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December 2012

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- Firm Profile: TLC Engineering for Architecture
- Backflow Prevention
- ASPE 2012 Convention & Exposition Highlights
- 2012 Internet Usage Survey

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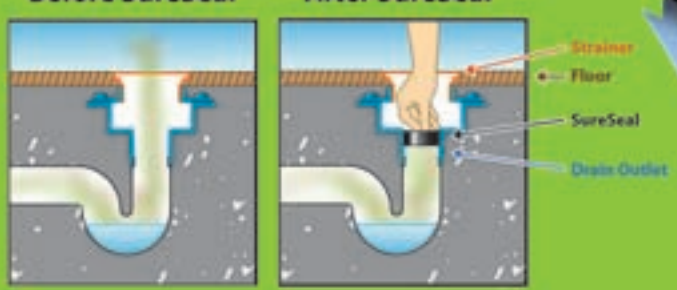

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Volume 40, Number 12, December 2012

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DEPARTMENTS

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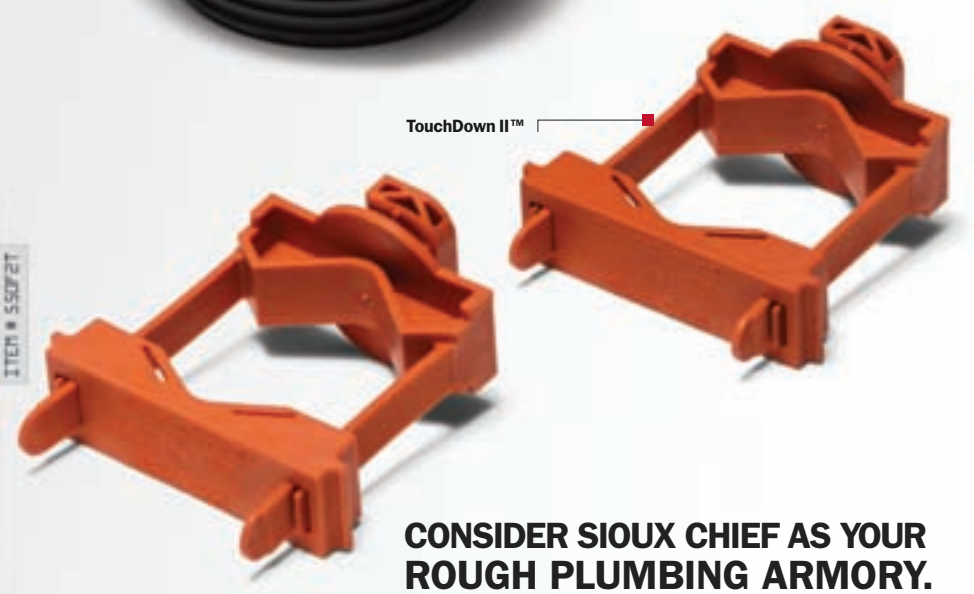

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Sioux Chief

Editor's Letter

Jim Schneider, LEED AP, editorial director
editor@plumbingengineer.com

New perspective

One of the great things about learning something new is that it can provide a different perspective. I've worked in publishing my entire career, but in that time have worked in a number of different industries. I started out in education publishing, and later moved into construction and design.

My first step into the construction world was working on publications for a precast/prestressed concrete association in Chicago. I remember the first few months being pretty overwhelming, as the engineers I worked with spoke a language I didn't recognize and I struggled to learn about this new industry and bring myself up to speed. What helped me was the enthusiasm and passion of the people I worked with. The more I learned, the more I shared the enthusiasm. Now, I can't go into a parking garage without noting structural elements. I gained a deep appreciation of the science and craftsmanship that goes into these easily taken-for-granted buildings.

I have always relished working with new people and learning new things about the world around me. Having been in the plumbing and hydronics industry now for several months, I see the same kind of enthusiasm and passion I saw from the folks in the concrete industry. What you do in the field do is extremely important and the evidence of that is all around, even if people don't always understand and recognize that.

As part of my education in this industry, I recently had the opportunity to attend a training seminar at Charlotte Pipe in Charlotte, N.C. This was an intensive three-day program where I was able to learn about the parts and pieces that go into plumbing and DWV systems, and also go through hands-on exercises to learn how they fit together. We learned about cast iron and PVC pipe and even had the opportunity to visit the foundry and plastics plant to see how the components are made. Once again, the enthusiasm and passion was evident with the folks at Charlotte Pipe, from the trainers to the guys on the foundry floor. I left with an entirely different perspective than I came in with.

