus, AFUE, water consumption, etc.

NSF International, an independent organization committed to protecting and improving human health and the environment, offers two new environmental

I believe that there is, to a certain extent, a case of 'greenwashing' going on in multiple industries... I'm sure you'll hear the word 'green' again during the upcoming 2012 presidential campaign.

programs to meet the growing demand for science-based support to verify environmental product claims. NSF can now provide Product Category Rule (PCR) development and Environmental Product

Declaration (EPD) verification across multiple product groups and industries.

Based on international environmental management guidelines (ISO 14025), Product Category Rules define how to conduct a life cycle assessment for a particular product group and what to include in the resulting report. A life cycle assessment measures inputs, outputs and environmental impacts of a product across its lifespan, from cradle to grave. The Environmental Product Declaration is the third-party-verified report that functions like a nutrition label to explain the data generated from a life cycle assessment.

Adopted by European countries and growing in recognition in the U.S., PCRs and EPDs provide an international standard of communication to compare and report a product's environmental impact throughout its entire life cycle. This is a benefit for organizations that manufacture and sell products internationally.

NSF's National Center for Sustainability Standards has already begun working with several flooring trade associations on the first North American PCR for resilient, carpet, laminate, tile, and wood flooring products. ■

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Editorial, Advertising, Production, Accounting and Administrative Offices

2165 Shermer Rd., Suite A
Northbrook, IL 60062
(847) 564-1127 • Fax: (847) 564-1264
E-mail: info@tmbpublishing.com

Owner

Tom M. Brown

Editorial & Production Staff

John Mesenbrink, *Editorial Director*
Marilyn Cunningham, *Associate Editor*
Cate C. Brown, *Production Manager*
Mark Bruno, *Art Director/Prepress*

Contributors

Timothy Allinson, P.E., *Designer's Guide*
Sam Dannaway, *Fire Protection*
Ron George, CPD, *Code Classroom*
John Abularrage, *Hydronics*
Bob "Hot Rod" Rohr, *Green Systems*
Bristol Stickney, *Solar Solutions*

Sales Staff

Brad Burnside, Publisher
East
2165 Shermer Rd, Suite A, Northbrook,
IL 60062 Phone: 847/564-1127
Cell: 224/659-3984
Fax: 847/564-1264
E-mail: brad@tmbpublishing.com

David Schulte
Midwest, South and E. Canada
2165 Shermer Rd, Suite A, Northbrook,
IL 60062 Phone: 847/564-1127
Cell: 847/420-4686
Fax: 847/564-1264
E-mail: dave@tmbpublishing.com

Diane Spangler
West, Texas and W. Canada
PO Box 9802, Fountain Valley, CA
92728 Phone: 714/839-6700
Fax: 714/839-6777
E-mail: diane@tmbpublishing.com

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ICARHMA issues policy statement on refrigerants and responsible use

ARLINGTON, VA. — In response to global policy discussions about refrigerants, their responsible use and their potential environmental impact, the International Council of Air Conditioning, Refrigeration and Heating Manufacturers' Associations (ICARHMA) has published a policy statement intended to provide a framework for such discussions going forward. The statement has two primary points: choosing the appropriate refrigerant and using refrigerants responsibly.

ICARHMA members stressed the importance of selecting the appropriate refrigerant based on all criteria, including cost effectiveness in the intended application, energy efficiency, global warming potential and safety. In addition, to fully understand the total global warming potential of a particular refrigerant, a standardized Life Cycle Climate Performance (LCCP) calculation or Total Equivalent Warming Impact (TEWI)

must be used in any evaluation.

The containment and efficient use of refrigerants is another important element that should be applied in decisions involving refrigerants. The policy statement highlights a number of principles to consider in its Responsible Use of Refrigerants section.

The members of ICARHMA are committed to providing conditioned warm and cool air, hot water and refrigeration to improve the world's quality of life, health and productivity. The Policy Statement on Refrigerants and Responsible Use is intended to provide a framework to allow member associations and the companies they represent to enhance their environmental stewardship, while at the same time continuing to compete effectively in the global marketplace.

The full text of the policy statement can be found at www.icarhma.org.

CDPH program accepts ASSE certification

WESTLAKE, OHIO — The California Department of Public Health's (CDPH) Division of Drinking Water and Environmental Management's Drinking Water Program has found the American Society of Sanitary Engineering's (ASSE) Backflow Prevention Assembly Tester Certification (ASSE 5110) acceptable for individuals who perform testing on backflow prevention assemblies in the State of California.

The CDPH's Drinking Water Program is responsible for administering California's Safe Drinking Water Act, regulating public drinking water systems and adopting and enforcing regulations. The CDPH has expressed appreciation of the efforts ASSE has made in providing education to those interested in cross-connection control within the drinking water industry.

The California Health and Safety Code requires any person who owns a public water system to ensure that their system will not be subject to backflow incidents. Title 17 of California's Code of Regulations requires backflow preventers to be tested by "persons who have demonstrated their competency in testing these devices to the water supplier or health agency." ASSE certified backflow testers, who are trained in ASSE-approved facilities in the State of California, meet the criteria set forth by the CDPH's Drinking Water Program and have demonstrated their competency to the department.

Taco breaks ground on new building project

CRANSTON, R.I. — Taco broke ground recently on a major building project designed to secure its future in the Ocean State. Company president and CEO John Hazen White Jr. was joined by family members, representatives from the

state's political leadership, guests and employees of Taco for the morning event.

The centerpiece of the \$18 million project will be the new Taco Innovation & Development Center, consisting of a two-story 24,037-square-foot addition to the current building, a former trolley barn built in 1904. The Innovation & Development Center will be a state-of-the-art learning and training environment, complete with new classroom spaces, conference rooms, a business center and functional labs for testing and teaching. The Center will utilize, display and provide a hands-on learn-



ing environment for the best equipment and systems that today's HVAC industry offers for comfort, efficiency and sustainability. The HVAC products and systems will be visible throughout the entire facility, forming "Living Laboratories" that allow for close-up viewing, hands-on learning and teaching.

Taco's reception area, employee cafeteria and office areas on two floors, encompassing more than 24,000 sq. ft. of interior space within the existing building, will undergo extensive renovation, floor to ceiling, advancing the comfort, functionality and productivity of those

More Industry News on page 10

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areas. There will be new offices, work stations, meeting rooms and open areas illuminated by energy efficient lighting, natural light and the very best in indoor comfort.

The LEED project, slated for completion during the fall of 2012, will provide the space the company needs to grow and to remain competitive while remaining in Rhode Island, where it has been operating since 1942. The project, which will extend through five phases of design and construction, will employ 36 subcontracting employers and provide almost 200 jobs for the local economy.

Liberty Pumps holds national sales meeting

BERGEN, N.Y. — Liberty Pumps recently held its national sales meeting at the Opryland Hotel in Nashville. The meeting was attended by more than 100 salespeople and included representative agencies from both the U.S. and Canada. The meeting highlighted new products, provided hands-on training demonstrations and an awards ceremony recognizing top agencies for their outstanding performance in 2010. The final day concluded with a social event at the Grand Ole Opry featuring the Charlie Daniels Band as the closing act.

Creatherm to sponsor IZOD IndyCar series driver Wade Cunningham

INDIANAPOLIS — Creatherm and Sam Schmidt Motorsports (SSM) have reached a three-race sponsorship agreement to field rookie driver Wade Cunningham.

Cunningham, one of the most successful drivers in Firestone Indy Lights (FIL) history, made his IZOD IndyCar Series debut June 11 at Texas Motor Speedway in Fort Worth, driving a



Dallara/Honda/Firestone car owned by Sam Schmidt Motorsports (SSM) in the Twin Texas 275s.

Franklin plant earns A. O. Smith award

MILWAUKEE, WIS. — The daily focus on conserving natural resources, along with improving process efficiency and reducing costs at the APCOM Inc., Franklin plant were recently recognized at a special ceremony at the facility.

“It is my pleasure to be here today to present the Franklin team with the 2011 Chairman’s Green Star Award,” said Paul Jones, A. O. Smith Corporation chairman and chief executive officer. “This award is presented to the facility that demonstrates year-over-year improvement in energy consumption and water usage.

“We created this award to highlight the strategic importance of conserving critical resources — most notably nat-



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More Industry News on page 14

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- And Much More!**



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The APCOM Inc., plant in Franklin, Tenn., recently installed a new water treatment system that will save an estimated 860,000 gallons of water per year. The project, along with a number of other energy-saving initiatives, enabled the Franklin plant to earn the 2011 A. O. Smith Chairman's Green Star Award.

being a good corporate citizen, as well as a good steward of the environment.”

Jones explained that data for 2010 was collected on 32 A. O. Smith plants worldwide, measuring their annual use of natural gas, electricity and water. As part of the process, the plant's annual production volume is factored in to help

overcome discrepancies related to facility size or significant fluctuations in production. That also allows for the evaluation of the facility, based on its unique individual resource usage.

17,000 people attend 1,200 workshops in 24 hours about six values

OLATHE, KAN. — The world's largest manufacturer of pumps and pump technology, Danish-based Grundfos, has, ever since its start in 1945, been focused on values, which are at the core of the Grundfos identity and make it something special.

The “old” value statements were written more than ten years ago, when Grundfos was a smaller, less globalized company. A new generation has entered the company, seeing it with new eyes, and the value statements needed to be brought up to date to make sure that they are still relevant. Through dialogue and the involvement of staff and leaders from various corners of the organization, the following six values were rephrased: sustainable, open and trustworthy, focused on people, independent, partnership and relentlessly ambitious.

A major milestone in the value roll-out was a 24-hour event on June 20, when all 17,000 Grundfos employees

More Industry News on page 16



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Rev 02/10

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Model 7620

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Model 7360B-7460B

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Model 7656WCSM

Surface-mount unit features the AXION MSR™ eye/face wash. Stainless steel deep-drawn cabinet, stainless steel surface-mount support enclosure, and polished chrome-plated brass pull-down valve with easy access in-line strainer.



Model SP6555

AXION MSR™ stainless steel eye/face wash head with inverted directional flow, laminar flow and integral flow control. The eyewash streams provide a smooth, even flow for enhanced comfort, stability and effectiveness.

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attended workshops to discuss what the values mean and how they are used. During the workshops, employees had the opportunity to express their version of the values via text messages, photos and video uploads on a global value website.

The value day took place in all companies and locations within the Grundfos Group.

For info, contact Dan Prangsgaard, head of public affairs and public relations, at dprangsgaard@grundfos.com.

IAPMO contributes to report presented to President Obama

WASHINGTON — The National Institute on Building Sciences, with critical input from the International Association of Plumbing and Mechanical Officials (IAPMO), has released its 2010 Consultative Council Report, a collection of findings and recommendations on high-level issues impacting the building community, presented to President Obama and subsequently delivered by the president to Congress.

The Consultative Council established topical committees consisting of representatives from many industry organizations to prepare a report on each of the following issues: defining high-performance and common metrics;

energy and water efficiency; codes and standards adoption and enforcement; sustainability; education and training and existing buildings.

IAPMO director of special programs Pete DeMarco served as facilitator on the topical committee examining water and energy efficiency. The United Association's Larry Bulman facilitated the committee on education and training. The water and energy efficiency topical committee presented nine findings and recommendations, including the following:

- The federal government should redouble its leadership efforts and urgently work with construction community stakeholders to develop widely acceptable energy and water efficiency metrics to be deployed in developing future codes, standards and efficiency programs.

- Investment in energy and water-related infrastructure is desperately needed. Programs aimed at repairing and replacing aging infrastructure would vastly improve efficiencies and create jobs.

- The president and Congress should prioritize, coordinate and support development of a national water strategy.

- Congress and the administration should continue to fund successful labeling incentive programs such as Energy Star™ and WaterSense™ and support retrofit incentive programs aimed at removing inefficient consumer appliances and plumbing fixtures from the marketplace.

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Allied Technical Services announces partnership with Acorn Engineering Company

TORONTO — Allied Technical Services (ATS) announced Acorn Engineering Company — a leading manufacturer of commercial, architectural, industrial, correctional, insti-

tutional and residential plumbing products — as an exclusive sponsor for inclusion into its ATS Specifications website.

Designers can access the user-

friendly Plumbing Specification Information System via the ATS website, www.atsspec.net, where they can compile and review various product combination options complete with images, written specifications, and 3D BIM design details; while maintaining a customized vision throughout their design, documentation and specification process.

Acorn Engineering Company manufactures stainless steel plumbing products and systems for institutional and commercial markets. These include schools, stadiums, hospitals, correctional facilities, and hotels.

Acorn Engineering Company's brands and product categories that can be now found on the ATS Spec website include:

- Meridian: Hi/Lo units — wash-basins, toilets and urinals that meet the demands of water conservation. Typical installations include stadium washrooms and other commercial applications.

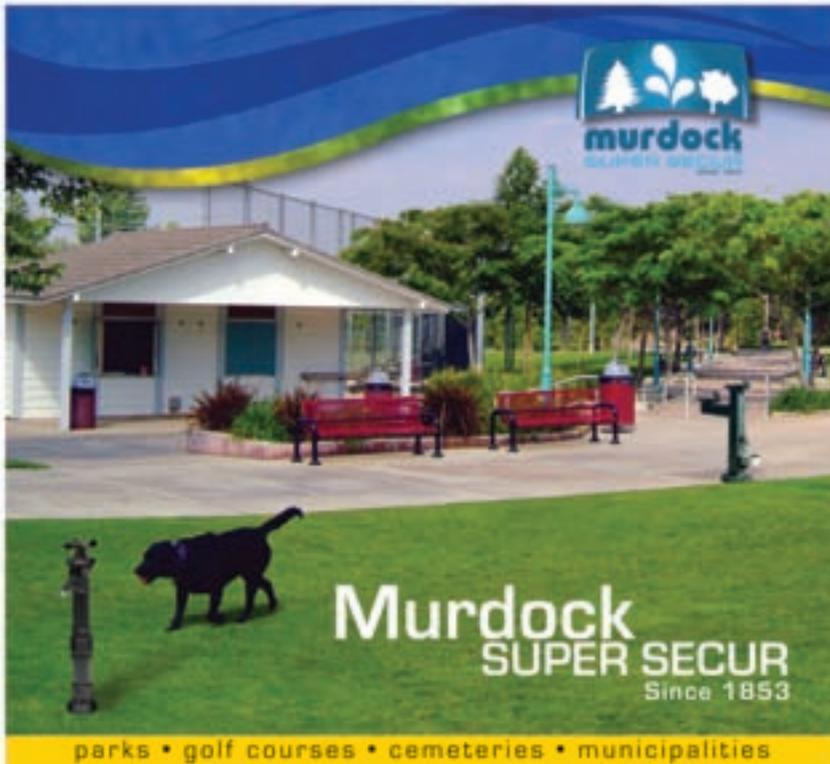
- Care-Ware: Stations consisting of a concealed toilet, large sink and counter area, bedpan washer, dialysis box, and storage areas in one cabinet. Best suited for bedside locations in critical care facilities.

- Hose and Supply Boxes: Vandal resistant and requires minimal maintenance. Typical applications are interior or exterior non-freeze areas, schools, restaurants, retail stores, commercial buildings, and manufacturing buildings.

- Penal-Ware: High security and vandal-resistant fixtures for correctional facilities.

Grundfos awarded Supplier of the Year by Lochinvar for 2010

LEBANON, TENN. — Grundfos Pumps was named as Lochinvar's 2010 Supplier of the Year for its overall business performance in providing Lochinvar with high performing parts and services. The award was given during a ceremony Friday, June 2, at Lochinvar's World Headquarters in Lebanon, Tenn. Lochinvar Corporation is a leading manufacturer of high-efficiency water heaters, boilers, pool heaters and storage tanks.



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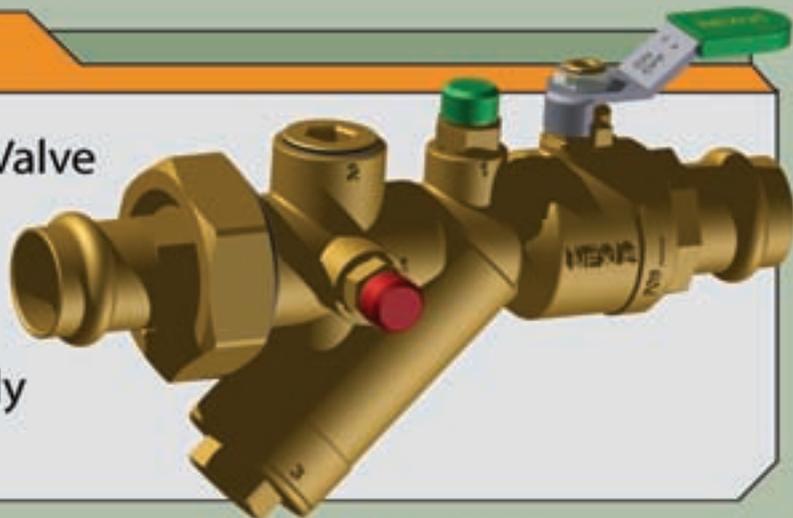
- Manual Flow Control Valve
- Modified Venturi
- 600 PSI Forged Brass Body
- SS Ball & Stem Available
- NexPress™ Available
- 1/2" – 2 1/2"



UltraMatic™



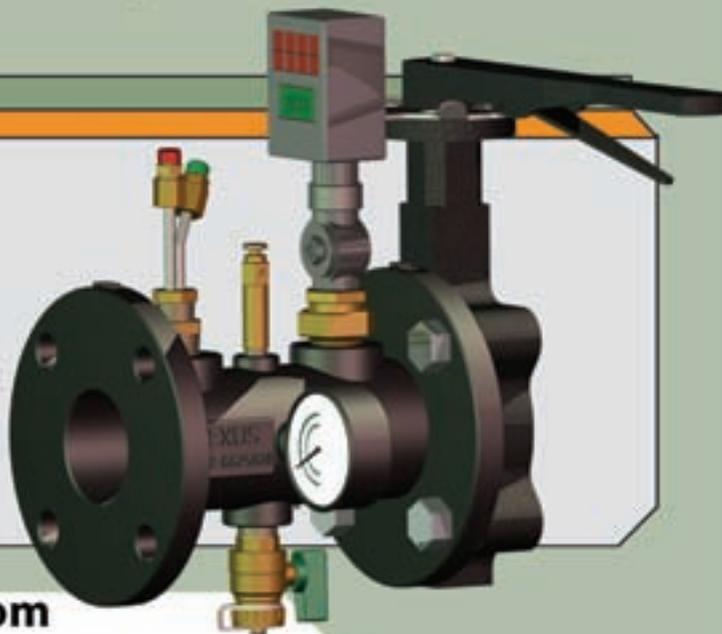
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- NexPress™ Available
- 600 PSI Forged Brass Body
- 1/2" – 2 1/2"



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Designer's Guide

Timothy Allinson, P.E., Murray Co., Long Beach, Calif.



Copper-silver ionization

One of the hospital projects I am working on has a requirement for copper-silver ionization treatment of the domestic water supply. When I first encountered this system some years back on another project, copper-silver ionization was new to me, and I had little understanding of how it worked. What little I knew of it fell into the “smoke and mirrors” category of Legionella control, in my subjective opinion.

I had seen the system used only once, on the return line of a domestic hot water circulation system. The equipment seemed redundant to me, since the water heaters raised the hot water temperature to 140 F before sending it through a tempering valve and back to the system, killing the Legionella in the process. What was the point of the cop-

The key to the system operation is to have enough ions in solution to allow them to be absorbed by the biofilm that coats the pipe wall, creating a lasting residual effect.

per-silver ionization unit in that application? Belts and suspenders, I supposed, if it did anything at all. Since then, the Cu-Ag system has received recognition in the engineering community, due in part to new guidelines such as ASHRAE 188.

This second, more recent, exposure to the Cu-Ag system has been more in depth and illuminating, and I have learned a lot about it. In this design case, we are weighing the options of treating the domestic water in a storage tank sized for a three-day supply versus treating the water as it is delivered on-demand in the pump discharge piping. The idea of treating cold domestic water for Legionella initially made no sense to me, since the bacteria doesn't begin to grow until water temperature reaches about 85 degrees, but there are reasons to treat the cold water, which I will get to shortly.

The first thing I wanted to understand about this system was how it worked. I understood that it added copper and silver ions to the water, but how did that translate to Legionella control? Here's what I was told.

The unit, or flow cell, contains copper/silver electrodes that produce copper and silver ions by alternating current from cathode to anode. The amount of copper is measured by a flow controller to keep it between 0.3 and 0.8 ppm, which is well below the EPA maximum for safe drinking water of 1.3 ppm. Silver is not regulated by the EPA but is generally considered acceptable below 100 ppb. The silver associated with the Cu-Ag system is kept

between 30 and 80 ppb.

The ions introduced to the water are positively charged. As they flow through the piping system they are naturally attracted to the negatively charge microorganisms that dwell in the biofilm on the pipe wall. Here's the cool part. The copper ions adhere to the microbes, which weakens their cell wall. Once the cell walls are weakened, the silver ions impregnate the microbes and kill them by deconstructing their DNA. It's sort of a one-two punch on an ionic microbial level. This process is not only effective on Legionella, but also on Pseudomonas (a particularly troublesome waterborne bacteria in healthcare facilities), M. Avium, E. coli, Salmonella and a host of other microbes as well.

The key to the system operation is to have enough ions in solution to allow them to be absorbed by the biofilm that coats the pipe wall, creating a lasting residual effect. The ions are not affected by water heating, so as hot water is made from the treated cold water, the hot water system absorbs the ions as well. This is an important distinction from the function of chemicals such as chlorine that dissipate rapidly in warmer water temperatures where bacterial growth is the fastest.

Since hot water systems are known to be more subject to Legionella than cold water, because of the temperature-induced breeding ground, one could consider treating only the supply to the water heaters. However, this would not carry the benefit of killing other pathogens on the cold side, such as the aforementioned E. coli, Salmonella and their friends.

The use of copper and silver to control bacteria is not a new concept. Ancient Greeks used to kill bacteria in wine by lining their vessels with silver, while controlling algae and fungi with copper. This system can also be used as an alternative to chlorine in swimming pools.

Of course, Cu-Ag ionization comes at a price, but surely it is much less expensive than managing a Legionella outbreak. Flow cells are usually rated for about 25 gpm each, and systems cost in the neighborhood of \$50,000 per flow cell, including all the necessary controls. Keep in mind that systems need not be designed for peak flow rates. A project with an anticipated peak flow of 400 gpm would be sufficiently served by a 100 gpm Cu-Ag set up (i.e. four flow cells) with a PRV bypass. The idea is that the flow cells would treat all the water during low to average flow periods, allowing peak flows to bypass the system. The key is to impregnate enough ions into the water to have them absorbed by the biofilm over a period of days, weeks and months, not to treat every drop of water that travels through the piping system.

The electrodes within the flow cells need to be changed every few years, as their material is absorbed into the water system. This replacement is also not cheap, costing

Continued on page 24

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Designer's Guide

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\$3,000 to \$4,000 per cell, but still nothing compared with the cost of a Legionella outbreak or other microbial infestations. The material of the electrodes is usually a 70/30 mix of copper/silver; however, the ratio is adjusted depending on water quality. If the utility water already has a high concentration of copper, the ratio might have as little as 5% copper and as much as 95% silver.

One potential residual effect of the Cu-Ag system that was raised on the aforementioned hospital project is its potential impact on sludge disposal. Wastewater sludge is tested for the presence of heavy metals before disposal. Initially, this made no sense to me, since the heavy metals in the sludge came out of the ground to begin with. The reason for regulating heavy metals, however, is that the sludge is frequently used in the agricultural process and there is concern about the heavy metals affecting crops.

Here in California the sludge restrictions are more rigid than the national standard, and sometimes sludge that doesn't pass the California litmus test has to be carted off to Arizona. In my research, I was unable to come up with the California standards, but I did learn that the federal requirements here in the States are far more lax than in all other developed nations. For example, maximum levels for copper are 750 mg/kg in the U.S., whereas the EU ranges from 50 – 140 mg/kg. Keep in mind that the data I

found on the Internet was a bit old and may have changed in recent years, but you get the idea.

So the concern is that, if the utility water already has high copper levels, as it does on the subject project, and if the Cu-Ag system adds more copper, which it may or may not, that it might push the sludge over the maximum level. The theory about the impact of the Cu-Ag system is that much of the Cu added to the water is absorbed by the biofilm, so it should not be additive to the sludge. The counter argument is that the biofilm can sluff off as the microbes die, which might then add Cu to the sludge in concentrated doses. There is no data available as to the reality of this possibility. My thoughts are that as long as the Cu is kept below the EPA drinking water guidelines, there should not be a problem. But the proof would be in the pudding, I mean the sludge. ■

Timothy Allinson is a senior professional engineer with Murray Co. mechanical contractors in Long Beach, Calif. He is licensed in both mechanical and fire protection engineering in various states and is LEED accredited. He can be reached at laguna_tim@yahoo.com.