Now when I see installed water delivery and DWV systems, I know what I'm looking at and appreciate the craftsmanship that went into making the parts, and then designing and installing the system. Since then, I've made visits to a couple of projects sites and now when I see PVC pipe with purple around the joints, I know I'm looking at primer. Like many people, I'd seen these things hundreds of times before, but until I had a deeper understanding of what I was looking at, I wasn't truly seeing it.

Of course, I recognize that the particulars I'm talking about here are old hat to most everyone reading this, but my larger point is that there is always something new to learn. And part of what has impressed me about the plumbing and hydronics industry from day one is just how dedicated everyone is to learning new things and expanding their own perspective. I applaud that and thank everyone who has already helped broaden my own worldview. ■

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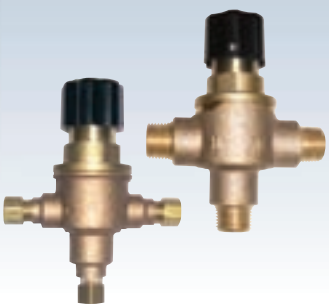

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Circle 4 on Reader Reply Form on page 53

Industry News

Plumbing Engineer redesigns website

The newly upgraded *Plumbing Engineer* website offers improved navigation, responsive design and mobile optimization.

Plumbing Engineer recently launched its completely revamped and retooled website, www.plumbingengineer.com. It is designed to enhance the user experience and deliver relevant content to readers in the simplest, most effective way possible.

The first thing site visitors will notice is a complete overhaul of the website's look and feel. It has an open, clean, easy-to-read design that both simplifies browsing and encourages readers to explore and learn.

The *Plumbing Engineer* website has always been packed with content, but the newly upgraded site makes that content much easier to access. Simplified navigation and streamlined menu options make it simple for site visitors to find the articles, news and product information that is most relevant to them. The home page features content drawn from the current issue of the print magazine, as well as videos and the latest news.

In addition to a more aesthetically pleasing, user-friendly design, the new *Plumbing Engineer* website has been built to deliver content with equal efficiency to a variety of platforms. A mobile-optimized version of the site utilizes responsive design technology. The website knows whether a user is visiting from a smart phone or tablet, rather than from a traditional computer and resizes itself appropriately to maximize and simplify the user experience. So, whether you access the site from your desktop or from your mobile device or tablet, the website delivers the content the way you need it, when you need it.

All the publications in the TMB Publishing family are receiving similar online upgrades, so look for revamped online versions of *The Wholesaler* and *Phc News* as well. This is part of an overarching strategy to deliver engaging content to our readers in ways most convenient for them. So, whether reading features in the print edition while at the office or checking the latest news and product information on your smart phone out in the field, *Plumbing Engineer* is there.

Be sure to visit www.plumbingengineer.com and check out the new website. In addition, "like" us on Facebook at www.facebook.com/PlumbingEngineer and follow *Plumbing Engineer* on Twitter @plumbingeng. ■

Leonard Valve presents Lifetime Achievement award to Niles and Greg Wilcox

CRANSTON, R.I. — Leonard Valve has honored president E. Niles Wilcox and chairman of its board of directors Greg Wilcox with Lifetime Achievement Awards. National sales manager Peter Gobis presented the awards in conjunction with the company's 100-year anniversary celebration during the 2012 American Society of Plumbing Engineers convention and exposition.

Niles Wilcox and Greg Wilcox were commended for their commitment, dedication and leadership at Leonard Valve. Both men have continued the proud tradition of manufacturing high-quality thermostatic water mixing valves, backed by top service, as started by Leonard's founder, Frederick C. Leonard, 100 years ago.

M&G DuraVent gets approval for PolyPro

VACAVILLE, CALIF. — M&G DuraVent has gotten another approval for its PolyPro venting systems. U.S. Boiler Co. has approved PolyPro single-wall, concentric and flex for their Burnham Alpine models 080-500.

PolyPro, an engineered system specifically designed for venting heating appliances, has been successfully

More news on page 10

Continued from page 8

venting appliances in Europe for more than 15 years. Gasketed joints require no primers or adhesives and easily assemble in seconds with just a splash of water. Terminations are designed for superior performance in poor environmental conditions.

Tested and listed to the ULC S636 standard in Canada and rated as a Class IIA, IIB and IIC vent system, PolyPro offers the only double-wall polypropylene flex in the U.S., making it durable for relining masonry and factory-built chimneys and useful for relining B-vent pipe when retrofitting it to use as a chase. It is superior in performance and easier to install than PVC or CPVC pipe, which were designed for irrigation, not venting.