The views and opinions expressed in this column are those of the author and do not reflect those of *Plumbing Engineer* nor its publisher, TMB Publishing.



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Ron George, CPD
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Plumbing code and standard industry news update

There are a lot of developments taking place with the two model plumbing code organizations and with some of the Plumbing Standards writing organizations. The following is a summary of what is going on with the Uniform Codes, The International Codes and with American Society of Mechanical Engineers A112 - Plumbing Materials and Equipment Committee.

International Code Council (ICC) news

The International Code Council (ICC) held their code development hearings in Dallas on May 16 – 22, 2011. Proposed changes were heard on the International Green Construction Code, (IgCC), which included hearings by the Green Energy/Water Committee (GEW) and the Green General committee (GG). Hearings were also held on a

The ICC board approved five discipline-specific membership councils: Plumbing, Mechanical and Fuel Gas; Building Officials; Fire Service; Global Members and Sustainability, which includes energy. Each council will advocate for concerns and issues that are of particular importance to its discipline.

new International Code, the International Swimming Pool and Spa Code (SP). The final results of the hearings and the proposed code change monographs are available online. The deadline for public comments is August 12, 2011.

A summary of the actions, including descriptions of modifications and the full report of the public hearings are posted in the code development section of the ICC website at www.iccsafe.org. Code change proponents and those who received a CD of the code change monograph will automatically receive a CD containing the report. Public hearing registrants and other interested parties may obtain the CD by sending the return coupon posted on the ICC website. A public comment form can be downloaded at www.iccsafe.org.

Final Action hearings are scheduled to be held Nov. 2 – 6 in Phoenix. Online posting of the Final Action agenda should be about September 16, 2011, and hearing results should be available about November 11. The proposed changes to the 2015 International Plumbing Code and other Group A codes are due January 3, 2012.

Following are upcoming dates for ICC code development meetings:

- 2011 annual conference and Final Action hearings: International Green Construction Code (IgCC) and International Swimming Pool Code (ISPC), November 2 – 6, 2011, Phoenix Convention Center;
- 2012 spring hearings for the 2015 edition of the International Codes, code development hearings (Group A Codes: IBC, IFGC, IMC, IPC, IPSDC), April 29 – May 6, 2012, Sheraton Dallas Hotel; and
- 2012 annual conference and 2015 edition, Group A Final Action hearings, October 24 – 28, 2012, Oregon Convention Center.

Colombia develops plumbing code based on International plumbing, private sewage disposal codes

After an extensive and thorough review process conducted by the Instituto Colombiano de Normas Técnicas y Certificación (ICONTEC), the Colombian National Standards body selected the 2009 International Plumbing Code (IPC) and the 2009 International Private Sewage Disposal Code (IPSD) as the base codes for developing the Colombian Plumbing Code. The International Code Council and ICONTEC signed an agreement to expand collaboration between the two organizations that began in 2008.

The agreement provides a framework for technical cooperation among ICONTEC and the ICC to assist in the adaptation, development and implementation of relevant ICC Codes for Colombia's market and to provide building code programs for ICONTEC and Colombian design and construction professionals in the plumbing field.

The Code Council's global services staff and its Plumbing, Mechanical and Fuel Gas (PMG) group worked closely to advance the relationship with ICONTEC and Asociación de profesionales en conducción de fluidos (APROCOF).

Jim Olk to chair International Code Council's PMG officials council

Jim Olk, a building official in Farmers Branch, Texas, has been named chair of the newly created ICC PMG Officials Membership Council governing committee. He is a past Building Officials of Texas president.

McKenzie James, plumbing inspector for the city of Portland, Ore., will serve as vice chair. Council members are Wes Davis, Air Conditioning Contractors of America; Carvin DiGiovanni, Association of Pool & Spa

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Code Classroom

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Professionals; Darrin Drollinger, American Society of Agricultural and Biological Engineers; Michael Fink, city of Philadelphia; Eli Howard, Sheet Metal and Air Conditioning Contractors' National Association; Jim Kendzel, American Society of Plumbing Engineers; Kenneth Kerr, American Backflow Prevention Association; Roger Rotundo, city of Phoenix; Bob Scott, Colorado Examining Board of Plumbers and Charles Withers, National Board of Boiler and Pressure Vessel Inspectors.

The ICC board approved five discipline-specific membership councils: Plumbing, Mechanical and Fuel Gas; Building Officials; Fire Service; Global Members and Sustainability, which includes energy. Each council will advocate for concerns and issues that are of particular importance to its discipline.

Through this governing committee, the membership councils will do the following:

- Build and improve relationships with all stakeholders who have a specific interest in the activities of the PMG Membership Council;
- Provide opportunities to enhance the understanding, acceptance and adoption of ICC codes related to the scope of the membership council;
- Make recommendations for ICC training, certification and other programs specific to the interests of the PMG membership council;
- Keep stakeholders informed and engaged in the association's activities; and
- Act as an advocate for professional or technical interest areas and receive feedback.

Details on how members may affiliate with the PMG Membership Council will be announced soon. There is no charge for participation, and everyone interested in plumbing, mechanical, fuel gas and swimming pools is urged to monitor the ICC website for announcements, to get involved and to enroll in the council.

News from IAPMO

The International Association of Plumbing and Mechanical Officials (IAPMO) representatives were in Washington D.C., on May 24, 2011, to meet with White House officials, senators and congressional representatives to discuss high performing buildings.

IAPMO president Dan Daniels and IAPMO chief executive officer Russ Chaney have pledged IAPMO's help in promoting High Performance Building Week. They held a press conference at the Rayburn House Office Building and had meetings at the White House, the Department of Energy (DOE) and the U.S. Capitol Building.

Daniels and Chaney highlighted IAPMO's Green Plumbers training and accreditation program, their new Green Plumbing and Mechanical Code Supplement, as well as their Uniform Plumbing Code, Uniform Mechanical Code, Uniform Solar Energy Code and Uniform Swimming Pool Spa and Hot Tub Code. They also reported that IAPMO is creating a "Certified Water Auditor" and "Certified Water Manager" curriculum for federal buildings personnel, facilities managers, utility water staff, energy conservation staff and building commissioning personnel.

These certified water auditors and managers will be able to identify practical and affordable water conservation measures for their buildings that will meet and exceed the 2020 conservation mandates, while simultaneously providing a core competency for continued future water efficiency and savings.

IAPMO contributes to Consultative Council report

The National Institute on Building Sciences (NIBS) had critical input from IAPMO for the 2010 Consultative Council report, a collection of findings and recommendations on high-level issues impacting the building community that was presented to President Obama and subsequently delivered by the president to Congress. The Consultative Council has established topical committees consisting of representatives from many industry organizations to prepare a report on each of the following issues:

- Defining high performance and common metrics
- Energy and water efficiency
- Codes and standards adoption and enforcement
- Sustainability
- Education and training
- Existing buildings

IAPMO director of special programs, Pete DeMarco, served as facilitator on the committee examining energy and water efficiency. The committee presented nine findings and recommendations. The United Association's Larry Bulman facilitated the committee on education and training.

The Consultative Council has already convened discussions toward 2011 and has begun working to prioritize actionable items from this year's report. For more information, check out www.nibs.org/cc/activities.

IAPMO monographs and reports move away from hardcopy format

Furthering their organization's wide green initiative, IAPMO will now offer its code monographs and committee reports in digital format only, unless formally requested otherwise. The Uniform Plumbing Code® (UPC), Uniform Mechanical Code® (UMC), Uniform Swimming Pool, Spa and Hot Tub Code® (USPSHTC) and Uniform Solar Energy Code® (USEC) are model codes that are developed as part of IAPMO's ANSI-accredited consensus development process. The following documents will be available in Adobe pdf format via digital download at www.iapmo.org/Pages/DownloadCenter.aspx :

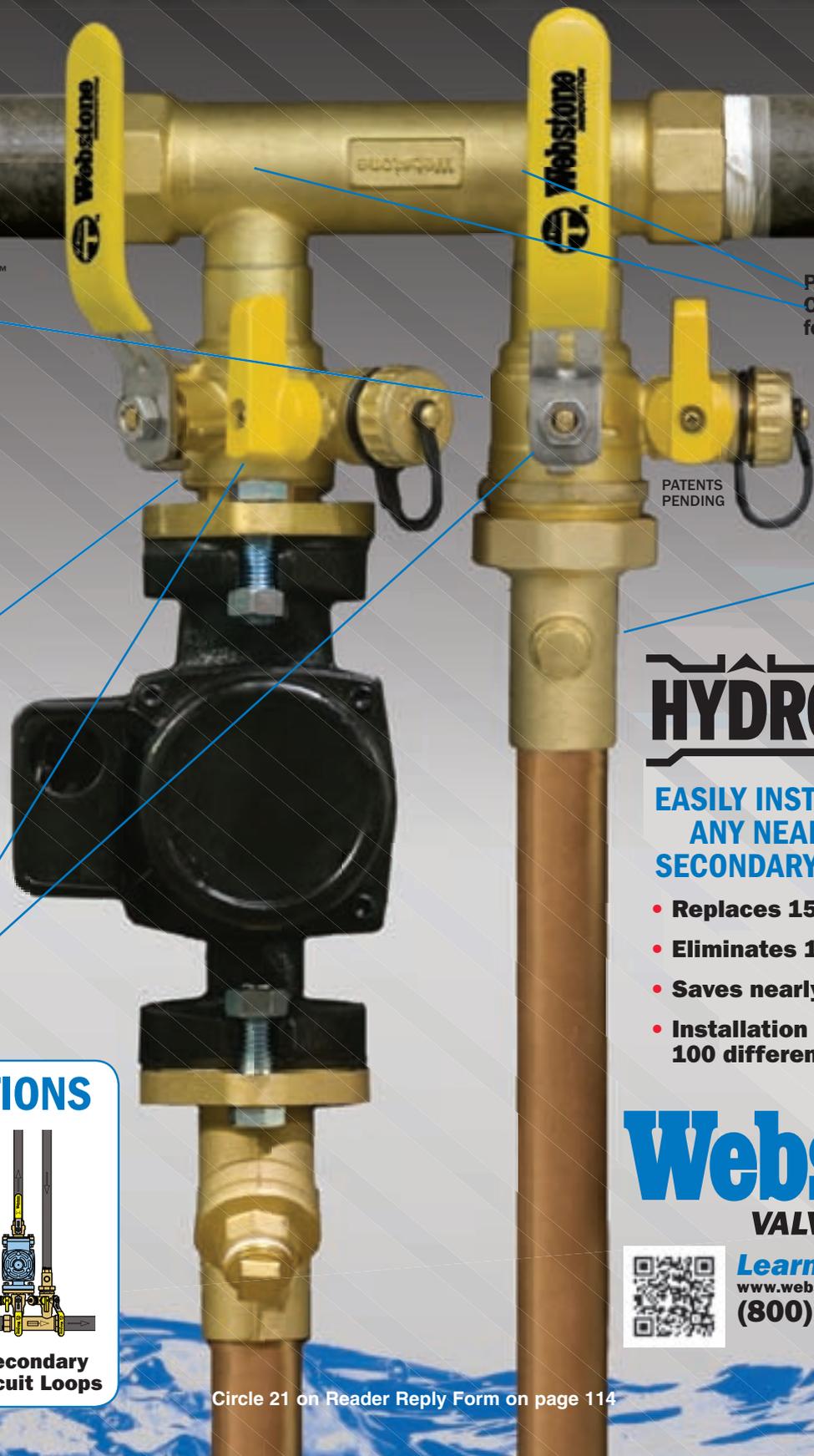
- Proposed code change monograph
- Report on proposals (ROP)
- Proposed code change comment monograph
- Report on comments (ROC)

Those wishing to receive a paper copy of these documents can do so by completing the request form available at www.iapmo.org/Documents/RequestFormROP-ROC.pdf and delivering it to Alma Ramos via fax (909/472-4246), email (alma.ramos@iapmo.org) or standard mail (IAPMO c/o Code Development, 4755 E. Philadelphia St., Ontario, CA 91761).

Although printed copies of the ROP and ROC will not

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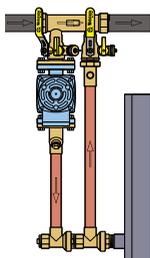


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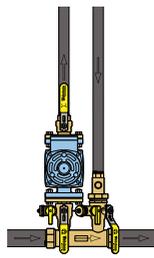


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Code Classroom

Continued from page 28

be available at the respective code development hearings, attendees with laptops will have designated seating areas. All requested printed copies will be mailed 30 days prior to the respective hearing dates.

ASME A112 Plumbing Materials and Equipment Committee news

The American Society of Mechanical Engineers (ASME) has published several new standards and updated several others over the past few years. Some of the standards are referenced in the model codes and some are in the process of being proposed for inclusion as referenced standards in the next code cycles. Each standard has a scoping statement, which is important as it assures that a product is not misapplied or used in an application that is inconsistent with its intended use.

Most standards have a section on general requirements that covers specific requirements for that product or classifications of product types and a section on definitions. The standard also includes a section on testing that should include testing for the extreme pressures, temperatures and conditions to which the product will be exposed.

The task group or task force for each standard provides input on language for tests that should be included for each standard, based on the product's intended purpose or scope. Generally, the tests are listed in order and should be performed, unless noted otherwise. Also included are requirements for each test and criteria for passing or failing.

The final section in each standard typically includes product marking requirements. All products certified to meet the requirements of the standard must be marked. Generally, the manufacturer, model number and standard number are required to be displayed on the product so that anyone, including the inspector, can verify that the product meets the minimum requirements in the code. The new or recently revised ASME standards are as follows:

ASME A112.4.1 — 2009: Water Heater Relief Valve Drain Tubes. The scope of the standard covers performance requirements and test methods applicable to water heater relief valve drain (or blow-off) tubes for use with relief valves having a steam rating of 105,000 Btu/hr or less.

ASME A112.4.2 — 2009: Water Closet Personal Hygiene Devices. This standard establishes general and performance requirements, test methods and marking requirements for bidet sprays and other optional features as applied to water closets, water closet seats and other retrofit devices. Products covered by this standard are intended to be supplied with cold and/or hot water. The provisions of this standard are not intended to prevent the use of any alternate material or method of construction, provided any such alternate meets the intent of the standard.

ASME A112.6.7 — 2010: Sanitary Floor Sinks. This standard applies to sanitary floor sinks and includes requirements for material, construction, inspection, testing and marking.

ASME A112.14.6 — 2010: FOG (Fats, Oils, and Greases) Disposal Systems. This standard establishes requirements for fats, oils and grease (FOG) disposal systems. FOG disposal systems shall be designed to: (a) remove FOG from effluent; (b) retain separated FOG; (c)

internally dispose retained FOG by means and methods of mass and volume reduction as required by paragraph 4.3.2 of the standard.

ASME A112.18.8 — 2009: In-Line Sanitary Waste Valves for Plumbing Drainage Systems. This standard establishes minimum requirements for materials in the construction of sanitary waste valves (herein after referred to as “the valve”) for use as an alternate to tubular p-traps and prescribes minimum test requirements for the performance of the valve, together with methods of marking and identification. The standard does not define the requirements for products to be used in urinals or water closets.

ASME A112.18.1 / CSA B125.1 — 2011: Plumbing Supply Fittings. This standard applies to plumbing supply fittings and accessories located between the supply line stop and the terminal fitting, inclusive of the following components: (a) automatic compensating valves for individual wall-mounted showering systems; (b) bath and shower supply fittings; (c) bidet supply fittings; (d) clothes washer supply fittings; (e) drinking fountain supply fittings; (f) humidifier supply stops; (g) kitchen, sink and lavatory supply fittings; (h) laundry tub supply fittings; (i) lawn and sediment faucets; (j) metering and self-closing supply fittings; (k) showerheads, handheld showers and body sprays and (l) supply stops.

ASME A112.18.2 / CSA B125.2 — 2011: Plumbing Waste Fittings. This standard covers plumbing waste fittings of sizes NPS-2 and smaller.

ASME A112.18.6 / CSA B125.6 — 2009: Flexible Water Connectors. This standard covers flexible water connectors for use in water supply systems under (a) continuous pressure in accessible locations and (b) intermittent pressure in recreational vehicles only.

ASME A112.19.1 / CSA B45.2 — 2008: Enamelled Cast Iron and Enamelled Steel Plumbing Fixtures. This standard covers enamelled cast iron and enamelled steel plumbing fixtures and specifies requirements for materials, construction, performance, testing and markings.

ASME A112.19.2 / CSA B45.1 — 2008: Ceramic Plumbing Fixtures. This standard covers vitreous and non-vitreous china plumbing fixtures and specifies requirements for materials, construction, performance, testing and markings. The standard's performance requirements and test procedures apply to all types of water closets and urinals that discharge into gravity drainage systems in permanent buildings and structures, independent of occupancy.

ASME A112.19.3 / CSA B45.4 — 2008: Stainless Steel Plumbing Fixtures. This standard covers plumbing fixtures made of stainless steel alloys and specifies requirements for materials, construction, performance, testing and markings. ■

Ron George is president of Plumb-Tech Design and Consulting Services LLC. He has served as chairman of the International Residential Plumbing & Mechanical Code Committee. Visit www.Plumb-TechLLC.com, email Ron@Plumb-TechLLC.com or phone 734/755-1908.

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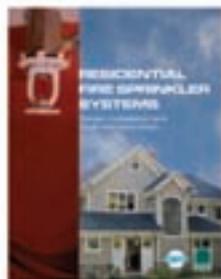
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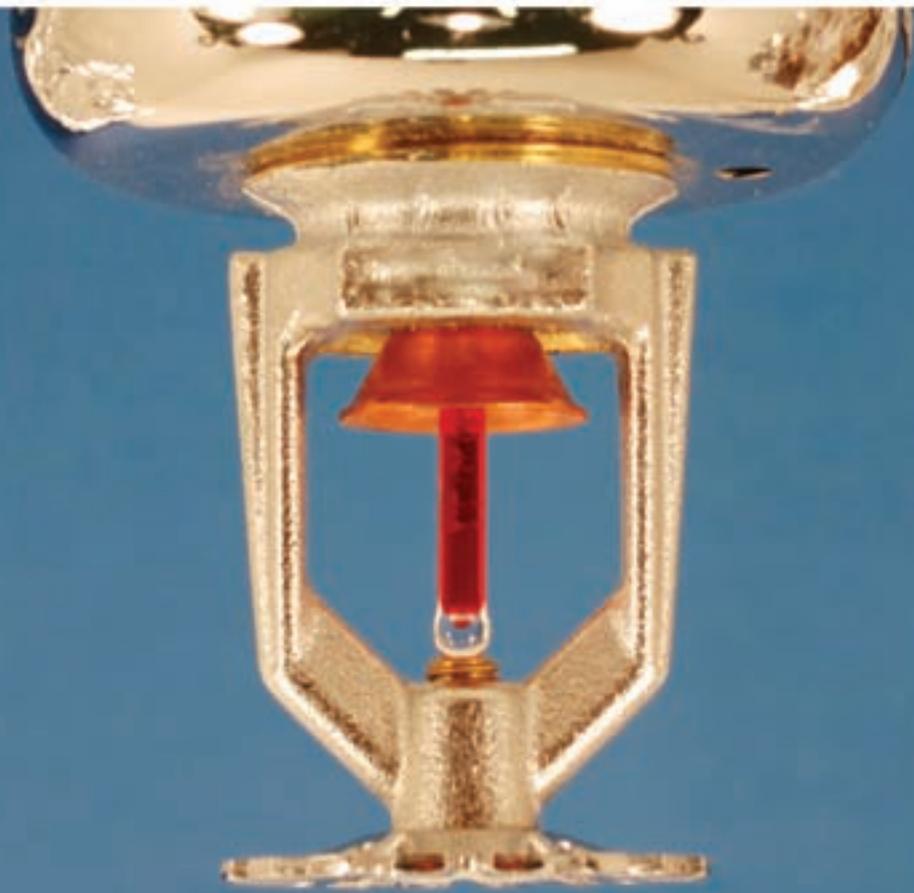
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FPE Corner

Samuel S. Dannaway, PE, FSFPE
President, S.S. Dannaway Associates, Inc., Honolulu



Aircraft hangar fire protection (a la USAF), Part 3

In this article, we will provide some thoughts on the acceptance testing (Oops! I meant commissioning) of the system. I will not provide a detailed explanation of the procedure but will provide some guidance and tips. The procedures for acceptance testing aircraft hangar fire protection may seem a bit daunting at first. The task can be made more manageable if you start out with a detailed written test plan.

Along with the specific testing that will occur, the test plan needs to address what tools and equipment are needed and who will provide them. It must include information about what special expertise is required for the testing from manufacturers' technical representatives, documentation procedures and safety procedures.

Several tech reps may be required to assist in the testing. Tech reps for the foam system, fire pump system, and detection and control systems are a must. There must also be qualified persons available for the sprinkler system.

Preparation for system acceptance testing must begin during the design stage. Your design should incorporate features that will assist in testing. A good example would be to locate the fire pump test header to accommodate direct con-



Tape and stanchions marking aircraft silhouettes.

nection of playpipes, oriented to discharge water in a safe location. This will eliminate the need for laying hose lines and securing playpipes to the back of your truck.

In an ideal world, it would be advisable to sit down with the AHJ and go over the test plan. It is likely that AHJs for military projects have been to one or more of these tests and can offer some good pointers and give you a good idea of what to expect. Note that some agencies have special experts who are required to attend and approve the system. They may also require prior approval of the test plan before the testing is scheduled. If you are in that position I recommend that you adjust your fee just a tad higher (or maybe a lot higher).

Quite a bit of equipment is needed to perform the test. In an ideal world, the contractor will be responsible for providing all the necessary tools and equipment. I recommend that you confirm with the contractor and the various tech reps that they are, indeed, bringing the proper equipment.

It also goes without saying that safe practices must be

used during the testing. As with any major project, a test should be approached in a systematic fashion, breaking it down into many different tasks. If you have not already done a thorough visual check of the installation during periodic site visits, you need to visually check the installation to verify that all components are provided as indicated on the submittals.

Prior to performing the system test, each of the fire protection system subsystems should be tested independently. As noted in a previous article, the suppression system components consist of the following: wet pipe sprinklers, water supply, hi-ex foam system, detection and control, foam concentrate, foam concentrate storage, foam concentrate proportioning and foam generation.

Wet pipe sprinklers. I will not dwell on testing wet pipe sprinklers too much. If you do not know how to test a wet pipe sprinkler system do not go near the foam system. Seriously, remember that the Air Force requires that the hangar sprinkler system water flow switch be one of the devices that "dump" the foam system. Make sure that this does not happen during the subsystem testing. Do not rely on bypass switches to disable foam system activation. Ensure that all control valves not involved in the testing that affect foam system operation are closed. This includes foam concentrate supply valves, foam deluge valves, wet pipe sprinkler control valves and sprinkler alarm test valves.

Water supply. Testing of the fire pumps will be addressed in a separate article in the future, but here are a few things to consider. If electric-motor driven fire pumps are used and if the controllers are equipped with automatic transfer switches, you are required by NFPA 20 to test transfer from normal emergency power for each pump while the pump is running at full load, i.e., while the pump is operating at peak load. Regarding safety, when running fire pump performance tests with discharge of water from the hose test header, make sure the test rig is solid and secure. Serious injury or death can occur if someone is hit by a high-pressure hose stream.

High-expansion foam system, detection and control. The detection subsystem should be tested in accordance with NFPA 72, The National Fire Alarm Code. All devices and circuits must be tested for alarm, trouble and supervision. All circuits, signaling line circuits, initiating device circuits, notification appliance circuits and releasing device circuits must also be tested under alarm conditions and under the various fault conditions required by NFPA 72. During control system testing, each device must be checked against the fire suppression system functional matrix, which you have incorporated into your design. Examples of the matrix are provided in Figures A1.4 and A1.6 of ETL 02-15. This is important enough to repeat: Each and every device must be tested to insure that each output function required of that device occurs.

Continued on page 36



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FPE Corner

Continued from page 34

Foam concentrate. A key consideration here is for the contractor to provide enough foam concentrate to complete testing and to refill the tank.

Foam concentrate storage. The system will have either an atmospheric tank or a bladder tank. Foam levels must be verified after each test involving foam discharge to determine how much concentrate was used. Remember, only qualified persons should be involved in filling a bladder tank.