Let's Solve Water Challenge pumps up the imagination of students

MORTON GROVE, ILL. — What is the solution to building the most efficient water pump?

That was the question that more than 100 high school students from Rochester, N.Y. recently tried to solve as part of the inaugural Let's Solve Water Challenge sponsored by Xylem.

Xylem engineers kicked off the two-week competition that brought together Rochester Community Robotic teams from eight local high schools and introduced them to the challenge of designing and building a water pump. Key requirements were that students could not use any commercial assemblies in their projects other than the motor and the battery case provided and that their total budget could not exceed $50. The competition was judged in four categories with each winning team receiving $1,000. The four categories were: Fastest fill for a one-gallon container at 6 inches of head; Lowest average amps/gallon of water; Highest pressure (at 0 flow) generated; Most elegant design/presentation.

"The goal for the Let's Solve Water Challenge was to engage with students, to get them excited about solving a water problem and to provide them with the guidance and resources to use their science, technology and engineering know-how," said Donna Lutter, manager of communications at Xylem Applied Water Systems.

"The students gained real-world water engineering skills. They worked around design constraints, were able to discover trade-offs concerning energy efficiency, flow and pressure that working professionals encounter on a daily basis," said John Maxwell with McQuaid Jesuit, coordinator of the challenge.

When the last drop of water was pumped and the stu-

dents finished, the winners were:

• Fastest fill: FRC Team #3173, IgKNIGHTers, McQuaid Jesuit

• Most efficient: FRC Team #1559, DevilTech, Victor Central Schools

• Highest pressure: FRC Team #3003, TanX, Canandaigua Academy

•Most elegant design: FRC Team #1126, SparX, Webster Central School

Honeywell donates first responder products for Hurricane Sandy relief efforts

MORRISTOWN, N.J.— Honeywell, the maker of Morning Pride turnout gear for first responders, is donating more than $600,000 in first responder products to aid in relief and recovery efforts in areas devastated by Hurricane Sandy. Honeywell will donate more than 19,000 personal protective products, including protective footwear, gloves, hoods and helmets designed to weather the most arduous conditions first responders face every day. The protective gear will be distributed via the Nassau County Office of Emergency Management in Long Island, New York, to first responder teams in affected areas in New York and New Jersey.

Honeywell also announced that the Honeywell Humanitarian Relief Fund (HHRF) has been deployed to support employees who have been affected by the devastating hurricane. Support will initially include immediate cash assistance for food, clothing and shelter to employees who have been temporarily displaced. Honeywell will also match employee contributions.

Over the last year, Honeywell has donated more than $1 million worth of safety products to support disaster relief, first responder and other non-profit agencies to protect those serving our communities. Through the HHRF, the company and thousands of Honeywell employees have responded with donations and long-term rebuilding efforts for other tragedies in recent years, such as the tsunami in Japan, the Colorado wildfires, the earthquake in Haiti, tornadoes in North Carolina, hurricanes Ike and Katrina and the earthquake in China.

Webstone Hydronics Catalog available

WORCESTER, MASS. — Webstone's new Hydronics Catalog highlights the features and benefits of Webstone's complete line of hydronic valves and

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Continued from page 11

showcases a wide array of labor-saving valve systems suitable for any hydronic system. Founded in 1954, Webstone is recognized as an industry leader for innovative design of residential and commercial valves used in plumbing, hydronic, radiant, solar and geothermal applications. Some of Webstone's trademarked and patented items include; Hydro-Core™, The Isolator®, Isolator EXP™, Pro-Connect™ and Pro-Pal® step-saving valves.

PMI Fall Conference promotes plumbing as a profession

ROLLING MEADOWS, ILL. — The 2012 Plumbing Manufacturers International (PMI) Fall Conference in Washington, D.C., Oct. 7–10. The conference focused on "Promoting Plumbing as a Profession" and on strengthening the partnerships surrounding the industry.

Focused on strengthening the plumbing industry by elevating its perception as both a vital, professional and highly skilled industry, PMI and its members used this conference to lay out the framework for strengthening partnerships. From manufacturing to legislative and regulatory sectors, from engineering to environmental, from professional to public, from domestic to international, all sectors were considered.

Member support of this direction is strong; nearly 100 people attended the conference representing PMI's member companies and prospective new members from 14 states (a 94 percent attendance rate). Water Pik Inc., PMI's newest member company, was also in attendance. International attendees came from Canada and Australia.

Seventeen speakers and presenters represented the wide range of partners and interests associated with PMI. The keynote speakers included: Donna Brazile, political strategist and analyst, who delivered the opening keynote address; Annie Longsworth, CEO of Saatchi and Saatchi and Erin Streeter, senior vice president of communications for NAM, the National Association of Manufacturers.