Foam concentrate proportioning. The automatic operation of the foam concentrate deluge valve and the foam water deluge valve should be checked during the water-only trip tests recommended below.

Foam generation. The foam generators should be wet-tested prior to foam discharge. A gauge should be provided at the most remote foam generator to confirm that, at full system flow, the minimum required discharge pressure is available to the generator. If foam generators are equipped with drop down doors, this function can also be checked at this time.

The actual discharge of foam should occur during the full system test. Prior to that, it is highly recommended that a full system test be done with water only. This should be viewed as a practice run to make sure everything is set for the foam test. Personnel should be positioned around the



End of discharge, foam depth is approximately 8 feet.

test site to take photographs and the required video. I would recommend that there be at least three persons filming video, with at least one person located with a good view of the hangar floor.

One person should be in charge of the test, the orchestra conductor. That should be the sole person to order the starting and stopping of the test. One person should be assigned to the fire pump room to take suction and discharge pressure readings during the test and to shut down the fire pump when signaled. A third person should be positioned to activate the system, either by water flow switch or manual release station. Most importantly, one person should be positioned in the foam room to close the foam concentrate supply valve and foam deluge valve when signaled. That person will also record the discharge pressure at the foam deluge valve.

It would also be advisable to have someone at the fire suppression system control panel. The person in charge must also be in radio or cell phone contact with these persons. The conductor should also have a runner standing nearby to run to the foam room to shut down the flow of foam.

The hangar should be set up with a silhouette of each aircraft position marked with brightly colored tape. Also, stan-



Foam generators in action.

chions should be set up to mark the silhouettes and to mark the one meter level. The taping of silhouettes assists in judging when 90% coverage has occurred. The perimeter walls of the hangar should be marked to indicate the one meter level, which is required at the four-minute interval. If there is concern for water or foam solution damage to wall mounted equipment, it is recommended that protection be provided in the form of plastic drops.

There will be a lot of interest in the final testing with foam, so expect a large crowd. Hopefully, there are adequate safe viewing locations. In more than one test I attended, the contractor constructed a temporary platform from which to view the testing. It is important that all positions where spectators are located to view the system have a means of exiting without having to travel through the foam discharge. Under no circumstances should anyone be allowed to enter the foam blanket. It is very disorienting, and one may experience a sensation similar to drowning. This could cause panic and lead to injury.

So, get your cameras rolling and do the countdown to discharge. Have several people keep time on the discharge. When it is clear that the discharge has met performance requirements (We hope.) order an immediate shutdown of the foam over the radio and send the runner to the foam room. The contractor must get a sample of the foam during the discharge.

What to do with the foam after the discharge

In most areas of the U.S. there is no concern for the environmental affect of the high-ex foam, so you can simply allow it to dissipate. This is not the case in certain overseas locations. Regardless, one should check (during the design phase) whether there are any special local requirements for foam solution containment/disposal. If the foam is allowed to dissipate on its own, it will take a few days; it can be dissipated quicker with spray from a high-powered hose stream or a garden hose.

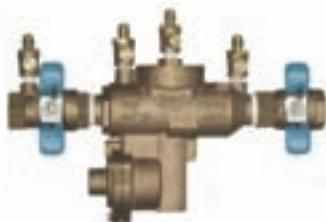
OK, that was the fun part, now for the paperwork. A report must be provided that thoroughly documents all of the testing performed and all of the results of the testing. ■

Samuel S. Dannaway, PE, is a registered fire protection engineer and mechanical engineer with bachelor's and master's degrees from the University of Maryland Department of Fire Protection Engineering. He is past president and a Fellow of the Society of Fire Protection Engineers. He is president of S. S. Dannaway Associates Inc., a 15-person fire protection engineering firm with offices in Honolulu and Guam. He can be reached via email at SDannaway@ssdafire.com.

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Bristol's Six Principles for Good Solar Hydronic Design

Solar hot water analysis with SAM (system advisor model)

Active solar hot water systems operate in a world of relatively complex interactions. The weather, hot water usage patterns, shifting temperatures, the type of equipment, its configuration and size all have a profound effect on the actual solar benefits. I have mentioned in previous columns that there are computer simulation models available to help sort out this complexity. I recently turned to one myself to help make some comparisons.

I have been working with two different solar heating designs, one in Texas and one in Oregon. In both cases, the design process began with the idea that solar domestic hot water (SDHW) was desired, and the question was whether to use vacuum tube collectors or flat plate panels to provide the solar heat. Since the climate and the location of these jobs is very different, one might expect the answer to the collector question to be different as well. I decided to use the system advisor model (SAM) solar simulation program to help evaluate these situations in a manner that is (presumably) fast, impartial and accurate.

SAM: What it is and how it works

I like to think of SAM as the solar analysis tool provided by "Uncle SAM." It was created by the U.S. government at the national labs, so it has been placed in the public domain. The program can be downloaded free at the National Renewable Energy Lab (NREL) website. The program puts a lot of emphasis on photovoltaic analysis and other even more exotic energy technologies. If you look through the menus carefully, you will find solar water heating included,

almost as an afterthought.

A sample hot water system that you can use as a starting point includes reasonable default values for a typical system, including the collector, tank, heat exchanger, backup tank, backup fuel and all the other important details. Most of these details can be alternately supplied or changed by the user, including costs, hot water usage hour by hour and all the other variables of which you can think.

A location must be specified; the program will help you find weather data for any location from a number of sources. Run the program while you are connected to the Internet, and it will find weather data very quickly. Once located and installed in the program, a weather file will provide typical weather for that location, hour by hour, for one year. The weather data and the solar heating system inputs are used by the simulation engine (TRNSYS) to produce results that can be summarized by hour, day, month or year.

Useful features and results

Here is a brief list of the things that SAM can do:

- Weather data, compatible with SAM, is plentiful and easy to locate live on the Internet.
- Solar availability is computed based on the weather data and the collector properties, which are both easy to change.
- All results can be displayed on graphs, hourly, daily and monthly.
- Any data that can be graphed can also be exported to a spreadsheet for calculations and graphics created by the user.
- Collector data is built into the program and can easily be chosen or changed using a drop-down list.
- SRCC test data is built into the collector data, so heat output is based on actual test results.
- A comprehensive financial analysis is included with the program, but using it is not mandatory for running the performance simulation.

A quick SDHW comparison

In the final analysis, what you want from a solar water heater is low fuel consumption and plenty of hot water at a reasonable cost. If the equipment is the right size for the water heating job, then very little conventional fuel will be consumed each year. So in that case, the annual fuel savings provides a good measurement of the success of a solar water heater. With that idea in mind, I created several identical solar water heater models, using identical default values for many of the inputs. Then I changed the type of collector from a flat plate to a vacuum tube of comparable size in each location, Corvallis, Oregon and Marfa, Texas. All of the collectors modeled were

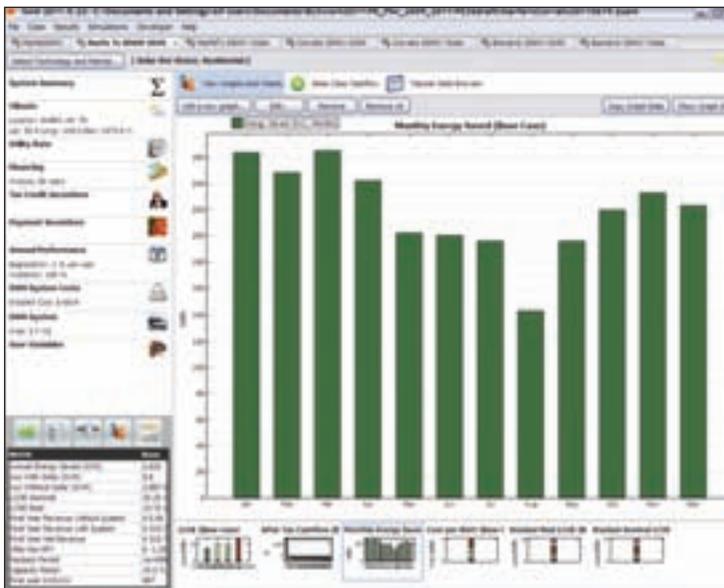


Figure 36-1 — A screen shot of the SAM "dashboard" shows the monthly savings in Texas.

Continued on page 42

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nominal 40 square feet, tilted at latitude plus 15 degrees, which tends to maximize annual solar output. The water usage patterns were identical in all of the models, with just over 60 gallons of hot water consumed each day from an 80 gallon tank. The water usage was relatively continuous, consumed steadily but with varying flow rates throughout most of the day and night. This simulates a building with a high occupancy rate. A two-tank system was provided by SAM as default, with the solar heated tank feeding a conventional tank.

As the simulation engine tallies up the solar provided, the hot water consumed and the backup heat required over the year, the question is, which collector provides better fuel savings and does climate matter?

Results can be unexpected

In a complex system, there are many variables in play, and the outcome may not be obvious or intuitive. This is a good reason to employ simulation software to inspect and analyze a system as thoroughly as possible. In the case of my simulation experiment, the results were unexpected.

I would have guessed that vacuum tube collectors would be more important in Oregon than in Texas. SAM did not agree. In these simulations, no additional savings came as a result of using vacuum tubes in either location.

I would have also assumed that, with identical collectors, more solar savings can be achieved in Texas than in Oregon. Again SAM disagrees. The results show a little more savings is achieved consistently in Oregon using this configuration. A solar water heater that saved 2632 kWh in Texas annually was saving 2886 kWh in Oregon. Figure 36-1 shows a screen shot of the SAM "dashboard" showing the monthly savings in Texas.

Conclusion

The model used in these simulations seems reasonable in terms of hot water consumption, equipment sizing and performance calculations. The vacuum tube collectors I have been looking at tend to cost about 50% more than flat plate panels per unit area. Since the simulation model does not indicate anywhere near a

50% improvement in savings, I can conclude that, under these conditions, the extra cost is not justified by performance.

In other climates and conditions of water usage and temperature, the results could be quite different. Changing the size of the collectors and tanks could also change the outcome. SAM makes it easy to inspect and study these multifaceted interactions.

Final notes

These articles are targeted toward residential and small commercial buildings smaller than 10,000 square feet. The focus is on pressurized glycol/hydronic systems, since these systems can be applied in a wide variety of building geometries and orientations with few limitations. Brand names, organizations, suppliers and manufacturers are mentioned in these articles only to provide examples for illustration and discussion and do not constitute any recommendation or endorsement. ■

Bristol Stickney has been designing, manufacturing, repairing and installing solar hydronic heating systems for more than 30 years. He holds a Bachelor of Science in Mechanical Engineering and is a licensed mechanical contractor in New Mexico. He is the chief technical officer for SolarLogic LLC in Santa Fe, N.M., where he is involved in development of solar heating control systems and design tools for solar heating professionals. Visit www.solarlogicllc.com for more information.

In this series of articles, I have been making the case that the key ingredients for solar/hydronic design and installation can be divided into six categories, roughly in order of their importance.

1. Reliability
2. Effectiveness
3. Compatibility
4. Elegance
5. Serviceability
6. Efficiency

The success of any solar hydronic home heating installation depends on the often-conflicting balance between any of these six principles. Finding the balance between them defines the art of solar heating design.

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- IAPMO PS94 2008
- Sec. 3.5 ASTM E84 25/450

✓ Engineered Design Features

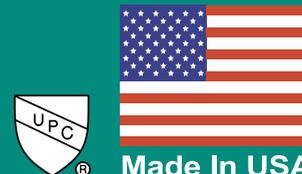
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Solar Hot Water — A Huge Potential

As we all sit by, once again, and witness soaring energy prices, we must ask ourselves: When will the market understand that the era of a fossil fuel based economy is coming to an end, and do something about it? Well, the answer is not that straightforward. Fossil fuel prices may be high, yet not high enough to overcome the cost of changing technology or consumer



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behavior. Energy costs in Europe are 3–4 times higher than those in the United States, and even they haven't fully adopted solar. The solar thermal industry will have to accept that for years to come it will remain dependent on incentives to create a level playing field, and thus a market demand for solar hot water. Those companies that best understand how the market stimulus

works will be the winners, at least in the short run.

In that context, our belief is that commercial solar hot water (SHW) is the most attractive market segment at the moment. Tax grants, high state rebates and attractive depreciation rules make projects cash-positive after only a few years for companies with high hot water consumption and tax liabilities. The commercial decision process is professional and objective, focusing on getting the best value for the money. Heliodyne's experience and continued efforts to improve our products and services in commercial SHW make us a leader in that segment.

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the GOBI has a reduced profile with even better performance. And with three sizes and two absorber surface types to choose from, there is a GOBI collector for every type of solar water heating application. It features:

- **Thinnest profile** – At just over 2.5", the GOBI has the slimmest profile in the United States. The redesigned frame offers you and the end-user a streamlined sleek look, compared to bulky, traditional flat plate collectors produced by most manufacturers.
- **Industry top performer** – New SRCC ratings certify that the GOBI now ranks among the best OG-100 certified collectors. The high energy output of the GOBI offers maximum performance from your SHW system.
- **Easiest to install** – Even though it's been completely redesigned, the GOBI retains the unique Dyn-O-Seal (DOS) union interconnection method. DOS unions come factory assembled, and eliminate the time-consuming task of soldering collectors together in an array.

The HCOM: The pre-engineered and factory assembled HCOM commercial solar hot water station, with so many unique features, takes the specialized skill out of installing commercial SHW, and lowers the liability and the cost of labor. And since it's certified and listed to current plumbing and electrical standards, it makes inspections easier and much less unpredictable.



The preassembled nature of the HCOM lets us back it with a five-year limited warranty, alleviating any concerns for engineers and contractors.

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“We just completed the monitoring of the new solar hot water system at the Chattanooga Fire Hall (where we received LEED Gold status too). The Heliodyne system is kicking butt! Reclaim and reheat 500 gallons with a 2.3 hour recovery time at 100 degree rise (almost 34% better than expected). Looks like you guys are going to end up being the “go-to guys” in this town.”

Randall Metcalf, CEO, Campbell & Associates, Inc.



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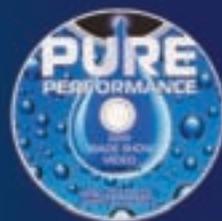
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Plumbing Engineer's
**2011
Manufacturer
Spotlight**

Encore®

Innovative and Sustainable Products Begin with Encore® Plumbing

Drain Installation and Maintenance Made Easy with Encore's Stainless Steel Drain Master™

Eliminate costly service calls with the Encore® Drain Master™ Rotary Drain. The full-opening ball valve allows DIY access for snaking or plunging from the sink top. With three times the flow rate of a conventional lever drain, the patented rotary valve and twist lock strainer, which features a recessed removable beehive crumb-cup design, combine to provide fast, unobstructed water evacuation.

In addition, the Encore Drain Master features a patented one-piece body and face flange design for easier installation by one person, and the all-stainless steel construction will provide years of trouble-free performance. The self-adjusting heat and chemical resistant Teflon® seals eliminate costly replacement of o-rings and conventional gaskets.

The Encore Drain Master, Model DSS-8000, fits a standard 3 1/2" sink opening and has dual threads on the outlet for 1 1/2" NPT Female and 2" NPS Male connections. It also features a capped overflow outlet to accept a standard 1 1/4" overflow assembly, eliminating the need for double inventories.



Improve Hygiene and Reduce Water Consumption with Encore® Hands-Free Electronic Faucet Adapter

The Encore® Hands-Free Electronic Faucet Adapter is the newest addition to Encore's broad line of electronic faucets and accessories that offer a hygienic, hands-free alternative to standard faucets. This low cost adapter helps prevent cross-contamination, conserves water, and is ideal for post-construction hand sink applications in food service, healthcare and other commercial environments.

The Encore Hands-Free Electronic Faucet Adapter can help reduce water consumption by up to 70 percent by utilizing a reliable infrared sensor that instantly stops water

flow when not in use. A manual on/off over-ride button provides instant flow to fill any container, while a preset three-minute automatic time-out feature minimizes the chance of overflow.

Employers, risk managers, and infection control specialists appreciate the hygienic, hands-free feature and the fact that the Encore Hands-Free Electronic Faucet Adapter promotes thorough hand washing with a preset one-minute timer in auto sensor mode. Seniors and small-children alike will also find operating the faucet easy, as it turns on by simply placing one's hands underneath, even when both hands are full.

Converting any existing faucet into an automatic hands-free faucet takes less than five minutes, and the adapter fits most standard faucets with aerators using a simple screw-on installation.

The Hands-Free Electronic Faucet Adapter, Model K12-0100, has an adjustable 2-to-10-inch sensor range based on sink type and illumination. The adapter functions under working pressures from 10-125 PSI and is supplied with a 2.2 GPM aerator, although CHG is currently working on a 1.5 GPM model for additional water savings. The unit operates on four standard AAA 1.5V batteries, which are not included. CHG also offers a one-year warranty from date of purchase.



To learn more about Encore products, visit www.encorefaucets.com.

About Encore® Premium Plumbing

Encore is a broad line of specification grade plumbing fixtures featuring SANIGUARD® product protection for use in commercial, foodservice and institutional applications. Encore fixtures are certified to NSF International Standard 61, Section 9 and we have a full line of Annex G certified Low Lead fixtures, as well. Encore premium plumbing products may be purchased through our global network of plumbing distributors and wholesalers.

For more information on our complete line of Encore plumbing, call 1-800-526-3694, or visit www.encorefaucets.com.

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Plumbing Engineer's 2011 Manufacturer Spotlight



Leonard Thermostatic Mixing Valves Vital to New State-of-the-Art Hospital in Illinois



When a new medical center is under construction, a plumbing contractor must be assured that the thermostatic mixing valves chosen for the project will not only provide required water temperature control, but that they will also function precisely without fault, time after time.

Such is the case at Sherman Hospital, a state-of-the-art replacement building in the Chicago suburb of Elgin, Ill. The 645,000-square-foot, \$310 million structure opened in December 2009. The hospital's plumbing contractors and engineering consultants agreed that Leonard Valve Company's thermostatic mixing valves were perfectly suited to meet the new hospital's needs.

"Truthfully, it was Leonard's reputation that made us choose them," said Darrin Smutzer, project manager for plumbing contractor Mechanical Inc., Freeport, Ill. He sought feedback from other contractors regarding Leonard, and "We could not find an instance where one has failed.

"We found nothing but positive comments about Leonard," Smutzer continued. "All the potential valve manufacturers were submitting information within the specifications, so we talked to the engineering consultants and asked what they'd like to see in the project. They confidently said to go with Leonard."

The new hospital, on a 154-acre site, has a six-story patient tower equipped with 255 private patient beds, a two-story diagnostic and treatment center, and a cancer center. About 50 Leonard products are installed at the new hospital, including various size thermostatic mixing valves and emergency mixing valves for eye washing, drench showers and group shower controls, as well as point-of-use valves, all provided by local Leonard representative Inland Sales Group, Willowbrook, Ill.

"We're putting in 30 larger valves that take care of a whole

floor or a whole section of the hospital and about 20 point-of-use valves each for a single shower or a lab," Smutzer said. "It's key that these valves do not fail. It's a big liability if, for example, someone was in a shower that was supposed to be tempered, and it didn't work. I'm comfortable that Leonard's product line will help us avoid such situations."

Other factors also bolstered Smutzer's confidence regarding Leonard. The availability of their products was a plus – their production time would meet their demands, as well. "Basically, we chose Leonard because of the price, availability, confidence in the product and the fact that they presented a complete submittal. It was beneficial because the bid included all the details, exactly as we needed them."

Count on Leonard for Accuracy in Complex Installations

Leonard Valve offers a wide range of mixing valves and temperature control products that are ideal for healthcare facilities, schools, laboratories, prisons, and other commercial and institutional installations.



Classic or New Generation High-Low Systems, for instance, are so precise that they can provide accurately mixed water from extreme lows to extreme high flow requirements. Accuracy at both of these extremes is critical, and Leonard's Classic

and New Generation High-Low Systems deliver.

Emergency mixing valves, such as drench shower systems and combination face/eye wash systems, must also work reliably – every time. The DURA-trol® solid, bi-metal thermostat on these valves is highly responsive and compensates for supply temperature and pressure fluctuations. ■



it Leonard Valve at www.leonardvalve.com, call (800) 222-1208 or e-mail: info@leonardvalve.com.

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2011 Manufacturer Spotlight

Chill Lab™
By **STINGRAY**

Chill Lab™ by Stingray

Maybe you remember the spaghetti sauce commercial with the slogan, "It's in there!" The team at Chill Lab™ by Stingray is offering its own special ingredients in a barrier-free water cooler with a revolutionary new green filtration system that comes standard. Here's what's "in there":

- **Environmentally Friendly Green Filtration System** — This Green Filtration system is integral to the water cooler so it's included in the standard specification. The sturdy outer housing is re-usable, so unlike other systems — you won't find this filtration housing in a landfill within a few months.*

- **Economically Friendly, Biodegradable Green Filters** — The interior Green Filter elements sit within the re-usable housing, are easy to replace, and are biodegradable. The innovation of the system has significantly reduced the cost of filter replacement (by more than 50%

of other standard filters). Replacement is only once every six months under standard usage.

- **Customer Friendly Filter Element Choices** — Whatever your customers' water filtration priorities, there are six different filter media elements to meet their needs:

- **Chlorine, Odor, and Taste Filter** removes chlorine and odor and improves the taste of your water.

- **CTO + Scale Filter** removes chlorine, odor, scale, and improves the taste of your water. This product can also improve the life and performance of your water appliance by minimizing sediment or scale in water pipes and valves.

- **CTO + Lead Filter** removes chlorine, odor, lead, and improves the taste of your water.

- **CTO + Lead + Scale Filter** removes chlorine, odor, lead, scale, and improves the taste of your water. This product can also improve the life and performance of your water appliance by minimizing sediment or scale in water pipes and valves.

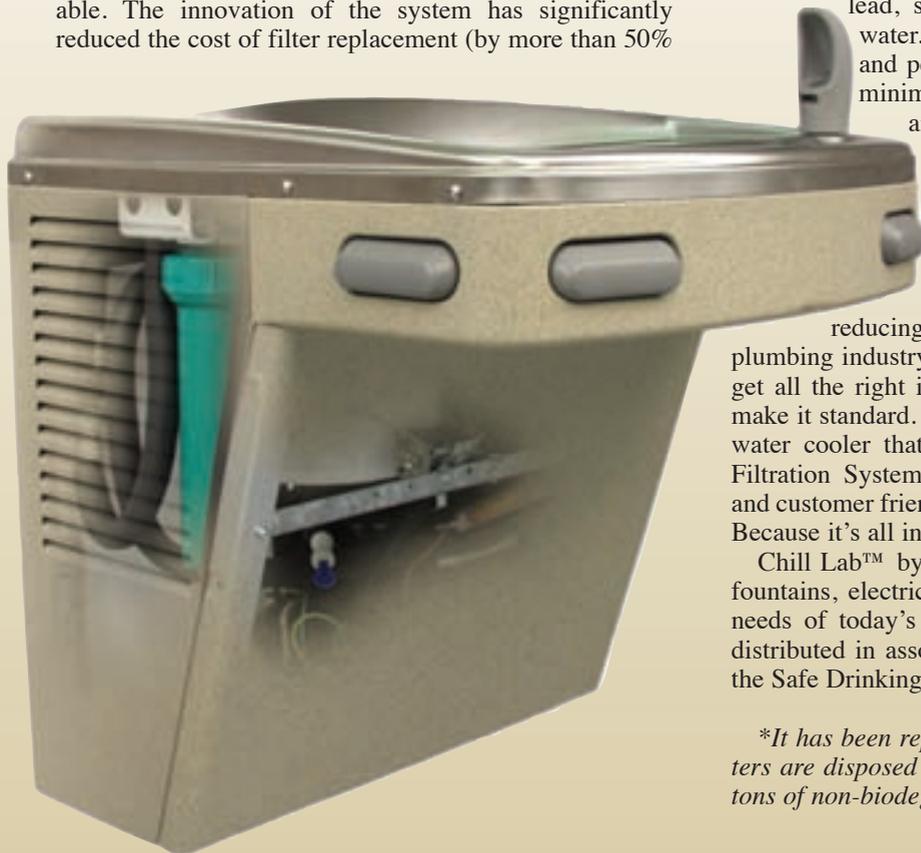
- **Cysts & Bacteria Filter** removes most harmful bacteria and 99.99% of cysts from your water.

- **Sediment Filter** removes sediments from your water.

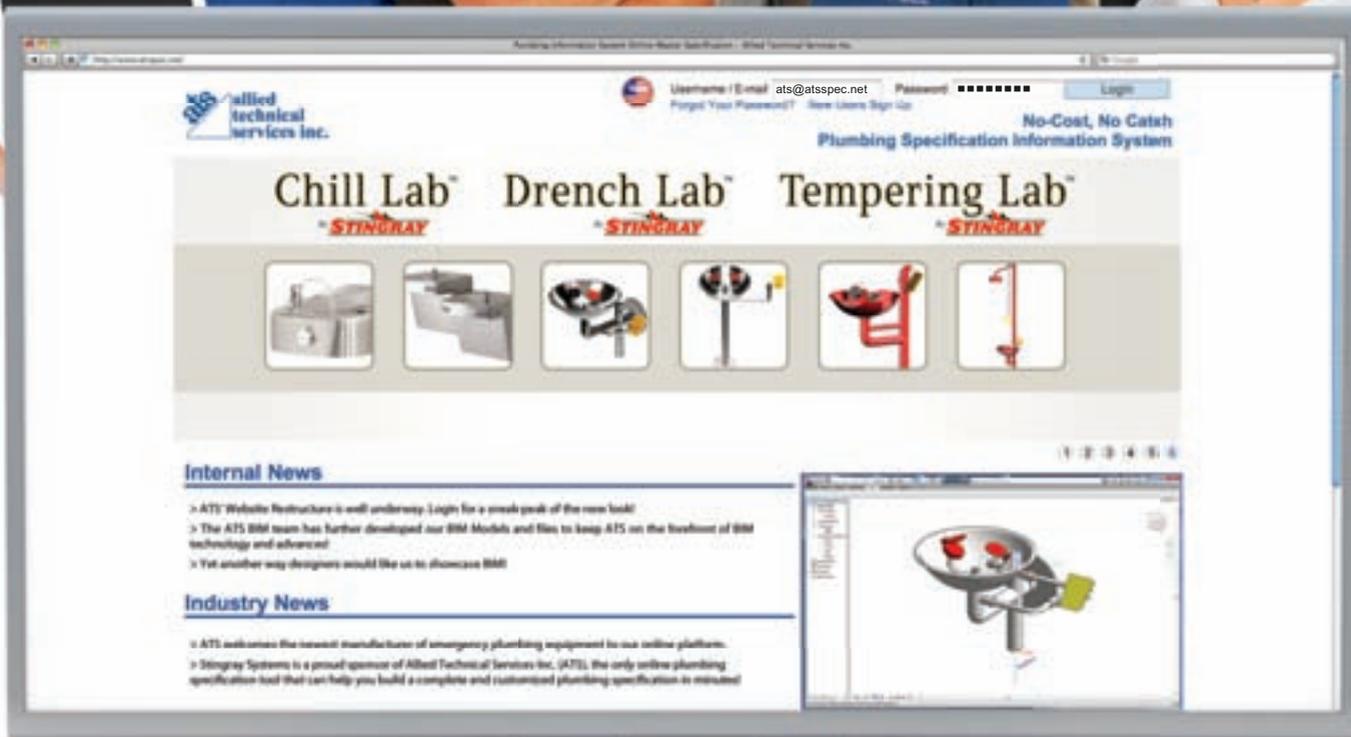
Stingray Systems is committed to reducing the complexities of the commercial plumbing industry. That's why we thought it was time to get all the right ingredients in one water cooler — and make it standard. If you need a simple specification for a water cooler that's barrier-free with an integral Green Filtration System that's environmentally, economically, and customer friendly — specify Chill Lab™ by Stingray. Because it's all in there!

Chill Lab™ by Stingray is a complete product line of fountains, electric coolers and bottle fillers to meet the needs of today's water-consuming public. All products distributed in association with the Chill Lab brand meet the Safe Drinking Water requirements of NSF.

**It has been reported more than six million plastic filters are disposed of each year, creating over a thousand tons of non-biodegradable plastic waste.*



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Plumbing Engineer's 2011 Manufacturer Spotlight



Cramped Mechanical Room Spurs Switch to Multi-Unit Tankless Water Heating System for 130-room Hotel Project

When the original boiler spec proves unworkable, hotel ownership switches to a 93%-efficient condensing tankless solution to save both space and fuel costs. With inputs up to 3.4 million BTU per hour, this 17-unit system uses an innovative common-venting approach to minimize exterior wall penetrations.

FLORENCE, ALA. — The space-saving advantages of tankless water heating recently came into critical play at a 130-room hotel renovation project in Florence, Alabama. The original specification for the Florence Residence Inn by Marriott called for a pair of 750-gallon, 750,000 BTU per hour (BTU/h) boilers, each measuring roughly five feet by 12 feet. The mechanical room where they were to be squeezed into could accommodate

using 1.5 million BTU to keep 1,500 gallons of water at a specified temperature 24/7/365 — as with the original spec — the tankless units would work in sequence, firing one by one as needed, to meet present requirements. Once those requirements were met, the units would turn down or off, minimizing energy consumption.



both pieces of equipment, but with just a few inches of clearance between each unit and the surrounding walls.

Contractor Anthony Crouch, owner of Crouch & Sons Plumbing LLC in Florence, reviewed the original specification with his plumbing distributor, the Tallman Company, and quickly concluded that the installation was all but unworkable.

Impossible Predicament: To meet all of the hotel's hot-water needs, especially during peak periods, a multi-unit tankless system would be required, Veal and Crouch explained to owner Giri Yadla. These units are not only much smaller than the two specified boilers, but because they would be wall-hung, there would also be more room for service work. Furthermore, if one unit had to be shut down, the others would still operate as usual. Guests would see no interruption in service.

Veal and Crouch also stressed that, unlike a boiler, a tankless water heater only responds to a specific demand. Instead of

The new system involves 17 Noritz NCC199-SV condensing, gas-fired tankless water heaters: 12 supply the 130 guest rooms; the remaining five handle the dining area and the laundry room. Each has a thermal efficiency of 93 percent and a firing range of 11,000 BTU/h to 199,900 BTU/h. The latter calculates into an aggregate maximum input of nearly 3.4 million BTU/h with a turndown ratio of 309 to 1, allowing the system to comfortably handle both peak and light-demand periods with maximum efficiency and minimal cost.

"We expect each water heater to be delivering 4.6 gallons of hot water per minute in the winter, assuming a ground-water temperature of 50°F; and roughly 6.8 gpm in the summer, based on 65°F ground water," says Adam Brown, Noritz Southeast branch manager.

"The pressure through each manifold is maintained at a preset level by a modulating fan that is directed by a controller," Brown explains. "The controller, in turn, monitors exhaust pressure through a sensor located at the end of the manifold run."

Worthwhile Switch: By convincing hotel management to switch from a pair of large gas boilers to a multiple-unit tankless water heating system, Crouch and Veal spared the facility potentially major maintenance problems while also enabling the owner to cut his ongoing fuel costs substantially. In addition, the innovative venting system made sense not only from an engineering perspective, but also helped preserve the appearance of the hotel property.

"Because owners and managers stand to save so much on their gas bills, more and more commercial jobs will opt for tankless," Crouch predicts. "In that situation, we really had no choice but to take a different approach," Crouch continues. "Going tankless has worked out super."

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- **Multi-unit System** - 0.4 - 9.1 million btuh solutions
- **Modulation** - Up to 545:1
- **Precise load tracking**
- **Intelligent System** - system controller unit communication
- **Redundancy** - Built-in reliability

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Plumbing Engineer's
**2011
Manufacturer
Spotlight**



Concast Metal Products Co.: Single Source Manufacturing of Lead-Free Copper Alloys

Concast Metal Products Co. started producing lead-free copper alloys in 1993 – naming them GreenAlloys™. Founded in 1891 in Mars, Pennsylvania USA, Concast has grown into an industry leader as a single-source supplier built on strength and stability. Concast manufactures a wide selection of low-lead and lead-free copper alloys that maintain the lubricity, tightness, wear, strength, hardness and machinability of our standard products while delivering the performance our customers require. Our environmentally friendly alloys are available in solid, tube, rectangular, hex and shapes to fit your application – specific needs. With a sharp focus on evolving technologies, quality control and a high level of customer service, Concast continues to excel in the manufacturing of quality-crafted alloys for today's demanding market.

Lead-Free Alloys to Fit Your Needs

Our alloys provide the same recyclable qualities but without the health risks associated with lead. Concast is the only foundry in the United States licensed to produce the Federalloy® series of lead-free copper alloys and is also a licensed pro-



Concast delivers a broad range of alloys of the future that are free of the elements that threaten health and the environment.

GREEN ALLOYS™

C98320 C89325 C89831 C89833 C89835 C89844 *C90300 *C95400 **Federalloy**® C87850 EcoBrass®
*Standard Stocked Alloys



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ducer of EcoBrass®, which is a lead-free brass material commercially developed by the Sambo Copper Alloy Co. Additionally, Concast continues to introduce new alloys such as Envirobrass™ using a selenium bismuth replacement for lead and its own proprietary low-lead alloys. Most importantly, Concast will work with your engineers and specifiers to prototype and customize an alloy to meet your specific needs.

Leading the Way in Clean Water Regulatory Responsibility

We deliver a broad range of alloys of the future that are free of the elements that threaten health and the environment. Ranging from aluminum bronze to high tin bronze, our GreenAlloys™ are manufactured to ASTM B standards and specifications, and meet the requirements of "3874 Reduction of Lead in Drinking Water Act" and California legislation "AB1953." Our GreenAlloys™ have extremely low-lead content, often as low as .05%, exceeding all new government requirements.

Recycled Raw Materials That Could Save You Money

Thirty of our alloys are certified as recycled content by Scientific Certification Systems (SCS), a recognized independent third-party certifier and sustainability expert. Using the certified alloys in a product or project qualifies for LEED (Leadership in Energy and Environmental Design) MR 4.2 credits through the U.S. Green Building Council.



Concast is one of the few manufacturers with the ability to machine dies and molds on site.

Largest Inventory of Stock for Fast Delivery

Concast maintains the largest inventory of standard stock, continuous-cast copper alloys in North America with more than 875 standard product sizes in our 50,000-square-foot warehouse. Our rapid quoting service along with our state-of-the-art tracking and ordering systems insures that we deliver your order when you need it. Also, because we have the ability to machine molds and dies on site, orders are processed from beginning to end under the same roof — saving you time.



Concast maintains the largest inventory of standard stock, continuous-cast copper alloys in North America.

Dedicated to Service and Quality — The Best Way, The Only Way

An ISO 9001 certified manufacturer, Concast continually improves to meet market and industry demand for greater diversity, higher quality and more eco-friendly products. Concast is one of the few manufacturers with the ability to machine dies and molds on site, therefore eliminating the downtime for dies to be shipped from outside vendors. Our process not only saves you time, but guarantees quality continuous-cast copper alloys and other alloy products.

Additional information available at www.greenalloys.com and www.concast.com.

Lead-Free Alloys

Leading the Way in Clean Water Regulatory Responsibility

Concast started producing lead-free copper alloys in 1993—naming them GreenAlloys™, lead-free copper alloys that contain recycled content and qualify for LEED credits.

At Concast, we manufacture a wide selection of environmentally friendly lead-free copper alloys in solid, tube, rectangular, hex and shapes to fit your application-specific needs. Designed to meet regulatory challenges, these alloys are widely used by the plumbing and water handling markets.

With extremely low lead content, often as low as .05%, GreenAlloys™ maintains the lubricity, tightness, wear, strength, hardness and machinability of our standard products while delivering the consistently reliable performance our customers require.

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CONCAST
METAL PRODUCTS CO.

2011 Manufacturer Spotlight



Josam offers cost effective drainage system for building owners and engineers

Maintaining sanitary conditions in hospitals, or any health care facility for that fact, remains a serious concern that continues to be strictly monitored by the Centers for Disease Control and Prevention (CDC). While cleanliness in hospital environments is most often associated with patient and surgical rooms, surgical equipment and other such items that patients come in direct contact with, maintaining sanitary work conditions in the hospital kitchen facility is also a major ongoing issue.



Listeria results in approx. 2,500 illnesses and 500 deaths annually.

Listeria is one of the most virulent foodborne pathogens with twenty to thirty percent of clinical infections resulting in approximately 2,500 illnesses and 500 deaths annually in the United States. While piping and drainage systems are not often associated with maintaining a hygienic condition, listeria, able to grow at refrigerated temperatures, is commonly found in commercial kitchens including trapped inside of coolers, chillers and last but not least, pip-

ing and drainage systems.

Due to the non-porous surface of stainless steel and cognizant of ongoing listeria issues, most commercial kitchen designs include a variety of stainless steel items, including but not limited to, appliances, utensils, countertops and sinks. In reality listeria does not stop at the kitchen sink and this hardy bacterium could travel well beyond into the plumbing and drainage system. With this in mind, more and more facility owners and specifying



A Josam Push-Fit installation at New Cherry Hospital in Goldsboro, N.C.

engineers are realizing that a stainless steel plumbing and drainage system in commercial kitchen applications is an excellent way to help further address listeria concerns. As a result the Josam Push-Fit Stainless Steel Drainage System, manufactured by Chibro, has become quite popular in such applications.



The Josam Push-Fit system includes a complete range of pipes and fittings available in sizes 1-1/2" through 8".

One recent project that utilized the Josam Push-Fit Stainless Steel Drainage System was the New Cherry Hospital located in Goldsboro, North Carolina. The Josam Push-Fit product was installed in the kitchen area of the hospital by Raleigh based John E. Green Company (in business since 1909). When reviewing the scope of the project, John E. Green Company noted the stainless steel push-fit pipe and fittings specified for the kitchen area. Having never worked with the Push-Fit product, John E. Green estimators bid the project accordingly.

The product scope for the New Cherry Hospital included a variety of 1 1/2" through 4" pipe and fittings. Josam personnel helped familiarize John E. Green on the unique benefits of a push-fit system; including the ease of making a joint, the simplicity of cutting the product and best utilization of the variety of pipe lengths available. "Making a joint was like no other system that we have previously worked with," says John E. Green Project Manager, David Newberry. "You simply lubricate the joint and push the spigot and socket together. The variety of pipe lengths minimized both the number of cuts and waste on the project. Additionally, the light weight of the product allowed for ease of handling on the jobsite. The overall ease of installation of the Josam Push-Fit System reduced the labor hours well below the budgeted hours to install the product. This product was perfect for a kitchen application and I have every intention of using it again on a future project where hygiene is a concern," adds Newberry.

The cost effectiveness of the Josam Push-Fit Drainage System provides building owners and engineers with an economical stainless steel solution that goes well beyond the kitchen sink!

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Listeria Does Not Stop At the Kitchen Sink, Why Should the Stainless Steel?

It is not uncommon to see stainless steel fixtures and utensils in commercial kitchens. While the stainless steel fixtures and utensils may help to combat the virulent food borne pathogen known as listeria, this deadly bacteria can live and grow well beyond the surface and is commonly found harboring in piping and drainage systems. The Josam Push-Fit System, which contains a complete range of pipes, fittings, floor drains, slot channels and trench drains, offers a cost effective solution for commercial kitchens to help protect plumbing and drainage systems from breeding this deadly bacteria!

For more information on the Josam Push-Fit Stainless Steel Drainage System please visit www.JOSAM.com or contact your local Josam representative.



Manufactured by 

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Executive Offices

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Quality Engineered Plumbing Drainage Products

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2011 Manufacturer Spotlight



Grundfos Pumps unveils new generation of circulators, with power-consumption savings of up to 80%

Making its North American debut, ALPHA™ is an energy-optimized, 115-volt circulator featuring a permanent magnet motor design that will cut power consumption by a minimum of 50%, as compared with other circulators in its class. Designed for hydronic heating applications in residential and light-commercial applications, the compact ALPHA is equipped with the unique Grundfos AutoAdapt™ function that automatically modulates circulator performance to match ever-changing system demand.

“By continuously fine-tuning power consumption and flow rates to meet the dynamic needs of the system, ALPHA saves both energy and money,” says Bob Reinmund, senior product specialist for Grundfos. “In live field tests, independent contractors have experienced power savings up to 80% over conventional pumps.”

Breakthrough motor design: First used by Grundfos in Europe, the electronically controlled motor features a magnetized rotor, thus avoiding motor-slippage problems common to induction-type motors. The result is a dramatically more efficient motor that generates less heat and energy waste, while delivering a starting torque four times higher than a standard induction motor.

No more oversized retrofits: Identifying the specific, ever-changing needs of a home heating system is challenging for installers, particularly in retrofit applications. Contractors often find it difficult to select the right pump and program it with the correct settings. “If the installer is not familiar with piping layout, he may decide the best way to avoid a callback is simply to oversize the pumps,” says Reinmund. “ALPHA addresses this oversizing tendency.”

With ALPHA, the installer now has the option of activating the AutoAdapt function. “The circulator will automatically find the lowest possible operating-efficiency point to meet changing system demand,” continues Reinmund. “Then it will continuously adjust that setting to achieve optimal comfort at minimal power consumption. The pump can operate with an input as low as five watts, as compared with a minimum of 80 watts for a

conventional circulator of comparable size.”

Compact design = easy installation: ALPHA is currently the most compact circulator offered by Grundfos. Its sophisticated electronics are fully integrated within the motor. The resulting streamlined design simplifies installation in even the tightest spaces. The easy-to-read LED (light-emitting diode) display in the ALPHA offers a range of unique, user-friendly features for monitoring the system:

- A large, real-time display indicates energy consumption (Watts).
- This same display will toggle every four seconds between power consumption and the flow indicator, showing the relative estimated flow rate in gallons per minute (GPM).
- A one-touch, button-type interface permits the user to toggle quickly and easily among three fixed speeds, three levels of constant pressure, and the AutoAdapt setting.

Made for America: Developed in Europe nearly a decade ago, the ALPHA is a proven technology. But rather than assuming that the ALPHA would work equally well in North America without modification, Grundfos has tested the product over the past two years in approximately 200 residential installations across the United States and Canada, including many of the installers’ own homes. Feedback from these contractors has led to

important adjustments in the hydraulic design of the ALPHA “to better match the specific requirements of the North American market,” says Reinmund.

“As is our custom with a new product, we took two full heating seasons to be certain it would perform as well here as it has in Europe,” he continues. “Our objective is to verify the ALPHA as a stable pumping platform for the North American market for many years to come.”



For more information on ALPHA, visit online at poweredby.grundfos.com

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*Simple to install.
Simple to operate.
Simply the best.*

Nobody likes call backs. So every ALPHA that comes out of our Fresno, CA plant is designed for simplicity from installation through operation.

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- One button controls seven different operating modes
- Simple LED displays both Watts and GPM
- AUTOADAPT™ technology is simply more efficient by automatically adjusting speed/flow to meet demand and achieve maximum system performance
- Uses up to 80% less energy than standard circulators

POWERED BY THE IMPOSSIBLE

To find out more about Grundfos energy-efficient circulators, visit us at:

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ALPHA

MAGNA
32-100

MAGNA

GRUNDFOS

Plumbing Engineer's 2011 Manufacturer Spotlight



Tennessee Lake House Reaps Benefits of AHI Technologies Tankless

Every summer, Jon Driskill, P.E., C.E.M., G.B.E., and his brother, Mike Driskill, AIA, LEED AP, head to their lake house – the “Cedar Ring” – in Tennessee. The house was purchased over 40 years ago and has four bedrooms and one and a half baths on two levels. The Driskills would have as many as fourteen people at one time with more coming and going during the day.



The house has weathered several break-ins, at least one lighting strike, and a flood. Ever since the flood, the family has established a policy of turning off the well

pump and water heater before they leave. About a year and a half ago, Jon and his brother went up for a visit, and when they turned the water on they heard a sound of rushing water -- one of the copper vertical supply lines in the linen/storage Closet adjacent to the first floor bath had ruptured.

And so began the pursuit of a tankless water heater. Jon and Mike researched numerous electric tankless heaters and were intrigued with AHI Technologies, which uses Coilless Technology® to heat the water instead of the copper coil found in other units. Their concern with copper coils was the scaling that typically results, especially since their well water can be rather hard. Jon and Mike felt that they had enough maintenance work and upkeep as homeowners and did not want to create more work along with more expenses for what is intended to be a relaxing getaway place.

In summer 2010, an AHI's AHQ-T16 unit was installed in the linen/storage closet, adjacent to the first floor bath with water supply from the well. Ideal for summer vacation homes, part-time living quarters or a small household of 1-3 people, the T16 is an on-demand water heater. This means that it doesn't need to maintain hot water when no one is using it or during the months no one lives there, and there is no need to drain the tank (and then refill it upon return next summer). With Coilless Technology, there is no maintenance to do. It's an ideal solution for a small vacation home such as the Driskill's “Cedar Ring.”

The T16 unit features AHI's Coilless Technology, which heats water indirectly through unique heat transfer and does not result in the scaling issue that Jon and Mike were concerned with. Other electric heaters on the market immerse coils directly in the

water in order to heat it, causing heat spots, which produce build-up of lime scale and a decrease in heating capacity and efficiency. Because there are no coils in the T16, the electric components are never in direct contact with the water being heated, preventing accumulation of lime scale inside the unit and increasing longevity of the unit.



Jon Driskill is estatic about his new AHI Technologies install. Below shows the tank water heater that he pulled out.

The T16 unit allows the user to set a specific desired water temperature, is simple to use, is free of ongoing maintenance and backed by a best-in-industry warranty. The unit is available in a 16kW capacity size, with an electrical requirement of 240V (2 x 40 amp). For larger households or commercial applications, AHI has a wide variety of units to meet hot water needs. More information can be found at www.AmericanHometec.com



Jon and Mike are happy with AHI Technologies' unit so far, and it's a great addition to their lake house. As Mike put it – “It's small...it's cute...it makes hot water! Not sure what else to say about a water heater!” The Driskills are now able to relax and not worry about lime scale getting in the way of the 14 people squeezed into the house.

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Come For

Worry Free Water Heating...

Dependable, Reliable, Affordable,
Luxurious Water Heating Solutions.

AHQ-T16



One Whole Bathroom with
Precise Temperature Controls
Flow Range at a 45° F Rise: 0.5 - 2.5 gpm
Capacity: 16 kW
Electrical: 208 - 240V (2 x 40 amps)

AHQ-TB32



One Whole House with
Precise Temperature Controls
Flow Range at a 45° F Rise: 0.5 - 5.0 gpm
Multi-in-One™ Capacity: 25, 31 kW
Electrical: 208 - 240V (4 x 30 or 4 x 40 amps)

AHQ-B03X



One Low Flow (0.5 GPM) Sink
Flow Range at a 45° F Rise: 0.4 - 0.5 gpm
Multi-in-One™ Capacity: 2.4 or 3.4 kW
Electrical: 120V (20 or 30 amps)

AHQ-TC10



Multiple Low Flow Sinks with Precise
Temperature Controls and Temperature Lock
Flow Range at a 45° F Rise: 0.4 - 1.4 gpm
Multi-in-One™ Capacity: 4.8, 7.2, or 9.3 kW
Electrical: 208-240V (30, 30, 40 amps)
Easy-code-compliance for UPC 413.1-2009
- Prevents unauthorized change in temp setting

ACQ-TC10Y



Multiple Low Flow Sinks with Precise
Temperature Controls and Temperature Lock
Flow Range at a 45° F Rise: 0.4 - 1.4 gpm
Multi-in-One™ Capacity: 5.5, 8.3, or 9.3 kW
Electrical: 207V (30, 30, 40 amps)
Easy-code-compliance for UPC 413.1-2009
- Prevents unauthorized change in temp setting

AHI's sophisticated electric tankless water heaters are engineered to handle everything from one low flow sink to one whole house for commercial and residential applications. Our tankless are designed to be installed in plain view and will enhance and décor. All units are designed and engineered with our revolutionary Coilless Technology® which inhibits lime scale, requires no maintenance, maintains efficiency levels of 95-99%, is suitable for all water conditions, and does not need a water softener. Not to mention a best in industry warranty and support. Simply Perfect Tankless!

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2011 Manufacturer Spotlight



Moen Incorporated: The Number One Faucet Brand in North America

Moen Incorporated offers a diverse selection of thoughtfully designed, on-trend kitchen and bath products for residential and commercial applications. As the number one faucet brand in North America, customers have come to rely on Moen® to deliver dependable products and service.

Moen's Global Presence

Moen has offices and manufacturing facilities in the U.S., Latin America, Canada and the Asia/Pacific region. In the U.S., the company is organized into separate and unique segments, to maintain flexibility and speed in meeting customer needs, including a Retail Unit; a Wholesale Unit, which encompasses Cleveland Faucet Group (CFG), Moen's multifamily brand; Creative Specialties International, a bath accessories and home safety division; and Moen's Commercial Division.