Also included among the presenters and speakers were representatives from the American Chemistry Council, the Nickel Institute, NSF International, the U.S. Department of Commerce, the U.S. Environmental Protection Agency (EPA), the American Society of Plumbing Engineers (ASPE) and the Plumbing Heating Cooling Contractors (PHCC) Association.

Following the close of the conference, several PMI members made visits to Capitol Hill to speak directly with legislators about the issues surrounding the plumbing industry today. PMI's Spring Conference is scheduled for April 7–11, 2013, at the Barton Creek Resort in Austin, Texas. ■

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ASPE REPORT

AMERICAN SOCIETY OF PLUMBING ENGINEERS

From the President's Pen

William F. Hughes Jr., CPD, LEED AP, FASPE
2010-2012 ASPE PRESIDENT
aspepres@aspe.org

It is an honor and a privilege to once again serve the membership of ASPE as your president. I am excited about advancing the Society within the plumbing industry and beyond and working with the newly elected ASPE board of directors to continue developing new programs and relationships. We all look forward to working with ASPE Executive Director/CEO Jim Kendzel, MPH, CAE, who is very enthusiastic about ASPE and has many new and exciting ideas.

For the next two years, I will work with the board to continue following the guidelines of our Strategic Blueprint, specifically regarding the goal to build upon our current cash reserve. I hope that the economy continues improving, and I see ASPE growing in both membership and visibility within the construction industry. With an economic upswing, ASPE also can expand and develop new chapters internationally.

The Society will focus on developing leadership opportunities for young members and providing them with educational programs to assist in their career development. We also plan to launch a new certification (CPDT) designed to help young members stay committed to the profession.

We will continue providing quality education for all members to keep you up to date on the latest technology advances. Producing quality publications is also critical. However, to do both, we need to increase our volunteer base. Our current volunteers are overworked, and having new volunteers will help improve our programs and publications and produce them in a timely manner.

ASPE will continue looking for opportunities to partner with other organizations to improve our position within the industry. We need to develop these relationships to strengthen our representation within the code bodies.

As you can see, we have many things to do, and the 2012–2014 board of directors looks forward to working with you to accomplish them all.

The 2012 ASPE Convention & Exposition was a great event, despite the impact of Hurricane Sandy. Our thoughts and prayers go out to all who were and still are being affected by the storm. ASPE staff once again put on an exceptional show for attendees. The 2012 Business Meeting fostered lively discussions and showcased the dedication and passion of the members of this great Society, and attendees will be talking about the Sunday night event at the NASCAR Hall of Fame for years to come. Thanks to Charlotte Pipe & Foundry for sponsoring this exciting party! Keynote speaker Kyle Petty opened the Convention & Exposition with a very moving speech about his family's history with NASCAR and how his son's tragic accident prompted Kyle and his wife to found Victory Junction, a camp for children with serious illnesses or chronic medical conditions. You can learn more and donate to Victory Junction at aspe.org/expo (Convention Information > Keynote Address).

The educational sessions received rave reviews for the quality of the technical information and the presenters. As for the Exposition, the hands-on displays were excellent, and the manufacturers' engineering staffs addressed every attendee question about product and system applications. The show is a must-see event, with more than 300 exhibits dedicated to plumbing-related products. The opportunity to see these products firsthand and ask technical questions directly of the product engineers is something that all ASPE members need to experience, so plan to attend the 2014 ASPE Convention & Exposition in Chicago on September 20–24 to help ASPE celebrate its 50th Anniversary!

On behalf of the ASPE board of directors, I wish all of our readers a very happy holiday season and a safe and prosperous New Year. ***ASPE***

New ASPE Student Chapter Formed in Chicago

ASPE's Chicago Chapter recently announced the formation of the ASPE Chicago Student Chapter at the Illinois Institute of Technology (IIT), a private Ph.D.-granting university in Chicago offering programs in engineering, architecture, the sciences, humanities, psychology, business, law, and design. The American Institute of Architects recognized the IIT main campus as one of the most significant architectural works in the United States; located in Chicago's historic Bronzeville neighborhood, it was designed by celebrated architect Ludwig Mies van der Rohe and is listed on the National Register of Historic Places.