Moen President David Lingafelter is responsible for providing vision and strategic direction for all Moen business units worldwide, stimulating new product development and innovations in marketing, operations and technology. To enhance the company's long-term growth, Mr. Lingafelter recently announced Mike Bauer as Moen's President of U.S. Businesses. In this new position, Mr. Bauer has been charged with the leadership of Moen's U.S. business units, allowing Mr. Lingafelter to maintain his current role while focusing on Moen's global agenda. Moen's vision, under its current leadership team, is to be the best market-driven global fashion plumbing and accessory products



company, providing consumers and decision makers with innovative products and services that offer the highest value.

What Makes Moen Unique?

- **Commitment to Sustainability** — In October of 2010, Moen was chosen as the U.S. Environmental Protection Agency's (EPA's) WaterSense® Manufacturer Partner of the Year. The company was selected for this honor based on its significant WaterSense-labeled product offerings, efforts to promote the benefits of WaterSense to consumers and its strategic collaborations with retailers, government authorities, trade associations and non-profits.

To demonstrate the company's commitment to water conservation, all Moen residential and multifamily lavatory faucets have been certified to meet WaterSense criteria. In addition, 70 Moen showering models meet WaterSense criteria.

Adding to its WaterSense portfolio, Moen introduced five new

Commercial Eco-Performance shower systems that are certified to meet WaterSense criteria, offering a 40 percent water savings from the industry standard, without sacrificing performance.

- **Innovative Products Featuring Thoughtful Design** — Innovation isn't something new at Moen. In fact, it's how the company got its start, back in 1937 when Al Moen created the first single-handle mixing faucet, earning himself a nomination to the National Inventors Hall of Fame. Today, Moen's designers follow in Mr. Moen's footsteps...whose genius is perhaps best summed up in the simple title that appeared on his business card — Al Moen, inventor.

A sampling of Moen's commercial innovations include:

- **Vandal-Resistant Features** — Moen Commercial faucets have been designed with unique tamper-proof features, such as sturdy, solid-brass construction, recessed, shielded aerators, stainless steel handle stops and screws that can only be serviced with the help of a special tool.

- **M•Power™** — this complete line of hands-free products offers the ultimate in sanitary protection and reliable operation. Advanced electronics in all Moen M•Power faucets and flush valves limit false sensing and over-flushing, ensuring the right amount of water is used every time.



- **M•Dura™** — this line offers a full array of heavy-duty single- and two-handle faucets that are built to withstand the constant use of commercial applications. The entire line features durable, ceramic disc cartridges that prevent handle wobble while ensuring a positive closed position.

- **Eco-Performance commercial shower systems** — these WaterSense®-labeled showerheads offer a 40 percent savings from the industry standard, without sacrificing performance. They combine Moen's Eco-Performance showerheads with its Posi-Temp® valve to eliminate shower shock due to water temperature and pressure fluctuations.

- **Products That Are Built to Last** — Dedicated to exceptional durability and sophisticated style, Moen's full line of residential faucets, showerheads, sinks and accessories; plus commercial faucets, sensor-operated flush valves and showering systems, are designed to exceed expectations. With a limited lifetime warranty for all residential products and a five-year limited warranty on commercial products, customers and consumers can be confident that they are buying thoughtfully designed, on-trend products, backed by the superior reliability for which Moen is known.

For more information on Moen and its Commercial Division, visit moen.com or moencommercial.com.

Broken faucets. Running toilets. Rising water bills.
Yeah, and it's only Monday.



Let's talk solutions. Moen Commercial products are Built for the Real World – helping facility managers like Joe here keep his buildings running smoothly. Moen's commercial faucets, flush valves and showering systems have been engineered for quality, durability, safety and conservation. Plus they're easy to install, vandal resistant, and virtually maintenance-free, reducing facility water consumption by up to 30 percent. That means they'll deliver the long-lasting performance that equals lower lifetime costs for you, your people – and your boss. Making Monday a good day at the office for a change.



To learn more about how our products are built for the real world, visit www.moencommercial.com or call 800-BUY-MOEN.



MOEN[®]
COMMERCIAL

2011 Manufacturer Spotlight

SPEAKMAN®
Absolutely the best.

Speakman Company: Providing Customers with Top Performing Products

For more than 140 years, Speakman has been manufacturing the finest plumbing products in the industry, providing their customers with high quality top performing products. As the industry is constantly evolving, Speakman is developing products to meet important industry standards, such as water consumption and provide safe drinking water, address hygienic concerns, and keep product style in mind.

Speakman Company is proud to be a certified WaterSense™ Partner. On average, WaterSense™ products consume 20% less



Speakman S-9010 vandal resistant sensor faucet is perfect for any school, university and public facility and was designed for maximum vandal resistance and easy maintenance.

water and retain the same or better performance than less efficient products. Speakman offers a wide range of faucets and showerheads to meet WaterSense™ standards.

Speakman offers a wide variety of products for every market while always keeping the user in mind. For public restrooms in luxury hotels and commercial buildings, styles are changing from the traditional cold look of stainless steel partitions and traditional commercial faucets to upscale architectural tile and decorative looking electronic faucets such as the Speakman S-9300 and S-9800 series of products. These solid brass faucets also eliminate the need for a special ADA/ Handicap faucet, making the total look more fashionable and flexible to blend in to the

design of the room. Speakman's faucets are available single basin, 4" or 8" deck plate options.

In addition to styles changing, eliminating products that a user can touch or grab onto, both above the counter and below the counter are critical to preventing abuse while leaving the product in the same position for the next user. In order to address high traffic and abuse Speakman offers a lock down features to tighten the product to the bowls so they cannot be loosened with grabbing, twisting or turning. The electronic beam activation ranges have been adjusted for a faster on cycle.

Above counter concealed components and battery operation are standard for ease of maintenance. Solenoids all are equipped with built-in filters. This change to touch less product use is also a major consideration in restroom design today for the prevention of cross contamination of bacteria and viruses. Hands free activation through the use of sensor operated produces and foot pedal activation prevents cross contamination by eliminating the touching of potentially dirty objects which might



S-9300 is part of Speakman's sleek designer faucet series. All solid brass construction provides for a beautiful and durable installation.

germs from one person to another. The Speakman S-9010 faucet was designed with all these concerns in mind. Developed initially with the education market

in mind, the S-9010 is a 4" vandal resistant lavatory faucet with all the components above the counter inside the faucet housing. In addition to being highly vandal resistant, the 9010 keeps maintenance easy. Today the S-9010 is not only a solution for the education market, but has been specified for jobs in hospitals, stadiums, airports, and other public facilities.

ARE YOU SAYING THAT
THE SPEAKMAN TP VALVE
PROTECTS FROM **BOTH**
SCALDING & THERMAL SHOCK?

AND IT'S CERTIFIED
TO MEET ASSE 1016
AT 1.5 GPM!



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IS DOWN IN THE DUMPS... WHY?

**THE NEW SPEAKMAN SENTINEL PRO™
TP SHOWER VALVE IS HERE**

NO MORE EASY LEGAL SETTLEMENTS FOR
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DEFEND YOURSELF
Specify the new
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CERTIFIED TO 1.5 GALLONS PER MINUTE
Call 800-537-2107 to learn more or
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Plumbing Engineer's 2011 Manufacturer Spotlight



Product Quality & Customer Support Key To Bradford White's Top Ranking

For the fifth consecutive year, Bradford White Water Heaters has been named the tank type water heater brand most purchased by contractors according to a 2010 independent water heater study conducted by Clear Seas Research. And again, the company was named the brand most recommended by contractors to consumers. Bradford White has held the top position in both categories, brand most purchased and brand most recommended, since the categories became part of the study.

So what is it that Bradford White is doing right? In this internet era where companies are constantly "reinventing" themselves online in the race to win the favor of friends and followers on Facebook or Twitter, Bradford White is engaging customers, staying relevant and "friending" people the old fashioned way – by making great products, supporting its customers with accessible, efficient service, and staying true to a business philosophy that helped the company become the industry leader it is today.

"When you look at the reasons contractors prefer Bradford White, you realize that our philosophy to provide a premium product and to back that product with unequalled service and support is right on target," said Bradford White's Bruce Carnevale, senior vice president — sales and marketing. "We make a great product, there's no denying that. Manufacturing those products for wholesale distribution only is a critical reason we enjoy strong brand loyalty from plumbing and heating contractors."



24/7 Call Center

It was this focus on the customer support that led Bradford White to open the water heater industry's first ever 24 hour a day, seven day a week warranty and technical service support center at its Middleville, Mich. manufacturing facility. The new center is fully staffed with both warranty specialists and technical service experts. The entire staff has completed a rigorous and extensive training program.

"This is an exciting move for Bradford White and we are proud to have very knowledgeable people ready with the solutions our customers need whenever they need them," said Dustin Bowerman, Bradford White's director of technical services.

"Bradford White has always been a company that put a premium on customer service. Our continued volume growth in

recent years increased our call volume at a similar rate. This new state-of-the-art facility puts our customers first and will provide them with the best service and support in the business."

OnGuard RMT™ - Water Heater Management System



In the coming months, Bradford White will introduce its OnGuard RMT™ System, a remote monitoring technology and service available for commercial and residential gas powered water heaters. OnGuard RMT™ combines proprietary hardware, alert status notification, 24/7 factory-based technical support, and fast service dispatch to give customers the ultimate level of awareness, protection, and peace of mind.

When connected to the OnGuard RMT™ communication gateway, the status of the water heater is communicated directly to Bradford White technicians. This assisted monitoring protocol frees customers from monitoring their water heater's operational status. Bradford White technicians do the status monitoring and contact the customer in the event the water heater indicates a fault or requires service. These same technicians then contact an authorized service contractor to perform any required repair or maintenance. And just as important, Bradford White covers the cost of the service calls and repair.

In addition to the monitoring, live technical support and service dispatching, customers also get fault alert notification via email or phone call, and the tracking, reporting and data collection of unit performance. This data provides a record of burner cycles, fuel usage, run time, and water temperature fluctuation. The OnGuard RMT™ System also has the ability to monitor up to four manifolded water heaters with statistical data on each unit.

The consecutive streak of top brand rankings plus new services like the 24/7 Call Center and OnGuard RMT™ are strong indications that Bradford White isn't resting on its laurels. "We are very proud of our status as the preferred choice of professional contractors. But with it comes higher expectations from all our customers – wholesalers, contractors, business owners and homeowners alike," said Bruce Carnevale. "So we must continually reinvest in product innovation and quality with a focus on our customers. Otherwise, someone else will gladly take our spot at the top."

**Ranking is based on the 2006, 2007, 2008, 2009 and 2010 CLEAReports by Clear Seas Research. Please visit www.clearseasresearch.com for additional information.*

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Bradford White Contractors!
**NOW GET ROUND THE
CLOCK, EXPERT SUPPORT**

Water heaters don't have nights or weekends off. **Neither Do We.**



**INTRODUCING THE
WATER HEATING
INDUSTRY'S FIRST
EVER, 24/7 EXPERT
SUPPORT CENTER.**

**Technical Support:
800.334.3393**

**Warranty Support:
800.531.2111**

If you're a plumbing and heating professional, you know that customers call nights, weekends and even holidays. We understand that you're always on call. Now, whenever the situation calls for it, you can rely on Bradford White for expert support, 24 hours a day, 7 days a week. The Technical Service and Warranty Support personnel are U.S.-based, right inside our Technical Support facilities in Middleville, Michigan. Each technician goes through a rigorous and extensive training program before they take your call, preparing them with the know-how to diagnose and solve any challenge an expert like you might face in the field.

The next time—*make that anytime!*—you have a technical issue or warranty question about a Bradford White water heater, call our expert Support Center. Because the best water heaters and the best contractors deserve the best support.



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www.bradfordwhite.com

Built to be the Best™

To Find A Wholesaler Call **800.523.2931**

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Plumbing Engineer's 2011 Manufacturer Spotlight



Reliable Products that Meet Your Needs

Because we understand the needs of plumbers and plumbing engineers, T&S Brass is continuously looking at ways to improve its product offering—whether that means increasing the efficiency of a faucet or making it easier to install. One thing that has stayed the same, however, is the company's commitment to delivering quality, reliable products. From aerators to sensor faucets, T&S Brass manufactures plumbing products that can withstand the toughest commercial applications.

Since 1947, when T&S Brass developed the first pre-rinse unit, the manufacturer has been a leader in providing innovative equipment solutions. And when it comes to low-lead laws, the Buy American Act, LEED, and a general concern for the environment, T&S Brass continues to lead the way.

ChekPoint® Sensor/Manual Faucets



Available for deck-mount applications, the ChekPoint® EC-3106 electronic faucet offers the ability to switch from a sensor faucet to a manual faucet. It converts by simply rotating the top cap of the faucet until it locks into the desired mode. In sensor mode, the EC-3106 can help qualify towards points for LEED certification. It also complies with the ASME A112.18.1/CSA B125.1 performance standard and has a one-year warranty. Easy to install, the EC-3106 is AC/DC capable and features adjustable temperature control.

ChekPoint Above-Deck Sensor Faucets

T&S Brass now offers two new ChekPoint sensor faucets with above-deck electronics for easy installation and maintenance. The EC-3119A and EC-3119B come

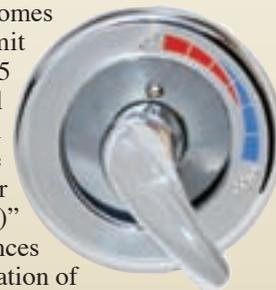
pre-assembled with all necessary mounting hardware, and have a one-year warranty, long battery life, adjustable temperature control, auto-sensor range adjustment, and vandal-resistant aerators. The EC-3119 models have passed rigorous testing inside T&S and comply with the ASME A112.18.1/CSA B125.1 performance standard.

Modular Waste Drain Valve

Patent pending, the B-3990 and B-3992 are designed to help save time and money on installation and maintenance. Designed with an easy push/pull opening and closing actuation, the drain valve is built to last and helps clear debris. The valve also features an adjustable large drain opening, which allows for easy snaking of drains. Both models are available for applications with 3.5 inch flange openings.

Pressure Balancing Shower Valve

The B-3200 solid brass construction shower valve is ADA compliant and comes with adjustable temperature limit stop, ½" sweat connections, 2.5 GPM adjustable shower head, metal handle, trim, and tub spout, as well as a replaceable ceramic cartridge with rotary actuation. The shower valve includes a "Valve Only (PBV)" rough-in version for those instances where there is a need for pre-installation of the valve only. The trim kit and other components can also be ordered separately to suit specific installation requirements.



To learn more about how T&S Brass can help you, visit www.tsbrass.com or follow on Twitter (@tsbrass).

RELIABILITY

I rely on T&S Brass because I know my clients will be pleased with the installation. It's reassuring to know that T&S products always work – no question. I also really appreciate how T&S is always up-to-date on the latest codes and standards, helping me make informed specifying decisions. And their range of water-conserving products are a great help meeting LEED certification. I know I can specify quality T&S products and rely on them to last just about forever.

John Neal,
Senior Plumbing Designer
Design Strategies



For more than 60 years, T&S Brass has been leading the industry with high-quality foodservice and plumbing products. For reliable products and reliable advice, T&S is the best choice.



RELIABILITY BUILT IN™

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EXPERT TIP ▶

In addition to Water Efficiency credits for LEED, T&S products can also help you earn points in Innovation in Design and Regional Priority. For more information visit www.tsbrass.com.

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Plumbing Engineer's 2011 Manufacturer Spotlight



Navien America Launches Innovative Condensing Combination Gas Boiler

Navien America Inc., the pioneer in high efficiency tankless water heaters, introduced its new Condensing Combination wall hung boiler in response to the rapidly growing demand for a tankless unit that fulfills a combination of heating applications.

Navien's Condensing Combination Boiler is versatile and ideal for domestic water heating and space-heating applications, including in-floor radiant heating, base-board heating, and fan assistance-air handler heating applications. It also features Navien's signature condensing technology and uses PVC venting which lowers the cost of installation and simplifies the process significantly. The Combi unit has all the traditional lifestyle benefits of Navien tankless technology and can offer substantial energy savings for end consumers.

The Combination Fin-type stainless-steel heat exchanger, stainless-steel condensing heat exchanger and premixed burner are components that make this product so unique. The Combi unit has an integrated primary and secondary heat exchanger that are made of stainless steel which prevents corrosion and ensures a longer lifespan over copper parts. The Stainless-steel components also maintain temperature consistency even during long periods of use. With the Combi model, Hydronic heating is made possible due to the stainless-steel's capacity to maintain low and consistent temperature levels and the unit captures as much condensation as possible making it highly efficient.

The "combi" unit is green-friendly and utilizes an "ECO" Pre-mixed Burner that generates at least 20% less CO₂ and about 75% less harmful air pollutants such as NO_x emission.

Also, an Outdoor Sensor can be connected to Navien's Condensing Combi water heater and the unit can automatically regulate the heating temperature according to changes in the temperature outdoors. Also, the Combi unit features a powerful "anti-freeze protection" device which serves as a safeguard against extremely cold temperatures.

The Combi unit also has a special Automatic Water Fill Valve and automatically fills water into space heating systems, in the event the unit senses low water.

"We are excited about the Condensing Combination model and we expect it to be very well accepted by contractors, wholesalers and consumers across North America" said Ted Kwak, President of Navien America. "Navien's Combination unit uses condensing technology and can fulfill many domestic water heating applications. It is easy to install with the use of PVC venting and cost effective and installers and contractors will appreciate the Combi unit for its versatility."

The Combi unit also has an ASA Control System that maintains a consistent, comfortable temperature throughout the home at all times which even takes into account the home's design as well as outside temperatures. The secret to this system involves



Navien's Condensing Combination Boiler is ideal for domestic water heating and space-heating application and, features Navien's signature condensing technology that uses PVC venting for easier, more economical installation. Its stainless steel heat exchanger, condensing heat exchanger and premixed burner ensure long life, reliable operation and consistent temperature levels.

a built-in thermostat which senses even the slightest temperature changes. The Combi's space-heating application calculates the amount of heat required based on the difference between the return-water temperature and the indoor temperature, then automatically adjusts and controls the temperature accordingly.

Professional contractors can purchase these innovative, Condensing Combination tankless gas water heaters, along with the rest of the Navien's product line at major plumbing wholesale houses across the United States and Canada.

Log on to www.navienamerica.com.

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KD Navien®

Condensing Combination Gas Boiler/Tankless Water Heater



Take advantage of Navien's state-of-the-art technology and cost saving benefits!

In Today's Market, Cost Savings are Important!

Now customers will enjoy lower installation costs and cash in on low annual operating costs and receive the best payback, compared to conventional combination systems.

- Endless hot water supply (2-3 showers at the same time)
- Ultra condensing efficiency (CAFUE=0.92)
- Space saving design
- Low cost PVC venting solution with 3" SCH 40 PVC
- Optimal and stable operation
- Eco friendly Navien technology
- Easy Installation
- Best warranty



Remote Controller
NR-10DPU



KD Navien® Navien America Inc.

Plumbing Engineer's 2011 Manufacturer Spotlight

American Standard
Style That Works Better

Loews Hotels see service calls plunge 80 percent with the American Standard Champion 4® toilet



USA Today travel blog writer Barb DeLollis blew the lid off the issue of hotel toilet clogging earlier this year, spotlighting how Loews Hotels got a handle on the issue simply by choosing the right toilet. Dethroning inefficient toilets was also featured in *The Economist* and *AOL Weird News*, which plunged into the cost and maintenance savings generated by efficient flushers — now commonplace throughout the Loews chain and several Hyatt Regency Hotels.

Hotel toilet clogs “were just not acceptable,” said Tony Rodrigues, regional director of engineering for Loews Hotels at Universal Orlando in Florida. “When you think of a luxury four-star resort, you don’t envision being embarrassed by an overflowing toilet.”

Taken individually, the clogged toilets were easily solved with a few simple plunges. Rodrigues’ problem, however, was that nearly

120 service calls each month required a toilet plunger. As chief engineer who oversees three of Loews’ properties on-site at the Universal Orlando Resort, multiply this plunger exercise by three and this unpleasant, and “completely pre-

ventable”, issue had inconvenienced roughly 12 guests each day.

“The root of the problem was the mandated low-flow toilets, which clogged too often,” Rodrigues explained. “Often, the guest would clog a toilet and they would be embarrassed and delayed in their plans. In other instances, guests would use the restroom just before checking out and it was only after several hours of overflowing water before we discovered something was wrong.”

Rodrigues turned to his corporate counterpart for advice.

Flush and forget

“Suppliers had boasted about a virtually clog-free toilet from American Standard,” recalled Joe Thomas, corporate director of engineering for Loews Hotels.

“When we saw the Champion 4® toilet successfully pass a bucket of golf balls, we were impressed. And when we learned that it boasted the industry’s widest flush valve and the largest siphon trapway on the market, we thought we had our solution.”

Indeed, Thomas and Rodrigues were so confident in the Champion 4, that they didn’t explore other toilet replacement options. Confidence aside, the pair knew they had to substanti-

ate a recommendation to change out roughly 2,400 guest bathrooms with the new high-performance toilet.

Upscale hotels and resorts, such as Loews, generally perform “soft goods renovations” — replacing bedding, carpets, wall coverings, and the like — every six to seven years. More comprehensive renovations, termed “hard goods,” are scheduled every 10 to 12 years and include new furniture, tile and plumbing upgrades.

Although the three properties were all at least six years away from their hard goods renovation date, Thomas and Rodrigues felt the new high performance toilets were paramount in ensuring a top-quality guest experience.

Rodrigues devised a straightforward performance test by installing several Champion 4 toilets in each of Loews’ three Orlando properties and monitoring their performance.

After three months, he was stunned to discover that all of the “test” toilets performed as promised with zero guest complaints. Following the success of this 90-day trial, Thomas and Rodrigues were confident in bringing their unusual recommendation to senior management.

Solving toilet embarrassment

In 2005, Rodrigues convinced management of the urgency of the issue and was given the green light to include toilets in the soft goods renovation planned for the Loews Portofino Bay Hotel.

Following the change out, maintenance calls at Loews Portofino Bay property plunged more than 80 percent. That impressive performance record spurred Rodrigues to schedule similar upgrades at the Hard Rock Hotel® in 2006 and Loews Royal Pacific Resort in 2007. In all, more than 2,400 guest rooms were upgraded with the high performance toilet.

“Leading hospitality chains in North America are turning to the Champion 4 to provide a no-hassle experience for their guests,” said Chris Capone, vice president and general manager for American Standard. “The Champion 4 will move a mass that is 70 percent larger than the industry standard, which means Loews’ guests can flush with confidence.”

“Incorporating American Standard’s Champion 4 toilets into our Orlando properties has largely solved our toilet problems,” said Richard Senechal, AIA, senior vice president of facilities for Loews Hotels. “In fact, the product’s performance has been so dependable, that we’ve begun to incorporate the Champion 4 toilet at other properties.”

Senechal noted that the toilet is already present in Loews’ 439-room Coronado Bay Resort in San Diego, 414-room Atlanta property and 353-room Regency Hotel in New York City. Plans call for the Champion 4 toilet to be installed at most remaining hotels in the normal course of renovation.



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WHEN YOUR FLUSH
VALVE AND TOILET ARE
DESIGNED TOGETHER

POWERFUL
THINGS HAPPEN



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YOU**

American Standard offers 34 unique flush valve, toilet and urinal combinations to meet your price and performance criteria. Water-efficient, labor-saving, no call-back operation.

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American Standard
Style That Works Better



Plumbing Engineer's 2011 Manufacturer Spotlight

STIEBEL ELTRON
Simply the Best

Latest energy saving products from Stiebel Eltron

New Accelera® 300 heat pump water heaters

The new Accelera® 300 reduces hot water costs up to 80%. Heat pumps have been around for decades, but a heat pump water heater is a brand new concept. The Accelera® 300 works like an air conditioner but instead of dumping the heat outdoors, it puts it into the 80 gal tank of water. Additionally, it cools and dehumidifies the surrounding air and the tank insulation minimizes stand-by losses.

The beauty of heat pump water heating technology is that the amount of electrical energy needed to create hot water is greatly reduced compared to a conventional electric tank type water heater. The Accelera® 300 can extract up to 80% of its energy requirements from the energy in the air around it. The Accelera's compressor and fan consume only 1kWh of electricity to generate the heat equivalent of 3 – 5kWh.

The efficiency of the unit goes up with increasing ambient air temperatures. This groundbreaking efficiency redefines what a water heater is capable of, and what savings can really mean! In a warm climate, the unit can either be placed in the garage where it takes heat from the ambient air, or inside the house, where it helps with the air conditioning load. In a cooler climate,

A new concept in water heating, the Accelera® 300 heat pump water heater works like an air conditioner but instead of moving the heat outdoors, it puts it into an 80 gal. water tank. As an added bonus, it cools and dehumidifies the surrounding air.

the unit is typically placed in the basement where it also acts as a dehumidifier. You get hot water at a discount and a dry basement as well.

The Accelera® 300 is Energy Star certified and eligible for a \$300 federal tax credit through 2011, as well as any additional state or local tax or rebate incentives.



Tempra® series tankless, on-demand, electric water heaters

Tempra® and Tempra® Plus models deliver output water up to 140°, and include heavy-duty electronics, single flow sensor, easy access hinged cover, large inlet filter screen. Tempra® Plus models have a digital display for °F or °C readout and Advanced Flow Control™ to automatically adjust flow rate to maintain set point temperature. Further, the Tempra® series is now an ideal backup for solar thermal systems.

Stiebel Eltron Tempra® tankless, on-demand, electric water heaters are designed for whole house and various commercial applications. The Tempra® features the latest advanced microprocessor control that allows the exact water temperature to be set via a dial on the front cover. The advanced technology ensures that the water temperature will not deviate from the set point.

The compact, energy efficient Tempra® provides an unlimited supply of hot water, heated as it flows through the unit. Stand-by heat losses, so common in conventional tank-type systems, are completely eliminated thereby reducing water heating bills by 15-20%.

Designed and manufactured in Germany to North American standards, the rugged, space saving Tempra® (17"x15"x5") contains all copper piping and heating elements and ensures many years of reliable service.

There is an industry leading 3-year warranty on all Stiebel Eltron tankless, on-demand, electric water heaters, 10-years on all Accelera® 300 heat pump water heaters.



Stiebel Eltron's Tempra® tankless, on-demand, electric water heaters for whole house and commercial applications feature an advanced microprocessor control that allows the exact water temperature to be set using a dial on the front cover.

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INTRODUCING THE ACCELERA® 300 HEAT PUMP WATER HEATER: ACCELERATE YOUR SAVINGS!

New!



Energy from nature.

The new Accelera® 300 can extract up to 80% of its energy requirements from the air around it. Heat pumps have been around for decades, but a heat pump water heater is a brand new concept. The Accelera® 300 works like an air conditioner - but instead of dumping the heat outdoors, it puts it into the water.

The Accelera's compressor and fan consume only 1 kWh of electricity to generate the heat equivalent of 3 - 5 kWh. The efficiency of the unit goes up with increasing ambient air temperatures. This ground breaking efficiency redefines what a water heater is capable of, and what savings can really mean !

**QUALIFIES FOR
FEDERAL TAX CREDIT OF:
\$300**

- 10 YEAR WARRANTY
- 2.5 ENERGY FACTOR
- 80 GALLON STORAGE CAPACITY
- REDUCES HOT WATER COSTS BY UP TO 80 %
- COOLS AND DEHUMIDIFIES THE AIR AROUND IT
- LOW STAND-BY LOSSES THROUGH GOOD INSULATION



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TOLL FREE **800.582.8423**

www.stiebel-eltron-usa.com



STIEBEL ELTRON
Simply the Best

Plumbing Engineer's 2011 Manufacturer Spotlight



Dead Level™ Trench Drain System from Watts® saves time at the jobsite

Dave Hudgens, president of Sterling, VA-based Dulles Plumbing Group, a commercial plumbing and mechanical contracting firm, knows firsthand how advanced drainage technology can save jobsite time, keeping a company ahead of schedule for a client that's literally racing the clock 24-7/365.

Last year, Hudgens chose the Dead Level™ Pre-sloped Trench Drain System by Watts for a fast-paced, FedEx facility construction project. "There's nothing else like it on the market," Hudgens said.

"We discovered that with Dead Level, we not only stayed within the budget for labor, but also recovered valuable time on the jobsite," he added. "Once our crews got the installation recipe down, it was an easy ride. There was no sagging or shifting. We were very happy with Dead Level and are now using the trench drains on other jobsites."

Unlike traditional trench drains, Dead Level's unique frame-anchored system transfers concentrated and dynamic loads directly into the concrete slab, protecting channels from com-

"We discovered that with Dead Level, we not only stayed within the budget for labor, but also recovered valuable time on the jobsite. Once our crews got the installation recipe down, it was an easy ride. There was no sagging or shifting.

Watts' Dead Level system is now available in both 6" and 12" widths with a variety of gratings for diverse commercial applications. Each system is shipped complete with channels assembled to frames, grates, lockdowns, frame connectors, end caps, construction covers and all required hardware. When given a simple sketch of the run that shows lengths, flow direction and outlets, Watts promptly prepares a short run or a truckload of Dead Level components.

The flexible, modular design can be configured to slope to single or multiple outlets. Special corner/tee sections accommodate 90 degree turns without mitering. Standard 48" pre-sloped sections extend to 100'. Longer runs are quick to create by using neutral extension sections or multiple outlets. As Dulles Plumbing discovered, a two-man crew with rebar driver and laser level can easily set 100' or more in a day.

While gratings are installed before the pour, the system remains fully protected from construction traffic and debris by Watts-supplied construction covers.

When it comes to performance at the jobsite, Watts Dead Level is truly one of a kind. Visit <http://videos.watts.com> to see the Dead Level demonstration.

For information, visit www.watts.com.



mon stress and loading failures. UV-stabilized, talc-filled polypropylene channels lock longitudinally outside the structural frame and cannot pinch or fold in with the concrete pour. Solid flanged joint and end cap connections assure Dead Level runs are structurally stable and dead straight.

Circle 60 on Reader Reply Form on page 114

Add Depth to Your Project



Introducing our 2d and 3d CAD Library

Simplify your building modeling process. We have the industry standard 2d and 3d CAD files you're looking for including: Revit, DWF, ACIS, STEP, DWG and more. Files are available for our popular water safety & flow control, backflow prevention and drainage product lines with more becoming available every day.

Go to watts.com/CAD to download today. How's that for simple!

Available in

 **3dCAD** at watts.com

**WATTS**[®]
A Watts Water Technologies Company

Plumbing Engineer's 2011 Manufacturer Spotlight



ICC-ES PMG to Rescue Plumbing, Mechanical and Gas Product Manufacturers from Expensive and Low-quality Certification Bodies

ICC-ES PMG is the premier North American certification agency for plumbing, mechanical and gas products. It offers a program which certifies products to the International Plumbing Code (IPC), *International Mechanical Code (IMC)*, *International Residential Code (IRC)*, *International Fuel Gas Code (IFGC)*, the *Uniform Plumbing Code (UPC)*, and the *National Plumbing Code of Canada*.

ICC-ES PMG is an ANSI — accredited conformity assessment body (listing agency) that can certify, among other services:

- Fixtures (toilets, bathtubs, showers bases, etc.);
- Fittings (faucets, supply stops, flexible water connectors, etc.);
- Backflow prevention devices;
- Drain, waste and vent products;
- Pipe and fittings;
- Conformance with toxicity requirements (NSF 61);
- Conformance with low lead plumbing laws (AB 1953, NSF 372-Annex G, Federal law for reduction of lead in drinking water); and
- Conformance with WaterSense (urinals, toilets, lavatory faucets and showerheads).



ICC-ES offers incentives to clients through our “Transfer and Save” program. Such incentives save clients of other listing agencies approximately 40% when they transfer their business to ICC-ES. Benefits may be in the form of:

- Free Additional Company Listings;
- Free WaterSense listings;
- Free low lead plumbing law;
- NSF 61 listings in the same file as performance listings; and
- Savings from a listing without warehouse inspections, and many more.

Beside the benefits outlined above, the ICC-ES PMG program can offer:

- The advantage of a relationship with ICC, an organization whose membership includes more than 14, 000 code officials and/or plumbing inspectors nationwide.
- Section 303.4 of the 2012 IPC which requires that all plumbing products be listed to an applicable standard;
- ICC-ES’ team of 30 licensed engineers in a variety of disciplines; and
- The prestigious PMG mark of conformity.

Now, the choice is yours to acquire certification from ICC-ES at an affordable price and with the highest possible quality.

For more information, please visit www.icc-es.org/pmg.

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PMG LISTING PROGRAM

OFFERING UP TO 40% OFF*

product certifications for plumbing, mechanical, and fuel gas products.

ICC-ES now offers

**FREE WATERSENSE®, FREE AB 1953, FREE NSF/
ANSI-61 LISTINGS**

and more benefits.



**ICC EVALUATION
SERVICE**



The ICC-ES Plumbing, Mechanical, and Fuel Gas (PMG) Program is an ANSI-accredited listing program that helps code enforcement professionals determine whether listed products comply with applicable codes and standards. The ICC-ES PMG Listing Program can certify to AB 1953, Annex G of NSF/ANSI 61, WaterSense and more. **And as an added benefit, ICC-ES will not charge for additional company listings.**

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ANSI Accredited Program
PRODUCT CERTIFICATION
#1000

2011 Manufacturer Spotlight



Pure Water Products from Watts®

Now you can specify engineered solutions from our Pure Water line. Watts has been safeguarding water quality for more than 100 years. Whatever your site-specific

water quality problem, we have the technology to remedy the issue and the online specification tools to make installation design work a snap.

Choose from the industry's largest array of high quality water filtration and treatment products for commercial and institutional applications, including:

- Micro-Z Sediment Filter Systems with 2.8 times the sediment holding capacity of sand-type media. This enables you to reduce back-wash waste water volumes, system size and cost.



Commercial Reverse osmosis systems



Water Softeners

- Carbon Filter Systems with flow rates up to 129 gpm. Our coconut shell carbon is specifically selected for dechlorination to ensure the best possible performance.

- Water Softeners with flow rates up to 280 gpm. Regeneration is meter-demand initiated. We offer systems with 1" to 3" pipe connection sizes in both single and twin alternating configurations to cover most commercial applications.

- Reverse Osmosis Systems with production rates up to 100 gpm. These systems are engineered with reliability and performance in mind.

- Anti-Scale Systems. Environmentally friendly Watts OneFlow® Systems prevent scale while eliminating the use of salts and chemicals. These systems also reduce water consumption and waste water discharge.

More choices. More solutions. All from Watts, a name you know and trust.

Find the latest catalog at www.watts.com/purewater.



Introducing TempTAP™

The First ASSE 1070 Listed Thermostatic Faucet



TempTAP™ was designed with you in mind, to make ASSE 1070 lavatory tempering faster, simpler and safer. By integrating the tempering valve inside the faucet, thermostatic protection is just inches away from the point-of-use, where it's most effective. And now, thermostatic installation is above the sink, where it is easy to access. TempTAP features a powerful paraffin actuator that responds to pressure and temperature changes. TempTAP meets the latest lead free laws, has received the EPA's WaterSense® label, and complies with ADA activation requirements. So for your next specification, reach for TempTAP.

The faucet designed with you in mind — for greater peace of mind.



TempTAP™ Thermostatic Faucets
www.powerscontrols.com/temptap

POWERS™
 A Watts Water Technologies Company

2011 Manufacturer Spotlight



The Mighty MAGNA 32-100 – The Quiet Revolution just got smaller

The new smaller MAGNA variable-speed wet rotor circulator from Grundfos is powerful, reliable, intelligent, and energy efficient. MAGNA delivers plenty of edge by utilizing a permanent-magnet rotor – a revolutionary design pioneered by Grundfos. It's easy to install, simple to operate, and an excellent choice for replacement applications. With these features and more, MAGNA is the smart choice for optimized pump efficiency. STANDARD FEATURES INCLUDE:

- Permanent magnet motor design that will avoid motor slippage problems common to induction-type motors, while delivering a starting torque four times higher than a standard induction motor.
- AUTOAdapt™ function automatically modulates circulator performance to match ever-changing system demand, cutting power consumption by a minimum of 50%, as compared with other circulators in its class.
- Plug-and-play convenience: Ten-foot-long line cord connects the circulator to a wall outlet, with no wiring required, eliminating the need to open a terminal box to make electrical connections.
- Integrated frequency converter allows built-in intelligence analyzes current conditions and adjusts performance accordingly to ensure maximum efficiency during operation.
- Low Noise Level: When in operation the noise level of the MAGNA is less than 35 db or equivalent to a whispered voice.



For more information, visit the website at www.grundfos.us

For more information on MAGNA, visit poweredby.grundfos.com

BE > THINK > INNOVATE >

MAGNA™

POWERED BY SIMPLICITY

*So smart,
it's simple.*

Let the mighty MAGNA work wonders in your heating and air conditioning systems. MAGNA is the range of choice for medium- and large-sized commercial heating systems.

- AUTOADAPT™ technology is simply more efficient by automatically adjusting speed/flow to meet demand and achieve maximum system performance
- Plug-and-pump = simple to install
- Optimized sizing, installation and operation
- Uses up to 80% less energy than standard circulators

POWERED BY THE IMPOSSIBLE

To find out more about Grundfos energy-efficient circulators, visit us at:

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ALPHA

MAGNA
32-100

MAGNA

GRUNDFOS 

Plumbing Engineer's 2011 Manufacturer Spotlight



Navien America Expands Tankless Water Heater Line with Achieving the Industry's Highest Efficiency Ratings

Navien America Inc., the pioneer in high efficiency tankless water heaters, complements its state-of-the-art tankless water heater line with an ultra-condensing efficiency model that offers the highest thermal efficiency ratings in the industry.

Driven by Navien's unique design and signature "ECO" Technology, Navien now offers condensing water heaters for residential, and commercial applications which qualify for ENERGY STAR ratings. Equipped with all the traditional lifestyle benefits of tankless technology, Navien Condensing 98% models can offer substantial energy savings for residential and commercial customers.

Navien's economic venting system makes them highly efficient and Navien's condensing technology results in lower annual operating costs. Navien Condensing 98% also use 3" PVC venting which offers significant cost savings in the installation process and allows for a safer and easier installation process for installers and contractors.

"We are very pleased with the Condensing 98% tankless models and to our contributions to the tankless industry and we will continue to strive for releasing green-friendly products," said Ted Kwak, President of Navien America. "With Navien Condensing 98% heaters, consumers and contractors will get the best of both worlds, the benefits of tankless and ultra condensing efficiency, which offers substantial energy savings for the end user and an easier installation process for contractors who can utilize PVC venting."

Navien Condensing 98% heaters utilize dual stainless steel heat exchangers, providing 3.8 to 4.5 times longer life-expectancy and erosion resistance over the copper heat exchangers. Navien's unique condensing heat exchanger (secondary heat exchanger) traps condensation and uses it, making the whole process incredibly efficient and economical. Navien's ECO Premixed Burner not only dramatically reduces NOx emissions but also offer the industry's lowest level of emissions. These units also use less gas, resulting in less CO₂ emissions making them green-friendly.

Some of the Condensing 98% water heater models feature an optional circulation pump and mini buffer tank (model A) that eliminate cold-water stacking and offer further safety measures and hot water on demand when using external recirculation.

With Navien's 98 Ready Link Cascade System, contractors and installers can link up to 98 compact-sized Navien water heaters as one system, equating to the largest volume of hot water in the industry.

Professional contractors can purchase these innovative, Condensing 98% tankless gas water heaters, along with the rest

of the Navien's product line at major plumbing wholesale houses across the United States and Canada.

Navien America, Inc. is a global leader and technology innovator of the 98% energy efficient tankless water heater. Navien America was established to open new markets in the United States and Canada for KD Navien's technologically advanced



Navien's green-friendly Condensing Combination 98% tankless water heaters offer the benefits of tankless and ultra condensing efficiency for substantial energy savings, substantially lower emissions and easier installation. Their dual stainless steel heat exchangers provide 3.8 to 4.5 times longer life expectancy and erosion resistance than copper heat exchangers.

products. Navien America is eager to continuously provide high quality and innovative products that are environmentally friendly, energy efficient, and that offer hi-tech comfort and convenience to all customers. Navien America is an official ENERGY STAR® partner of the Residential Water Heater Program. Navien offers "The Ultimate in Energy Efficiency with Hi-tech comfort."

Log on to www.navienamerica.com.

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KD NAVIEN®

Condensing 98% Tankless Gas Water heater



The Ultimate in Energy Efficiency with Hi-Tech Comfort

- Easy installation and PVC venting
- 3" SCH solid PVC up to 100'
- Industry's highest efficiency rating - 98%
- Ready Link® Cascade System
- Optional built-in recirculation system with buffer tank
- Extended lifecycle utilizing dual stainless steel exchangers
- Advanced remote control - NR-10DU
- Industry's best warranty!



KD NAVIEN® Navien America Inc.



Remote Controller
NR-10DU

2011 Manufacturer Spotlight



Taco's LoadMatch® System Keeps Edmonton, Canada Library Warm in Winter, Cool in Summer

The city of Edmonton in Alberta Province, Canada, has a new community library named after a beloved Canadian author and politician that is a LEED Silver building (Canadian GBC standard). The Lois Hole Library is the city's 2nd largest library at over 25,000 sq. ft., and it comes with a Taco LoadMatch® single-pipe system to heat and cool the two and half story building that serves 30,000 community patrons a month.

Designed by Barr Ryder Architects of Edmonton, the award-winning Lois Hole Library is a striking building, adorned with a massive, upswept prow-like entrance that opens into a spacious interior that is bathed by natural light and accented by warm colors. The large amount of glass used provides not only an open vista into the library but also allows a tremendous amount of light out into the surrounding area. At night the library glows like a "beacon of light" to draw the community to it.



The facility employs sustainable technologies to limit the environmental footprint, including in-slab radiant heating, heat pipe heat exchanger loop, low-flow and ultra low-flow fixtures, plus a rainwater collection and grey water system that supplies the building's urinals, toilets and exterior hose bibbs.

Mechanical and electrical systems for the Lois Hole Library were designed by Williams Engineering Canada Inc., in business since 1978 and with offices in Alberta and Manitoba Provinces and in the Arctic Northwest Territories. City maintenance personnel were brought in early in the design process, which allowed them to have an input on the systems being selected for the building. The city requested three options on mechanical equipment and Williams' preferred option was the LoadMatch fan coil system for heat/cooling distribution.

City officials were at first skeptical of the unconventional LoadMatch system because they had not encountered it before. City officials were invited to a seminar where Williams Engineering explained how they had already used LoadMatch successfully in a previous project in Edmonton several years before: in an Islamic school on the city's northside, where it "worked from day one," says David Folster, C.E.T, Williams' lead designer for the Lois Hole project.

Kehoe Equipment, Taco's rep agency in Alberta, had introduced LoadMatch and its dedicated design software program, Hydronic Systems Solution (HSS) to Williams Engineering in a hands-on training session held at the design firm's offices, and the firm decided to employ it in the Islamic school project. "Everything told us it was going to work," says Folster, who loves the HSS system design program from the piping side. "I trust HSS," he adds. "It's one of my main design tools today."

HSS allows design engineers to size pipe and equipment, automatically calculate total loads and flows, and select and schedule equipment. As design changes are made, the software automatically recalculates. Like others who have used HSS, Williams Engineering's staff discovered that the software saves them considerable man-hours and reduces calculation errors in comparison to more traditional CAD drawing means.

In addition to the radiant in-slab provided by Uponor, the Lois Hole Library contains a two-pipe, direct drive fan coil system consisting of 32 IEC fan coil units with LoadMatch circulators within the building's ceiling space. Fan coils with small circulators was the preferred option for heating/cooling the library's interior space because of lesser material and labor requirements. LoadMatch systems eliminate the need for control valves and most balancing valves, and a single pipe distribution system reduces the amount of pipe needed.

The library has two mechanical rooms – a main room consisting of two Raypak gas-fired, condensing Hi Delta boilers along with Taco KV/KS and 1900 pumps, Multi-Purpose Valves, Suction Diffusers and a 4900 Series Air/Dirt Separator, and a fan room in the attic space. Delta Controls-supplied DDC controls throughout the building vary temperature based on outdoor conditions and occupancy demands. Controls are interfaced with the City of Edmonton's BAS system, which monitors some 130 city buildings, and can be accessed within the library through a local terminal or offsite via a WAN modem.

Opened to the public in September of 2008, temperature and humidity control in the library has never been a problem in a city that experiences plenty of -10-15°F days and nights in winter. There have been no issues with the LoadMatch circulators, and change outs to the filters in the fan coil units are handled routinely. "I like LoadMatch," says David Folster, "with its one pipe sized to carry the full flow throughout the building. For 2 ½" pipe and above, LoadMatch makes perfect sense."

Information provided by Taco, Inc.



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“We spec Taco for its flexibility.”

– Wayne Mattson, P.E., Principal with G&V Consulting Engineers



Nathan Bishop Middle School Providence, RI

A distinguished middle school, dating from 1929, has been reborn in a \$36 million renovation project that includes a new high efficiency HVAC system.



The perfect fit.

The new HVAC system features eight Taco vertical in-line pumps (four for

the heat side, four to serve the chillers), chosen for their flexibility and small footprint. “We’ve been specifying Taco for years now,” says Wayne. “We’ve never had a problem with them.”

Less expensive, more efficient

Rounding out the system were New Climate chilled beams for radiant cooling, Fulton boilers, and custom energy recovery units by MAFNA Air Technologies. In the end, the project came in under budget and exceeds the requirements of the RI Energy Conservation Code by 40%.

A school restored

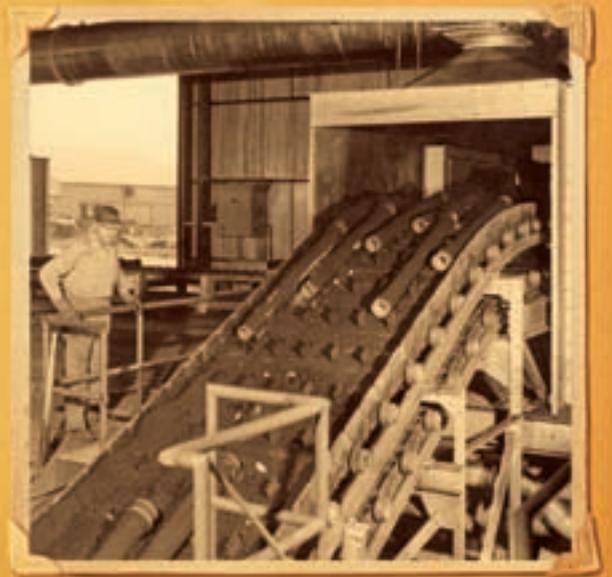
Restored beyond its original glory, Nathan Bishop has been recognized by the Rhode Island Preservation Society.

Green technology

Learn about all of Taco’s Green technology, include the LoadMatch® system and the LOFlo® system for radiant cooling and chilled beam applications.

Log on to www.taco-hvac.com, follow our blog, or join us on Facebook. As Wayne would agree, there is lots to talk about.







People are right
when they say America
used to build things.

But they're wrong to
think we stopped.

We started manufacturing pipe and fittings back in 1901. And we've been doing so ever since. Unlike the importers that have come and gone, we're a tried and true industry leader proven to withstand the tests of time. For generations we've been creating innovative new pipe products and perfecting the art of cast iron. That's what made Charlotte Pipe what it is today, and will carry us into tomorrow. So to those that say America no longer builds things, we have a foundry in North Carolina that says otherwise.

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FEELING FLUSH



Electronic (battery or hardwired) flush valves today require less voltage, which has resulted in greater battery life or reduced requirements of a building's electrical system.

By David Thompson

Flush valves have been a part of our society since the early 1900s. Even though the principles on which they function haven't changed much over the last century, today's flush valves are a far cry from that first generation. Those first flush valves were designed to flow as much water as possible in a short amount of time to empty and clean the fixture.

As time progressed and the U.S. population grew, the demand for water was also growing, but at an exponential rate. It became increasingly apparent that the need for flush valves that used less water was vital. In 1992, the EPA Act reduced the amount of water that could be used in a toilet from 3.5 gallons per flush (gpf) to 1.6 gpf, and urinals were reduced from 1.5 to 1.0 gpf. While the amount of water used during each flush cycle was being reduced, advances in manufacturing allowed for tighter tolerance, resulting in much better accuracy. The 1980s saw the introduction of sensor flush valves in restrooms. The need for hands-free restrooms was brought about by a

demand for cleaner and more sanitary restrooms and reduction in germ contamination.

Building owners today are demanding better flush valve performance and water conserving flush volumes. Through advances in technology, flush valves today can meet these demands with lower flows, better sensors and electronics and even with alternative power sources. Electronic (battery or hardwired) flush valves today require less voltage, which has resulted in greater battery life or reduced requirements of a building's electrical system. These lower powered flush valves are also using better sensor technology. Advances in infrared technology over the years have greatly reduced unwanted flushing and increased the accuracy of user detection.