The 2012–2013 ASPE Chicago Student Chapter board of directors consists of:

Jinguy Lee, Student Chapter President
Brian Glennon, Student Chapter Vice President
Steven Karvalius, Student Chapter Treasurer

The idea for the Chicago Student Chapter was spearheaded by David DeBord, CPD, LEED AP, ARCSA AP, and Jason McDonald, CPD, and it was materialized by Jinguy Lee, an IIT student and the 2011 ASPE Chicago Chapter scholarship recipient, and Chicago Chapter Vice President of Education Jill Dirksen, CPD, with the support of the Chicago Chapter board of directors. Dave DeBord will function as the IIT faculty advisor, and Jill Dirksen will be responsible for coordinating the student chapter's activities and will function as its liaison to the Chicago Chapter board of directors.

"The ASPE Chicago Student Chapter will promote our Society by involving students in the science of plumbing engineering," says Chicago Chapter President Frank Sanchez, CPD. "We will encourage the students to participate in our monthly technical sessions and special student seminars. In addition, technical tours and field visits will facilitate interaction between students with similar interests. While networking with experienced professionals, they will also receive valuable mentoring opportunities that will lay a strong foundation for their professional development. The technical skills, networking opportunities, and work ethics learned will assist the students in becoming leaders in the industry. This is an investment in the future of our Society."

The first ASPE Chicago Student Chapter meeting was a tour of Chicago Deep Tunnel, part of the Metropolitan Water Reclamation District's Tunnel and Reservoir Plan, at the Hodgkins Pumping Station on November 9. 21 IIT students and six Chicago Chapter members participated in the tour.

The Chicago Student Chapter can be reached at aspe.illinoistech@gmail.com or at aspeillinoistech.wix.com/aspe. ***ASPE***

Illinois Institute of Technology students and ASPE Chicago Chapter members participate in the first ASPE Chicago Student Chapter meeting, which consisted of a tour of the Chicago Deep Tunnel project.

New ASPE Members

Central Florida Chapter
Mark Anthony Schanback

Central Indiana Chapter
Glenn Charles Rose

Charlotte Chapter
Gerald Joseph Deininger

Chicago Chapter
Kelechi Akalaonu

Cleveland Chapter
Eric Hull

Dallas/Ft. Worth Chapter
Mark A. Jones

Montreal Chapter
Bruno Pare, GE

Nashville Chapter
Darrin R. Henderberg

Northern California Chapter
James Hamilton

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Now you can submit your answers online to receive instant CEUs!

Do you find it difficult to obtain continuing education units (CEUs)? ASPE's popular Read, Learn, Earn program now offers the option to submit your answers online to receive instant pass/fail notification. Just go to **aspe.org/readlearnearn** to download the current article and then click on the appropriate link to take the test. If you earn a grade of 90 percent or higher on the test, you will instantly be notified that you have logged 0.1 CEU.

Tests are valid for one year, so you can earn up to 1.2 CEUs by successfully passing each test. (You can only receive one credit per test.) The cost is free for ASPE members and $35 per test for nonmembers.

2012 CONVENTION AND EXPOSITION HIGHLIGHTS

Thousands of plumbing industry professionals from across North American raced to Charlotte, North Carolina in October to take advantage of the nonstop networking and educational opportunities offered during the 2012 ASPE Convention & Exposition. From the instructional and thought-provoking technical education sessions to the exciting hands-on product displays and the New Product Innovation Showcase, attendees learned everything they need to know about the industry's latest advances to help their companies succeed in the coming year.

If you missed the event or want to relive some memories, the following pages include the top highlights from the 2012 Business Meeting and Convention & Exposition.

2012–2014 ASPE BOARD OF DIRECTORS ELECTED

On October 28, chapter delegates attending the 2012 ASPE Business Meeting voted on the candidates for the 2012–2014 board of directors. The following board members were elected and will represent ASPE on the national level for the next two years. (Due to a bylaws change approved during the meeting, the non-voting position of secretary will be held by ASPE's executive director.)

President William Hughes Jr., CPD, LEED AP, FASPE
Vice President, Technical Mitchell Clemente, CPD
Vice President, Legislative David DeBord, CPD, LEED AP, ARCSA AP
Vice President, Education Jeffrey Ingertson, CPD, FASPE
Vice President, Membership Scott Steindler, CPD, LEED AP, ARCSA AA
Vice President, Affiliate Vincent Scriboni
Treasurer Gary Mahoney, CPD, FASPE
Region 1 Director Rui Paul Silvestre
Region 2 Director Chris Graham, CPD
Region 3 Director James Zebrowski, PE, CPD, FASPE
Region 4 Director Chris Scott, CPD
Region 5 Director Kelvin Kennedy, CPD, CD

2012–2014 ASPE Board of Directors: (back row) Vice President, Affiliate Vince Scriboni; Vice President, Technical Mitch Clemente; President Bill Hughes; Treasurer Gary Mahoney; Vice President, Legislative Dave DeBord; Vice President, Education Jeff Ingertson; (front row) Region 1 Director Paul Silvestre; Region 2 Director Chris Graham; Region 3 Director Jim Zebrowski; Region 4 Director Chris Scott; Region 5 Director Kelvin Kennedy; Vice President, Membership Scott Steindler

HIGHEST SOCIETY AWARDS BESTOWED

On October 30, at the 2012 ASPE Banquet, the following individuals and organizations received the Society's top awards for their commitment to ASPE and the industry. In addition, the following awards were announced:

The Peter E. Warshaw Service Award was awarded to Richard D. Hanson of SyncroFlo, for dedication, unflagging spirit, and outstanding support and service contributions on behalf of the Society and the profession.

The ASPE Research Foundation Award for Scientific Achievement was awarded to Professor John Swaffield for a lifetime of scientific achievement in the area of water, sanitary, and airflow research, which has assisted the plumbing engineering profession.

The ASPE staff receives the Kenneth G. Wentink Award of Excellence from ASPE President William F. Hughes Jr., CPD, LEED AP, FASPE (fourth from left), for their commitment, dedication, and inspired service toward the advancement of the ideals and goals of the Society. From the left the staff members are David Jern, Pamela Newman, Gretchen Pienta, Cliff Reis, Stacey A. Kidd, Rachel Boger, Jinnie Yoo, Donald Thurner, and Richard Albrecht.

Julius A. Ballanco, PE, CPD, FASPE (left), receives the George W. Runkle Award of Merit from ASPE President William F. Hughes Jr., CPD, LEED AP, FASPE, for his dedication and inspired service to the advancement of the ideals and goals of the Society.

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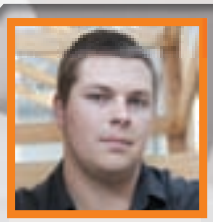
"It's important for young engineers and designers to work together to help determine the future for ASPE, so I'm glad that **ASPE Young Engineers** was created.

My membership with ASPE...
has provided me with excellent continuing education opportunities and the ability to meet and network with other industry professionals. The ASPE Convention & Exposition is growing and quickly becoming THE industry show for plumbing engineers and designers, so it's a great event to be a part of.

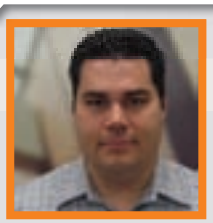
Daniel Worm, CPD
Product Specialist-Plumbing
Uponor



"**ASPE Young Engineers** provides the ability to affect change for us now and for future designers and engineers. This group allows us to speak up, to give our suggestions, and to set priorities for ASPE regarding future generations' needs and wants.

My membership with ASPE...
has helped me meet and get to know other plumbing design engineers, contractors, and plan check officials. This, coupled with the informative presentations, has afforded me a wider knowledge base and allowed me to explore different design techniques or use different products in my day-to-day designs.

Andrew Cole
Plumbing Project Coordinator
LPA Inc.



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2012 CONVENTION AND EXPOSITION HIGHLIGHTS

William M. Smith, FASPE (left), receives the Distinguished Service Award from ASPE President William F. Hughes Jr., CPD, LEED AP, FASPE, for his dedication and outstanding contributions to the Society and the profession.

Brenda Parks receives the Distinguished Service Award from ASPE President William F. Hughes Jr., CPD, LEED AP, FASPE, on behalf of her husband Norman Parks, CPD, CET, for his dedication and outstanding contributions to the Society and the profession.

Pittsburgh Chapter President Jerome Valenti, PE (left), receives the Chapter Humanitarian Award on behalf of the Pittsburgh Chapter from ASPE President William F. Hughes Jr., CPD, LEED AP, FASPE, for the chapter's commitment, service, and outstanding contributions for its humanitarian efforts and public service.

Philip L. French, PE, FASPE (left), receives the Donald F. Dickerson Founder's Award from ASPE President William F. Hughes Jr., CPD, LEED AP, FASPE, and April Trafton for his lifetime achievements, dedication, and promotion of the Society, its mission, and the profession.

Brian Henry (left) receives the Industry Award on behalf of Patterson Pump Co. from ASPE President William F. Hughes Jr., CPD, LEED AP, FASPE, for the company's outstanding service to the advancement of plumbing engineering technology.

IAPMO Chief Executive Officer GP Russ Chaney (left) receives the ASPE Research Foundation Award of Distinction on behalf of IAPMO from ASPE RF President Julius A. Ballanco, PE, CPD, FASPE, for the organization's outstanding long-term support of the growth and prosperity of the Research Foundation.