The newest generations of flush valves offer alternative energy power sources, either solar or hydro-generated power. Solar valves convert light in the restroom into electrical energy to power the system, while hydro-generated

Continued on page 92

hi.

The HyTronic®

Say hi to the HyTronic® - the most reliable electronic faucet you can buy.

The HyTronic from Chicago Faucets has been built and tested with one goal in mind: to be the most reliable electronic faucet on the market. Water tight electronics and vandal resistant features, combined with a long-life lithium battery, ensure reliable performance for years to come. The twin-beam infrared system responds quickly and minimizes false activations. In addition, above deck components and remote diagnostic technology allow for fast, trouble-free installation and easy maintenance.

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Flush valves

Continued from page 90

valves use turbines that spin as the valve is flushed to create power. High efficiency valves are available not only in alternative power but also in battery, hardwired and traditional manual flush valves. These valves are offered from 1.28 gpf for toilets all the way down to 0.125 gpf for urinals. These systems not only help building owners conserve water, but they also greatly reduce overall operating costs.



High efficiency valves are available not only in alternative power but also in battery, hardwired and traditional manual flush valves.

When architects and engineers are specifying flush valves for facilities, key issues such as performance, sustainability and the cost of the valve over its expected life cycle need to be evaluated. Before these issues can be addressed, however, specifiers need to know what a customer is looking for in restroom equipment.

Are they looking for a manual or sensor activated valve, diaphragm or piston operated, standard flow or a high efficiency system? The answers to these questions will lead specifiers to the type of flush valve that is required for a project. Once the type has been determined, specifiers can look at several manufacturers and begin addressing a product's performance, sustainability and LCA, or Life Cycle Cost, which is the cost of the flush valve over its entire life expectancy.

When addressing valve performance, it's important to note that it's not just about the stated flow rate or the minimum pressure at which the valve can be operated; it's about repeatable performance. Flush valves that offer accurate and consistent flushes time after time help to maintain a plumbing system's performance, and they save water. Some manufacturers' flush valves can have a "break in" period, in which higher volumes of water are used; in facilities that are using high efficiency systems, the extra water can cause problems such as splashing and overflows. Other manufacturers' valves can have flush volumes that degrade over time from internal part wear, which leads to short flushes, thus, until new replacement parts are installed, a double flush may be required to evacuate fixtures.

Sustainability concerns flush valves that, once installed, will not have to be "touched" again for maintenance

for years to come. There are a lot of low flow valves on the market that, while they may use less water and offer return on investment through water usage reductions, can still consume internal parts on an annual basis. Whether those parts are batteries, gaskets, seals or internal kits, they still must be replaced; the old parts wind up in the trash. Alternative energy-powered flush valves help reduce battery replacement cost and disposal, but, if the valves use traditional black rubber seals and gaskets, routine maintenance will still need to be performed. Newer advances in flush valve seals, gaskets and internal kits' material compositions allow the internal parts to last longer in today's potable water supply, even with increased levels of chloramines.

Finally, the LCA, or cost of the flush valve over its expected life cycle, needs to be determined. Tied to both the performance and sustainability of the valve, life cycle costs incorporate all the cost associated with ownership of that flush valve. The initial product purchase cost historically has been the key factor in decision making. Today's building owners are not only looking at the initial purchase and installation cost but also at the maintenance that will be required over its entire expected life. The cost to repair and maintain some flush valves over a 15 – 20 year time period often winds up being more expensive than the original valve cost. Flush valves that have the lowest life cycle cost while maintaining high performance are what owners are looking for today.

When architects and engineers are specifying flush valves for facilities, key issues such as performance, sustainability and the cost of the valve over its expected life cycle need to be evaluated. Before these issues can be addressed, however, specifiers need to know what a customer is looking for in restroom equipment.

Today's building owners are demanding more for their dollar when it comes to their facility and the products that are installed. When owners are considering a new building, they are not only concerned about the upfront cost but also about what it will cost to operate it over the next several decades. Restroom products might be small in cost compared to other required building systems, such as HVAC, but making the right choices today can add up to big savings versus expenditures later. Using flush valves that perform consistently, use advanced seals and gasket materials and operate on alternative energy power sources will result in restrooms that save building owners money, and they will not have to worry about throwing money down the toilet. ■

David Thompson is the sales and marketing coordinator for the Zurn Commercial Brass Operation.



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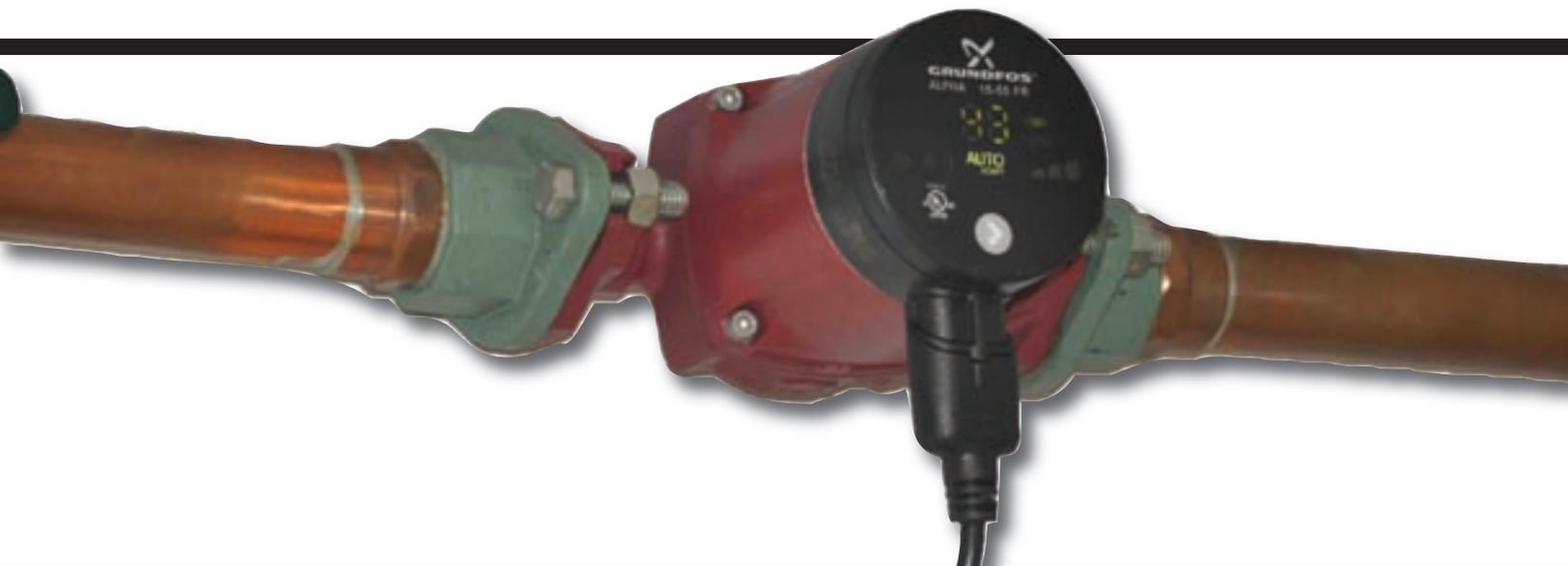
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Connecticut Wholesaler Test-drives Energy-saving Circulator

When it comes to bringing new products to their contractor-customers for the first time, plumbing and heating wholesalers tend to tread very carefully. New products with breakthrough technologies can carry the promise of increased sales and profits, as well as, perhaps, greater jobsite productivity or application efficiency.

Breakthrough technologies are also, by definition, uncharted waters for contractors. Most tradespeople understandably fear that any departure from the tried-and-true will lead to installation mistakes, callbacks and returns from angry customers and a consequent loss of time and money. Better to leave the risk taking to more adventurous souls with deeper pockets, cautions conventional wisdom: If a new product ultimately lives up to its marketing claims, there will be plenty of time to capitalize.

As a former contractor turned successful wholesaler, 56-year-old T. J. Hunt of Danbury Plumbing & HVAC Supply (Danbury, Conn.) is well versed in the hazards of the trade with regard to new products. Recently, when he had the opportunity to champion a new circulating pump from one of his company's better, long-time suppliers, he opted for a third way — somewhere between "jump-right-in" and "wait-and-see." As a result, he found himself standing on much firmer ground when it came time to promote the energy-saving benefits of this breakthrough product, the Grundfos ALPHA, to his customers.

Grundfos ALPHA: Over the past couple of years, Hunt and his team had been following positive reports about a new generation of energy saving, variable-speed circulators for hydronic applications. Developed and successfully used for the better part of a decade in Europe, these new pumps automatically adapt their outputs to current demand, no matter how often conditions change, while incorporating a permanent magnet motor design that sharply reduces electric power consumption.

"Grundfos Pumps was the first to bring this successful technology to the United States," Hunt remarks. "They are a good vendor of ours and we have always worked well with the folks at Urell, their independent rep in our territory. The product seemed to be an excellent fit."

Although Hunt saw introducing the new ALPHA circulator from Grundfos as a prime opportunity to help his customers perform more energy efficient hydronic installs, he also thought he needed something more than a brochure and a counter day to launch the product credibly. To persuade a contractor to make the jump to the new generation technology, Hunt believed that he first needed to take that leap himself. That is why, in November 2009, he chose to install eight ALPHA units in the radiant floor heating system in his own home, replacing an equal number of conventional circulators, made by a rival manufacturer, that were part of the home's original equipment.

"When contractors hear that this new circulator will cut power consumption by half or more, most are bound to have their doubts," reasons Hunt, explaining his strategy. "And when they hear about the higher price point of the new technology versus a conventional circulator, our selling job turns even tougher.

"I just wanted to be able to say to my customer, 'Hey, this pump really will do X, Y and Z, just as the manufacturer claims. That performance will fully justify the larger price tag. How do I know? Because I've used it myself and saved money. I even have the lower utility bills to prove it.'"

The application: Hunt served as his own installer on this home project, which is no surprise, given his lifelong industry background. His grandfather, Thomas Hunt, and his father, Vincent J. Hunt, both worked as independent plumbing and heating contractors for decades, each ushering the next generation into the family trade (as

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Circulators

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opposed to “family business,” since each man preferred to start his own, eponymous company).

Following a youthful apprenticeship under his dad, the third generation launched T. J. Hunt Plumbing at the tender age of 22 in the mid-1970s. Several years later, T. J. came in from the field to teach plumbing in a local vocational technical school before his professional life took yet another interesting turn.

As a boy accompanying his father on the job, Hunt got to know Danbury Plumbing Supply and its longtime



TJ Hunt in his home's basement mechanical room with the eight ALPHA circulators he installed to provide a point: 'I just wanted to be able to say to my customer: 'Hey, this pump ... will fully justify the larger price tag. How do I know? Because I've used it myself and saved money.'"

owner Phil Edelstein. Some years after their first handshake in the 1960s, the latter offered the 25-year-old T. J. a part-time position managing his radical-for-the-times, retail parts counter operation. That initial experience ultimately led to a full-time position one year later, in 1982. The employer-employee relationship with Edelstein evolved into a mutually beneficial professional partnership that spanned the better part of two decades, with Hunt acquiring controlling interest in the firm from the retiring Edelstein in 1994. The new owner subsequently added “& HVAC” to its name “to reflect his own skills and interests.”

In short, an industry veteran of more than 40 years, Hunt knows his way around a circulator. Changing out the old pumps for the eight new ALPHA circulators took only half a day, he says. “The electrician who did the boiler wiring when the house was built put in pigtails and used plug-in circulators, so I did not have to create any new wiring,” adds Hunt. “That saved me a considerable amount of time.”

Built in 1997, with radiant floor heating throughout, Hunt's Danbury residence was “not the ultimate challenge” for ALPHA, he acknowledges. For one, the low water temperatures of his radiant system would be less demanding on the pumps than a conventional hydronic baseboard setup. In addition, the home's eight heating zones are each controlled by a dedicated circulator that maintains a constant pressure. As a result, Hunt didn't necessarily need the ALPHA's AutoAdapt feature, which automatically adjusts pump speed and pressure to meet

changing demand.

“The eight separate, dedicated pumps in my system are not constantly ramping up and down, opening and closing zone valves, as would be found in a system with a single circulator that was accommodating multiple zones,” Hunt explains.

To set the system properly, Grundfos senior product manager Bob Reinmund traveled from company headquarters in Olathe, Kan., to spend a day on the installation site. He subsequently put two of the pumps in the AutoAdapt mode, while the other six were given one of two different fixed-pressure settings.

System operations subsequently went just as smoothly as the installation. “Even before Bob's visit, I knew the system was performing well from a comfort standpoint,” says Hunt. “My floors were warm, my house comfortable, and my family perfectly content.

“We especially like the quiet,” he continues. “Our main living area sits directly above the boiler room. With the old pumps, you always knew when the system was kicking on, because of the motor hum. But with the ALPHA, we hear nothing. Any cut in the decibel level of your home's mechanical systems is a very big deal.”

The payoff...to date: With the comfort side of the equation in order, Hunt now awaited the verdict of his monthly utility charges for a more quantifiable assessment of the pumps' performance. Since the first electric bill arrived in December, he has not been disappointed.

Over this past winter, the wattage of the ALPHA circulators ranged from a low of 7 to a maximum of 23 in the



Vice president of sales Josh Hunt (left) and vice president of operations Scott Fengler inside Danbury Plumbing & HVAC Supply's Degrees of Comfort showroom, which presents a variety of energy-saving heating products, including the ALPHA, for contractors to use to educate their customers on the benefits of conservation.

coldest weather, for a total of 112. That represents a substantial improvement over 80 watts for each of the eight previous circulators, or 640 watts total, according to Hunt, who describes the recent cold season as “a typical New England winter,” albeit with considerably less snow.

Thanks to an ongoing savings in power consumption of between 70 and 84 percent, the Hunt family's monthly electrical bill has been consistently down 12 to 14 per-

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Mechanical Piping Systems:

Keeping Your Structure Safe and Maintainable

By Dave Hudson

Piping systems in structures both large and small will nearly always require some degree of system maintenance. The efficiency and life of pumps can be reduced greatly by floating debris in the system, and boilers, water heaters and pressure reducing valves in larger buildings are all subject to wear and tear, increasing maintenance obligations.

Erosion can happen over time in bearings and impellers, requiring pump maintenance. In addition, a piping system would need maintenance or replacement if the lines become corrupt. These concerns are easily addressed in piping systems that have been installed with grooved mechanical pipe joining products, as these products, compared to other joining methods, are inherently easier to work with during maintenance activities.

Periodic inspections, physical changes or expansion to the piping system, as well as unscheduled repairs, are three of the most common types of piping system maintenance. Periodic inspections ensure that the system is intact and that water softeners, filters and water heaters are operating at maximum efficiency. Physical changes are performed to adjust existing installations, replace old piping or expand an existing system. Unscheduled repairs are the most time sensitive, because they usually need to be done immediately and often require a system shutdown.

Grooved mechanical pipe joining systems offer many maintenance benefits, including the ability to reduce unscheduled maintenance time, due to ease of disassembly and reinstallation, as well as improvements in safety, system reliability and reduction of system fatigue. A quick look at the details of a grooved mechanical coupling reveals how grooved mechanical piping systems make piping system maintenance faster, easier and safer than other joining methods.

Grooved mechanical joints

A grooved mechanical pipe joint is comprised of four elements: the grooved pipe, the gasket, the coupling housings and the nuts and bolts. The groove is made by cold forming or machining a groove into the end of a pipe. A gasket, encompassed by the coupling housing, is wrapped around two pipe ends, and the key sections of the coupling housing engage the grooves that are cold

formed into the pipe. The bolts are then tightened with a socket wrench or impact wrench. In the installed state, the coupling housing encases the gasket and engages the grooves around the circumference of the pipe to create a leak-tight seal in a self-restrained pipe joint.

Grooved pipe joints can employ one of two basic coupling styles: flexible or rigid. Flexible couplings allow a limited amount of linear and angular movement, while rigid couplings create a rigid joint and do not allow movement, similar to a flanged or welded joint. There are benefits to both styles. A rigid coupling can be used wherever immobility in the pipe joint is needed. Flexible couplings are designed to accommodate piping

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Mechanical Piping

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expansion, contraction and deflection, and thus are ideal as joints around equipment connections, for changes in piping direction and in the building of expansion/seismic joints.

Grooved mechanical systems are available in a broad range of sizes for a wide variety of piping applications; they are most widely used, however, in fire protection, HVAC and plumbing applications including potable water systems, storm water systems, roof drain systems, vacuum plumbing systems and rain, waste and vent systems. Grooved copper systems are most commonly used for joining domestic water systems in 2 – 8”/50 – 200mm sized copper tubing. Grooved stainless steel systems offer an alternative to copper in many applications.

Safety

One of the many maintenance benefits of grooved piping is the increased safety during installation and maintenance, decreasing the risks to the contractor and building occupants.



Grooved mechanical piping systems are safer than other pipe joining methods. They enable contractors to assemble piping flame-free within the facility, eliminating the fire hazards typically associated with soldering and brazing. Those methods, like welding, are rife with hazards, including fire risk, electric shock and exposure to compressed gases and toxic fumes. They also require personal protection for the eyes, hands, feet and body. Welding, soldering and brazing also involve many time-consuming steps to join pipes correctly and require a fire watch during these procedures. This can slow the schedule and increase costs.

Because no flame, arc or gases are required to join a pipe with grooved couplings, the grooved system does not require additional man-hours or jobsite preparation and does not introduce toxic fumes to the facility.

Safety on the jobsite is always important; it becomes even more critical, however, during maintenance projects in buildings such as hospitals and schools, which

often must remain open and operational during maintenance.

Ease of maintenance

Among the most important benefits of grooved mechanical piping systems is the reduction and ease of maintenance. The design of grooved systems allows for less routine and scheduled maintenance. The C-shaped cross section seal on the gasket is very durable and can handle significant compressive and cyclical loading. Workers can pressurize and depressurize a system repeatedly for many years without fatiguing the rubber. In addition, grooved flexible couplings allow the pipe to move or vibrate within the coupling, which reduces the transmission of noise and vibration from equipment, thereby eliminating the need for rubber bellows or braided flex connectors, which are known to require periodic replacement and can be costly. The grooved flexible coupling attenuates noise without wearing out the gasket.

If maintenance is needed, grooved mechanical systems enable quicker and easier access than other pipe joining methods. The grooved system reduces rework by 10 – 15 percent over soldering and brazing. A coupling provides a union at every joint, which allows easier access to the system as well as the flexibility to expand or reroute the system. To remove the coupling, the worker simply loosens the nuts and bolts and removes the coupling housings and gasket — no torch, saw or flame is required. Once the job is complete, the coupling can be reassembled on the grooved end of a pipe, valve or fitting.

The assembly and disassembly of grooved systems is much easier and therefore requires less labor. It also eliminates the need for complete system shutdown because it does not require torches, and, therefore, the system doesn't need to be completely drained and dried. This makes it easier for the building to return to full operating capacity quickly and does not disrupt building occupants. Serviceability in tight spaces is also easier and more time efficient with grooved systems, because grooved couplings allow a full 360 degree rotation of the pipe and system components before tightening so that proper alignment can be achieved.

Conclusion

Grooved mechanical systems are a safer and easier alternative to maintaining a building's piping systems, making the grooved pipe joining method a viable option for projects that would require regular maintenance procedures or where occupants of the building cannot be disrupted for maintenance work. In addition, grooved systems offer ease of access, reduced man hours on the jobsite and less safety risk. ■

David L. Hudson is a senior engineer for Victaulic Company Inc. He is a practicing mechanical engineer with 30 years of experience. He can be reached at dhudson@victaulic.com.

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By Rod Magnuson

Specifying Today's Drinking Water Solutions

Everything an engineer should know to specify the ideal unit for every job.

The marketplace for drinking water solutions in commercial applications has evolved significantly in the past few years. Largely due to growing environmental concerns, coupled with increasingly budget-conscious consumers, the demand for public sources of clean drinking water has greatly increased. With this amplified demand has come the introduction of many innovative new options designed to offer the ideal solution for each unique setting.

From vandal-resistant drinking fountains and environmentally-efficient water coolers to today's latest innovation, bottle filling stations, the options for serving up a sanitary, satisfying sip of water are greater than ever before. While these extensive options may seem daunting to navigate at first, today's plumbing engineer/specifier is in a prime position to help customize solutions for any and all commercial facilities, delivering the ideal source of drinking water for the end user and ensuring customer satisfaction at the facility level.

There are several key considerations that plumbing engineers should take into account when specifying drinking water solutions to ensure that the right unit is specified for each individual job:

- Understand the product portfolio and options available from manufacturers.
- Consider the environment for the drinking water device.

- Appreciate the overall eco-friendliness of the commercial property.
- Specify products that meet all ADA compliancy requirements and local plumbing codes.
- Team up with quality manufacturers that offer sound warranties and superior customer/technical service.

Understand the product portfolio

With the shift towards a more energy efficient, water-conscious world, manufacturers are developing drinking water solutions that are not only Code and ADA-compliant but also sustainable in their design, functionality and performance. Plumbing engineers/specifiers have the opportunity to specify top-rated drinking water products that are also responsible choices for the environment. Be sure to ask manufacturers whether they have products that are:

- GreenSpec listed
- Made of recycled materials
- Designed with energy efficient refrigeration systems
- Built with a lower-flow bubbler that also provides a satisfying drink
- Engineered with a water system that is free of lead-containing brass parts, as well as manufactured without paints or coatings, eliminating VOC emissions.

With the environment as a driving force in product development, Elkay Manufacturing, now with several units GreenSpec listed, has dedicated an abundance of time and resources to engineer drinking water solutions that satisfy the needs of the end users, while also minimizing their global imprint.

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Drinking water solutions

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The environment and end users

When specifying a water cooler, drinking fountain or bottle filling station, an engineer should also consider what type of environment they're working in, such as outdoor, indoor, corrosive, explosive, or an environment that is susceptible to extreme use or vandalism. Each of these different environments can help guide the engineer towards the appropriate product for its surroundings. For example, to endure in corrosive environments such as refineries or coastal regions, a professional should specify products made of stainless steel.

Since manufacturers offer products designed specifically for outdoor and indoor settings, that's an easy starting point for the engineer as well. When specifying for an outdoor setting, the most important consideration is whether or not there is electricity onsite, since that has a direct effect on which products can be installed. As most plumbing engineers know, drinking fountains dispense ambient temperature water, while water coolers chill water to approximately 50 degrees and dispense it to the end user.

An electrical infrastructure is needed to chill the water,

stations such as the EZH20 from Elkay are designed to provide end users with a rapid fill of cold water for their existing bottles and cups, offering an alternative to drinking and discarding plastic bottles. To help users visualize the environmental impact of using the EZH20, it features a green ticker that displays the running total of bottles saved. From the hallway to the gym to the cafeteria, bottle filling stations offer smart solutions for delivering clean water at schools.

Since bottle filling stations offer hands-free, sanitary operation, along with convenience and environmental efficiency, they are also a popular choice among healthcare facilities and almost any indoor commercial application.

ADA and code compliancy

Engineers should also take ADA requirements into consideration when specifying water coolers, drinking fountains and bottle filling stations. Most manufacturers offer ADA-compliant products that not only make life easier for people with disabilities but also allow facilities to meet the requirements of federal law. Specifiers should be aware of

Factor	1.58	1.15	0.84	1.53	1.08	0.80	1.40	1.00	0.75	1.25	0.92	0.65
Room Temperature ° F	70	70	70	80	80	80	90	90	90	100	100	100
Water Inlet Temperature ° F	70	60	90	70	80	90	70	80	90	70	80	90

Example: Water Cooler size - 8.0 G.P.H. (at Standard rating 90° F- 80° F). Desired condition - Ambient 80° F, water inlet 70° F. Estimated capacity = factor x G.P.H. rated.
 = 1.53 x 8.9
 = 13.6 G.P.H.

so that is a key deciding factor when choosing between a water cooler and a drinking fountain. Many outdoor environments, such as parks, may not have electricity available to power a water cooler, so, in these instances, a drinking fountain is the best solution.

In addition to electricity, weather conditions are an important element to consider for outdoor applications. For example, drinking fountains can be the ideal outdoor choice in temperate climates, while water coolers may be better suited for areas of the country that experience harsh heat, since they dispense chilled water for added refreshment.