NEW INDUCTEES JOIN THE KENNETH G. WENTINK COLLEGE OF FELLOWS

ASPE's Kenneth G. Wentink College of Fellows recognizes those ASPE members who have made significant and exceptional contributions to the plumbing engineering profession, the Society, and the plumbing industry. This year, seven new Fellows were inducted during the 2012 Banquet on October 30: Robert V. Benazzi, PE, FASPE; James N. Polando, PE, CPD, FASPE; Lawrence G. Justin, PE, CPD, FASPE; John R. Nussbaum, IPP, FASPE; William M. Smith, FASPE; John M. Mitsumori, PE, FASPE; and Peter Warshaw, FASPE.

New Kenneth G. Wentink College of Fellows inductees with Fellows Committee Chair Philip L. French, PE, FASPE (far left), and ASPE President William F. Hughes Jr., CPD, LEED AP, FASPE (far right). The inductees in attendance are (from left) Billy Smith, FASPE, Robert Benazzi, FASPE, John Nussbaum, FASPE, Larry Justin, FASPE, and James Polando, FASPE.

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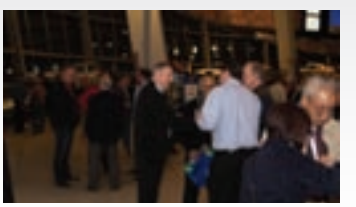
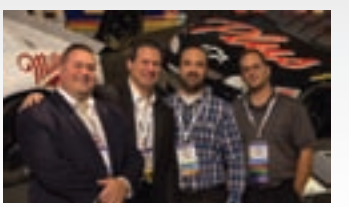
2012 CONVENTION AND EXPOSITION HIGHLIGHTS

ATTENDEES ENJOY A NIGHT OF ADRENALINE-RACING FUN AT THE NASCAR HALL OF FAME

On October 28, 2012, ASPE Convention & Exposition attendees enjoyed the classic cars, interactive exhibits like tire-changing stations and realistic race simulators, and more during ASPE's Sunday Night at the NASCAR Hall of Fame presented by Charlotte Pipe & Foundry.

ASPE thanks the Charlotte Pipe & Foundry staff for making ASPE's Sunday Night at the NASCAR Hall of Fame a fun and memorable experience.





KEYNOTE SPEAKER KYLE PETTY KICKS OFF THE 2012 ASPE CONVENTION & EXPOSITION

On Monday, October 29, racing legend and philanthropist Kyle Petty opened the 2012 ASPE Convention & Exposition with his inspirational keynote address. He talked about his family's long history with NASCAR and how he and his wife were inspired to found Victory Junction, a camp in Randleman, North Carolina, for children with chronic medical conditions and serious illnesses.

Keynote Speaker Kyle Petty receives a Certificate of Appreciation from ASPE President William F. Hughes Jr., CPD, LEED AP, FASPE.

Keynote Speaker Kyle Petty helps ASPE President William F. Hughes Jr., CPD, LEED AP, FASPE, cut the ribbon to officially open the 2012 ASPE Convention &

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Designer's Guide

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

IAPMO 2015 UPC Code Review Task Group

In November I had the privilege of participating in the 2015 UPC Code Review Task Group. The purpose of the Group was "to identify and review issues that have been brought forth by membership and industry, in regards to the 2012 UPC, in an attempt to make the Code more user-friendly. The Group's recommendations, along with a report of underlying issues, were forwarded to the UPC Technical Committee for review."

Any of you who have been involved in the code review process are probably already familiar with the task group concept. Others might find their gyrations of interest. Much of what the group is tasked to review are seemingly endless semantic debates over the use of words such as will, shall and may, in an effort to express the Code in either stricter or more lenient language to clarify its intent.

Interestingly, I was raised by a traditional Englishman who spoke the Queen's English with pride. In fact, he starred as Henry Higgins on Broadway and performed the part probably more times than any other person. He was Henry Higgins to the core. Dad always told me that the term shall was slightly less definitive than the term will. However, it seems that our industry would have considered him wrong, a rare event when it came to language.

In ordinary language, shall is considered somewhat archaic. However, if you go by NASA's definition, shall is used to dictate the provision of a functional capability: "The selected generator shall provide a minimum of 80 Kilowatt-hours." In contrast, will is used to cite things that the operational or development environment are to provide to the capability being specified: "The new generator will be used to power the operations tent." In this context, shall is more specific and, therefore, more definitive.

See how exciting the task group's work is? Actually, it gets better as the content becomes richer. I will try to highlight a few of the more significant points here.