For both outdoor and indoor environments that experience heavy traffic and rough use, such as recreational facilities and schools, vandal-resistant drinking fountains and water coolers can offer a durable solution, since they are engineered to withstand frequent use, rough handling and even vandalism. For example, Elkay Commercial offers a Heavy Duty Vandal-Resistant series that is virtually indestructible.

When it comes to indoor applications, the setting is equally important. For instance, at hospitals and other healthcare facilities, sanitary concerns are usually the top priority, so the engineer should consider a unit with hands-free functionality.

On the educational side, a growing number of schools and colleges are implementing bans on bottled water to help reduce the amount of plastic bottles being sent to landfills, which has resulted in an influx of bottle filling stations on campuses throughout the country. Bottle filling

local and state codes, in relation to both child and adult ADA requirements. Reference www.ada.gov for more information or www.access-board.gov.

End users and specifiers alike should be aware of contaminants found in drinking water. The NSF/ANSI 61 Standard regulates the levels of contaminants (including lead) that can leach from drinking water devices to potable water. Elkay was the first company to comply with the entire NSF/ANSI 61 Standard on water coolers, drinking fountains and remote chillers by redesigning its products and manufacturing processes. Elkay's extensive line of drinking water solutions were also years ahead of the curve when it comes to CA AB 1953 compliancy.

Warranty and customer service

Finally, it is crucial to ensure that the manufacturer offers a long-term warranty and first-rate customer service for each device specified. For example, Elkay ensures that plumbing engineers and specifiers have access to their robust technical support staff, as well as to hundreds of support technicians in the field. For more information about Elkay commercial water coolers and drinking fountains, visit www.elkayusa.com or call Elkay customer service at 630/572-3192. ■

Rod Magnuson is director of commercial products for Elkay. Rod can be reached at Rod.Magnuson@Elkay.com or at 630/574-3500.

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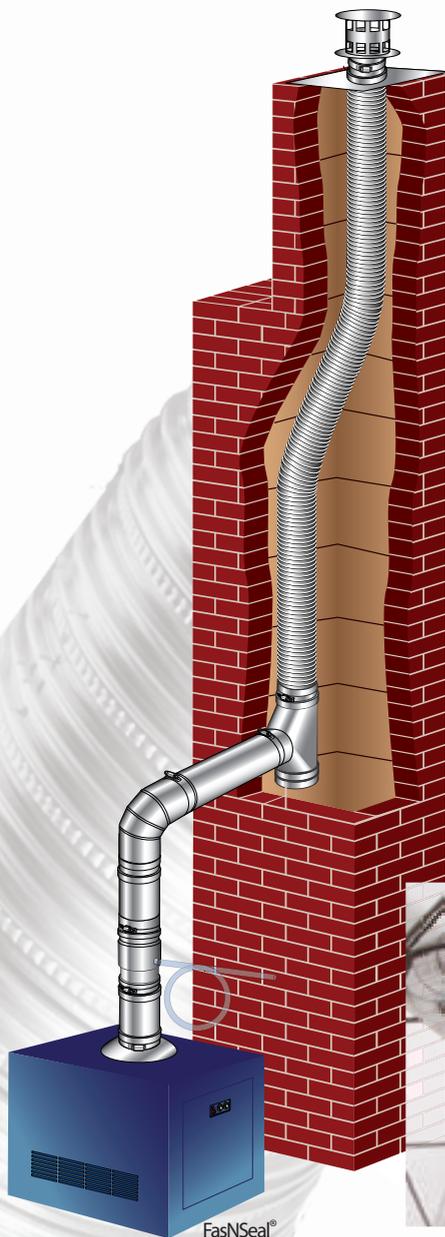
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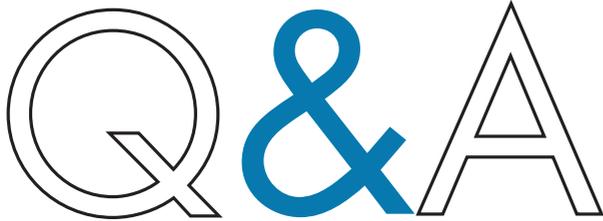
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Delany Products: Setting Sights High



with Scott Delany, VP & CFO, Delany Products

In this continuing uncertain economy, spec'ing the right product for the job is imperative. The company behind the product is just as important. Delany Products is one such company that takes pride in producing hand-crafted valves and is second to none in quality, service, dependability and delivery.

Coyne & Delany Company was born in Brooklyn, New York. In 1879, John J. Delany decided to risk the job security of being a horse-drawn streetcar driver to, along with his partner, Thomas Coyne, found a company that manufactured plumbing products. In those days, plumbing products were copper-lined wooden bathtubs and wooden overhead tanks for water closets. By the early 1900s, a wide variety of plumbing products were being produced, among which were cast iron bathtubs, brass plumber's trim, wooden flush tanks and fittings and ballcocks.

By the 1900s, the product line had expanded to the point where Tom Coyne and John Delany were starting to see the fruits of their labor, with their salaries rising to \$25 per week. Then, in 1910, Tom Coyne died suddenly. The Coyne family had no male heirs and sold their interest in the business shortly afterwards. In 1928, the company designed its first diaphragm operating flush valve, the Flushboy, considered to be the simplest (and thus most reliable) design for direct pressure flushing.

Like the nation, the company suffered through the Great Depression. During this time, and leading up to World War II, many design improvements and Delany patents refined their basic diaphragm flush valve to the point that it required only six moving parts. The copper-lined bathtubs and other product lines were replaced by the flush valve line. At this time, Coyne & Delany was a leading manufacturer in the mid-Atlantic and Northeastern states. World War II brought such huge demand for flush valves that, by the end of the war, the company was no longer just a regional supplier but a national manufacturer, specializing in diaphragm flush valves.

In 1969, Coyne & Delany moved from its home on Kent Avenue in Brooklyn to Charlottesville, Virginia, where they purchased seven acres of land and built an expanded state-of-the-art manufacturing plant. At this time, the transition to the company's fourth generation of family ownership and leadership was underway. In 1979, the company celebrated its 100th year in operation, a huge accomplishment shared by only a few other American companies.

In the 1990s, as globalization began changing the world economy, competitors began importing cheaper products

from overseas. These firms changed the commercial plumbing landscape forever, often by grabbing market share via discount price strategies, not based upon quality. These imported products posed a significant threat to smaller family owned U.S.-based manufacturers such as Delany.

As these changes were occurring, the old Coyne & Delany struggled to adapt. The run-up in copper prices in the mid-2000s provided the final tipping point. As other firms absorbed the commodity price increases, the small, family-run Delany saw slim margins erode into losses. The culmination of this was probably the darkest day in company history, when it was forced to close its foundry in November 2007 and lay off two-thirds of its workforce.

As the company limped along in 2008, a rebuilding plan was underway. Rebirth began in 2009 following a restructuring in the early part of that year, which resulted in the company cutting to the bone. Another 40% of staff was laid off and management took pay cuts. During this time the company transitioned itself to a lean efficient model that was focused on R&D, marketing and distribution, while 100% of assembly and 100% of product testing were performed in Charlottesville. The company also took on its first ever financial officer.

In the fourth quarter of 2009, the company unveiled its new name and logo, Delany Products, providing a clean simplified image of "Changing for the Better." By that time, the implementation of a new state-of-the-art CRM system was already underway, and the company began to hire back employees. An advisory board was set up to instill proper corporate governance and a first-ever representative advisory board was formed in order to get better feedback from the market. In 2010, the focus was on timely deliveries, in order to rebuild faith in the company. After successive years of losses, Delany turned a profit in 2010 and, with new products coming in 2011, the future is brighter than ever.

Recently, *Plumbing Engineer* caught up with Scott Delany, vice president and chief financial officer for Delany Products. The following is an excerpt of that Q&A:

How did you get involved in the industry?

Delany: Honestly, I have never been in the industry. I never worked for the company and have been living and working in Japan since 1997. My career took a very different path from my brothers. I am now drawing on this vast wealth of experiences to help the team today.

I started on the floor of the American Stock Exchange

Continued on page 108

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Q&A: Delany

Continued from page 106

before becoming an original member of a global brokerage firm called TIR in 1987. We built TIR from scratch and sold ourselves for \$125 million to E*Trade. Along the way, I moved to TIR/E*Trade's Tokyo office to run the trading desk there. From there, I left to establish a real estate investment fund, investing and running small to medium sized hotels throughout Japan. During this time, I was not aware of the magnitude of the company's downturn. I first became aware of the problems in 2008 and began consulting from Japan at night. By the end of that year, I saw the opportunity to return and help turn this sleeping giant around.

Explain your involvement in the company.

Delany: I work every day to implement and live our motto of "Changing for the Better." I have taken full responsibility for the company's finances, making sure that we have the capital necessary to expand and that we are focused on profitability first. I am also involved in both our short term and long term strategic planning — planning for the next markets, the next products and systems and the coming market trends.

What are your initiatives for the company? (What business philosophies of yours are instilled in the company?)

Delany: I believe that a company is like a shark. A shark cannot breathe on its own; it needs to always be moving forward in order to have water move through its gills. A company is the same; if it is not moving forward, then it's dying. I also feel strongly in the importance of being No. 1. People don't have a lot of time and don't want to take risk. Thus they naturally favor the No. 1 player in any given market. We are looking up at our competitors at the moment, but striving to be No. 1 will always be our primary goal. Our initiatives this year remain centered around building a solid foundation for delivering the highest quality products on time at a fair price and for introducing innovative new products. By the end of the year, we are looking to introduce a new product that will provide a major shakeup to our product lineup. It will have features not seen by the competitors, as well as other features that are new to Delany, making it far easier for engineers to specify our valves. In addition, this year we will begin offering 3D Revit files for a number of our products in order to make it easier for engineers and architects to work with Delany Products valves.

Can you explain the process and the importance of getting product to customers in a timely fashion?

Delany: For every manufacturer, timely delivery is important. For the new Delany Products, it is crucial. From 2007 through most of 2009, the old Coyne & Delany let down its customers with delivery times that were, well, unacceptable, to say the least. Since our return, timely delivery has been our focus, and I am proud of what my brother Peter, our head of manufacturing, has achieved in this respect. We are not quite where we want to be but have come a long way and are moving in the right direction. As we told all of our agency representatives at our first-ever national sales meeting at this past year's ASPE convention, as of Sept 30, 2010, the average delivery time across all items was 9.8 days.

How can engineers/builders benefit from spec'ing your product — through quality, innovation, on-time shipping, customer service and satisfaction?

Delany: Engineers and builders can feel confident in specifying any Delany Products item, due to our focus on simplicity and dependability. Our 130-plus years in existence and 80 years of focus on the flush valve speak loudly and clearly to these points. The quality of our product is the highest in the industry, from the DZR alloy we use to the precision machining of every flush valve. A drop of water in their valve is our customer's assurance that each and every valve has been water tested before it leaves our Charlottesville, Va., facility, a claim that no other competitor can make. In addition, our offering of 3D Revit files will make it easier for both the engineer and the builder to quickly and accurately make adjustments to designs while seeing all the knock-on effects of their changes to products like ours in their design, saving them time, money and headaches.

Are Delany Products certified through a third-party certification process? Explain the process.

Delany: The new Delany Products has built a relationship with Canada's CSA International, a leading provider of product testing and certification services. Products are tested for compliance to international and United States standards, and qualified products are issued certification marks. The CSA mark is a sign of confidence for millions of people globally. Currently, two of Delany's mainstay products have been given certification. As for the process, I will answer this from the perspective of a new product. All of our new products go through a rugged internal approval process. This starts in the lab, where we torture test a new product with at least 150,000 flushes and detailed documentation along the way. After making a production prototype, we field test in several locations for weeks at a time. Once this is done, and we are satisfied, we send that product to the CSA for their approval, which should be a formality at that point.

What are the top three obstacles your company faces(d)? How do (did) you overcome those challenges?

Delany: The three largest hurdles that we have faced as a company were our outdated systems, poor corporate communication and broken trust. From a system standpoint, we have gone through a painful transition, beginning in 2009 and through most of 2010, to our new state-of-the-art PC-based CRM system. For 2011, we are already in the process of upgrading to the next level of the software as well as adding a new inventory feature to it.

In terms of our corporate communication, we are streamlining our corporate message under the single name of Delany Products. Prior to 2009, the company was using several names at the same time: Coyne & Delany, Delany Flush Valves, Delany, and Delany Products. It was even maintaining two completely separate web sites. Today it is just the one name, Delany Products, streamlined, simple and delivering one message.

Our greatest hurdle to overcome was rebuilding the trust of our customers. Being unable to deliver complete valves for nearly two years took a toll on our valued customers' belief in us. Thus the reason for our concentration on time-

ly deliveries and my subsequent pride in the results that Peter has been able to obtain in getting our average time down to under 10 days. This has gone a long way toward rebuilding our customer's trust. But, we know that we are nowhere near where we want or need to be. There are several items that still have unacceptable delivery times, but, one by one, we will tackle all of these issues. This brings us back full circle to our new systems, which will be a key tool towards our achieving additional improvements.

How does (did) the economy affect your business?

Delany: With the falloff in new construction, our sector of the economy has been hit particularly hard. In some ways, though, this has been fortuitous for us as we have been able to use these slower times to restructure and reorganize, preparing ourselves for the time when demand returns. Our return to profitability during such a difficult time is also a testament to our loyal customers and to the changes that we have been able to make to date.

Do you deal entirely with wholesalers? Describe the importance of the wholesaler/manufacturer relationship.

Delany: Yes we deal entirely with wholesalers. The wholesaler/manufacturer relationship is an important one, as the wholesaler is a key piece of the puzzle for us, the manufacturers, to get our products through the supply chain to the

end user. It is with the wholesaler that timely deliveries are of the utmost importance. If we cannot provide dependable support for the wholesaler then they cannot build confidence in their customer that they can get our product on time.

Any new products (updates), service offerings, incentives, etc.?

Delany: We are still strengthening our core, working on continuing to reduce production costs and delivery times. Our aim is to introduce several new products in the latter half of this year. One such product will be the Titan, which will be a major departure for the company in both its look and feel. It will have the features that Delany is known for and yet there will be changes that will excite the engineer. It will have quality and other elements that will simplify life for the wholesaler, and it will be easy for the contractor to work with and install. In addition to the Titan, the Impulse, the market's first ever hands-free, battery-operated flush valve, will evolve into an improved and more user friendly version, to be called the Pulsar.

Describe Delany's presence globally.

Delany: Delany has been traditionally strong in Canada, South America and the Caribbean. We are looking to strengthen relationships in Asia with new product offerings and to begin expanding into select markets there. ■

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Product News

Plumbing Engineer's Editor's Choice



SCS® Dial-a-Time Pump Control

The SCS Time Adjustable Pump Control allows the end user to dial-a-time to the desired "on" and "off" pumping range; the built in 8-position dial has eight pump down choices from seconds to minutes to suit the needs and size of the application. The SCS switch replaces conventional tethered float switches; it reduces pump cycling, works well in confined applications, and prevents false actuations. The unit will operate any pump stand-alone up to 1 HP. **SEEwater Inc.**

Circle 100 on Reader Reply Form on page 114

LavSafe™ thermostatic faucets

Lead-free LavSafe thermostatic faucets feature an internal thermostatic valve. LavSafe's new Laminar flow outlets are ideal for healthcare applications where bacteria growth is a primary concern in both private and public restrooms. LavSafe's vandal-



resistant outlets are a perfect match for schools, and public restrooms where unauthorized tampering is also a concern. The anti-rotational plate design provides added security. With LavSafe, installation and maintenance are quick and simple. All key components are above sink level for easy access, eliminating the need to install a separate tempering valve below the point of use. **Watts.**

Circle 102 on Reader Reply Form on page 114

90 series pre-rinse spray valves

New 90 Series pre-rinse spray valves are designed to meet the rigorous demands of any food service application, offering superior water savings



without compromising performance. The versatile design allows the 90 Series to be used in pre-rinse, filler and hose reel locations, with appropriate models available for each of these applications. The $\frac{3}{4}$ "-14 UNS inlet thread easily installs to industry standard hoses. The 90 Series was designed with water conservation in mind. The pre-rinse models offer a maximum flow rate of 1.0 gpm — approximately 30 percent below the allowable standard — saving water and operating cost without sacrificing cleaning performance. **Chicago Faucets.**

Circle 103 on Reader Reply Form on page 114



Hydro-Core hydraulic manifolds

Designed specifically for hydraulic separation, pump isolation and purging the near boiler piping or secondary circuit loops, Hydro-Core Manifolds are now available to fit system runs sized 1" through 2".. Installation kits package the remaining fittings and components needed to shave even more time off each job. Guaranteed to save you time, space and leak paths. **Webstone.**

Circle 101 on Reader Reply Form on page 114

1900 VFD pumps

New 1900 VFD close-coupled, in-line pumps with integrated variable frequency drives are designed to enhance pump and building efficiency. The single- or three-phase 1900 VFD line greatly increases energy efficiency and building comfort. Pumps are



available in five basic models ranging in size from $1\frac{1}{2}$ " \times $1\frac{1}{2}$ " to 2" \times 2" with a flow range of 10 to 250 GPM, and head capability to 160

feet. Rear, pull-out design allows servicing of the pump without disturbing the piping. **Taco.**

Circle 104 on Reader Reply Form on page 114

Plumbing Engineer's Editor's Choice



Greenstar™ Series Boilers

The Bosch Greenstar™ series, available in configurations ranging from 57.2 to 151.6 MBH, utilize condensing technology — an invention where the latent heat in the unit's exhaust gases is extracted and re-used — a highly efficient use of energy which also significantly reduces carbon dioxide emissions into the atmosphere. Boilers can offer efficiency levels of up to 98.7 percent, turning 98.7 percent of the fuel used into heat — a significant upgrade compared to traditional or non-condensing boilers. As a wall-hanging unit with multiple size configurations based on need, the Greenstar series can free up valuable floor space inside the home. **Bosch Thermotechnology North America.**

Circle 105 on Reader Reply Form on page 114



Anystream® Alexandria

Featuring traditional design aesthetic, coupled with powerful Speakman spray technology, the family includes a fixed, handheld shower, available in both polished chrome and brushed nickel. The fixed and hand-held showerheads also are available as WaterSense® certified 2.0 GPM fixtures. All Alexandria showerheads feature the innovative Anystream 360™ spray technology. **Speakman Co.**

Circle 106 on Reader Reply Form on page 114

Retrofit urinals



New retrofit urinals are available in three water-efficient models — 1/8 gpf, 1/4 gpf and 1/2 gpf. The footprint of the wash-down retrofit urinals has been enlarged to help hide original fixture caulk lines and damage from older fixtures. Additionally, the rim-to-outlet dimensions have been optimized to eliminate the need to change the rough-in of the drain in order to maintain the correct height in most cases. **Sloan Valve Co.**

Circle 107 on Reader Reply Form on page 114

Residential sidewall sprinkler

New residential, 4.2 (57) K-factor, horizontal sidewall sprinkler — model VK484 — is cULus listed for up to 16



× 20 ft (4.9 x 6.1 m) coverage areas and can be installed with the deflector up to 12 in (305 mm) below the ceiling. In sloped ceiling applications, the

VK484 is listed for ceilings with up to a 4/12 in (18°) pitch, with the sprinkler installed to discharge across the slope. Additionally, for 16 × 20 ft room sizes, the new sprinkler provides a listed flow rate of 22 gpm (83 lpm) for flat ceilings **Viking Group, Inc.**

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Circulators

Continued from page 96

cent versus the same month of the previous year. That translates into an annual savings in the neighborhood of \$575, according to Hunt's calculations. While he prefers to wait a full year before arriving at a final payback on the extra investment for the ALPHA circulators, he expects to recoup his money "within three years, give or take a month or two.

"Because of our home's tight construction and especially with its gycrete floors for the radiant system, it takes relatively little thermal energy to maintain warmth. But with the old pumps, the heat load didn't matter: They still consumed the max in energy 24/7. The ALPHA gives me the ability to lower the wattage without any sacrifice in comfort."

True to his plan, Hunt has been sharing his successful personal experiences with contractor-attendees at several

workshops that Danbury Plumbing & HVAC Supply has recently hosted, with the help of Urell's Kevin Crean. The company also displays the ALPHA in its Degrees of Comfort showroom, which presets a variety of energy-saving heating products — boilers, pumps, air handlers, a heat recovery system — for contractors to use to educate their customers on the virtues and benefits of conservation. Once again, the response to these marketing efforts has been much more enthusiastic than skeptical.

"Any new product that lowers energy consumption and puts money into people's pockets is going to draw serious attention and interest," Hunt remarks. "But with the ALPHA, we have an even stronger, more believable story to tell, because we can point to my own real-life experiences with the product and the hard dollars that I've been saving and will continue to save." ■

Grundfos Furnishes Energy-saving Pump System for LIVESTRONG Sporting Park

KANSAS CITY, KAN. — When soccer fans and concert goers enter the new, state-of-the-art LIVESTRONG Sporting Park for events, one aspect of the park will not be on their minds; whether or not the plumbing is working properly. Nor will it worry Michelle Land of U.S. Engineering Company. Land is the senior project manager for the mechanical engineering firm that installed Grundfos pumps in the new sports facility. She knows that the Grundfos BoosterpaQ System will ensure that



the park will run smoothly, as well as achieve energy and space savings, all while requiring low maintenance. "The pump package was easy to install," Land says.

The 342,000-plus square-foot stadium seats over 18,000 fans for soccer games and more than 25,000 for concerts. The highest flow demand will occur at intermission, such as halftime during a soccer game. To ensure that sufficient water pressure is available for all stadium water fixtures, a "worst case" flow capacity of 1,200 gallons per minute is required. The Grundfos BoosterpaQ Hydro MPC, consisting of three vertical multi-stage CR pumps, is



designed to handle this type of volume while maintaining constant pressure. If there is no flow demand, the system is designed to switch off automatically. When flow is again required, the system automatically switches on. Reece Robinson, applications engineering supervisor of Grundfos Pumps Corporation, explains, "There are many suppliers to choose from for this type of application, but very few can provide a control system that is as smooth and energy efficient as the Grundfos Hydro MPC system."

To ensure that the system could handle the volume capacity in the new stadium, a "superflush" was performed to simulate the simultaneous flushing of hundreds of fixtures. The Grundfos system passed with flying colors. "We were all very impressed with the performance of the system," says Land. The BoosterpaQ also passed another challenge, the "nickel test," which is related to vibration. The test works by placing a nickel on top of the pump — on its edge — while the pump is running at full speed to see whether the nickel moves or falls.

Typical installations for stadiums consist of a single-stage end-suction pump, which require onsite adjustments to minimize vibration. The Grundfos multi-stage pump, however, requires no adjustments, because the pump is virtually vibration-free, as shown by the nickel test. Not surprisingly, the nickel didn't fall over or slide off the pump.

From the early planning stages of the park, Grundfos wanted to be part of the project. Planning began about a year ago, and Grundfos, together with a local distribution partner, Associated Equipment Sales, began working on the project. Grundfos Pumps president Dennis Wierzbicki adds, "As a Kansas City-based company, we are excited to provide equipment and help support the Sporting KC facility and team."

The LIVESTRONG Sporting Park officially opened on June 7 with a special ceremony, followed by the home opener for the Sporting KC soccer club on June 9. Rest assured, with the Grundfos BoosterpaQ system in place, the plumbing will be of no concern to the event attendees. ■

Industry Movers

Watts names national product manager

NORTH ANDOVER, MASS. — Watts Water Technologies Inc. promoted **Hal Clay** to national product manager Fire Protection. Clay will be responsible for the product and market development of fire protection products in both the commercial and residential fire protection markets.



ASPE names director of affiliate relations

CHICAGO — The American Society of Plumbing Engineers (ASPE) announced that **David Jern** has assumed the role of director of affiliate relations. Jern will develop and strengthen the relationship between ASPE and its Affiliate Members or those individual ASPE members who are involved in the production or marketing of plumbing products.

PMI names technical director

ROLLING MEADOWS, ILL. — Plumbing Manufacturers International (PMI) announced the appointment of **Len Swatkowski** as technical director.

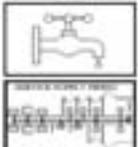
In his new position, Swatkowski will be responsible for analyzing and reporting proposed code and standard changes, maintaining and managing effective relationships with PMI members, certification agencies and industry peers and representing PMI at various industry meetings.

For more info, www.pmihome.org.

A. O. Smith names vice president and controller

MILWAUKEE — **Daniel L. Kempken** has been named vice president and controller of A. O. Smith Corporation. Kempken will oversee the accounting, financial planning, internal audit and risk management functions for the global manufacturer of residential and commercial water heating equipment.

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