Many definitions were proposed for addition or revision to the Code, starting with Section 203.0. Most notable of these was the proposed definition of a drainage fixture unit (DFU) in Section 206.0. This definition described the DFU as a measure of the probable discharge of a plumbing fixture based on rate and duration of discharge and the average time between uses. The task group (TG) recommended that this definition be revisited by the technical committee (TC), since a DFU is unitless and cannot be measured.

As a side note, when Hunter originally conceived of the fixture unit, it was based on the average flow of a lavatory when the drain was opened, or about 7.5 gpm. It is interesting to consider the variance of something as simple as a lavatory DFU. The flow rate of this common DFU could be from as little as 0.4 gpm for a public lavatory with a low-flow sensor faucet and grid drain to as much as 7.5 gpm or more for a residential lav when the pop-up drain is first pulled. It will be interesting to see what the TC comes back with in response.

The TC proposed adding a definition for faucet as "a valve end of a water-supply pipe by which water can be drawn from or held within the pipe." The TG suggested that this definition was unnecessary, akin to defining a pipe as being a long cylindrical piece of metal or plastic with a hole along its length. Some things just don't need to be defined. Similarly, the definition 223.0 for unconfined space (a term I always found humorous) will likely be deleted from the Code.

Another change proposed by the TC was the reduction of shower traps and trap arms from 2 to 1.5 inches (Section 408.4). The seasoned plumbers on the TG felt that hair blockages would be more likely to occur and harder to clear with the smaller diameter.

In section 422.4.1, the TC recommended adding verbiage stating that a toilet facility shall not open into a room or space used for food preparation. While there is some logic to this, it would cause problems for many small food service facilities, such as gas stations that offer both food and toilet facilities for drivers. The TG also felt this was more of an architectural than a plumbing issue.

Alternative sizing methods for sanitary and vent piping were proposed by the TC to be moved from the appendix of the Code into the body. While I personally felt this was a good idea, the majority of the TG disagreed, and the proposal was returned to the TC.

Direct connection of commercial dishwasher wastes (Section 704.3) was proposed to be changed to an indirect waste to a floor sink, and the TG supported this.

Vacuum drainage systems presently addressed in the appendix of the Code were proposed to be moved to the body of the Code. Here again, while I supported the proposal, the majority of the TG rejected it and returned it to the TC for further evaluation.

In Section 907.1, the verbiage requiring relief vents for stacks 10 stories or more "above the building drain or other horizontal drain" was edited to delete the quoted section. This change was proposed to prevent stack offsets from defeating the intent of this section of the Code. The TG supported this revision.

The appendix section on circuit venting was proposed to be moved to the body of the Code by the TC. Here again, while I was in favor of this change, I was outvoted by the majority of the TG, and the proposal was returned to the TC for reconsideration.

Chapter 13 on medical gas systems was heavily edited by the TC to conform to the 2012 edition of NFPA 99. All of the revisions were blessed by the TG, since the group was in no position to contest the content of NFPA 99. This allowed the TG to skim through 32 pages of proposals in the blink of an eye, which was a welcome acceleration after laboring over verbiage for the better part of the day.

Lastly, the TC proposed adding a requirement for hospitals to have at least two potable water supply lines.

Continued on page 26

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Designer's Guide

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While this is a sensible requirement, it would be unachievable in some rural settings, and the TG returned the proposal with the statement that such a requirement would be better decided on a state-by-state and site-by-site basis.

That night, as my wife washed her face, she commented for the umpteenth time about how frustrating it is to waste water waiting for the arrival of hot water to the lavatory. It was then I realized that the requirement to circulate or heat trace hot water systems to within a reasonable distance of the fixture was not included in the proposed revisions. Here in California we have a Green Code that is intended to save water and energy, but even that Code is mute on this subject. I immediately contacted IAPMO to find out whether it was too late to propose another change to the Code; I was told that it was not too late. So, now that I am finished with this article, my next order of business will be to script a Code change proposal. ■

Timothy Allinson *is vice president engineering 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*

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Code Classroom

Ron George, CPD
President, Plumb-Tech Design & Consulting Services, LLC

Prevention of Legionellosis Associated with Building Water Systems, Part 1

The American Society of Heating Refrigeration and Air Conditioning (ASHRAE) is still in the process of making the final changes to the standard titled: BSR/ASHRAE Standard 188P, Prevention of Legionellosis Associated with Building Water Systems. This may be a surprise to many people because over the last year or more there have been many seminars and webinars offered on what the new standard will require, but the new standard has not officially been published yet. The standard has been issued for public review and all of the seminars and webinars have been based on reviewing and commenting on the public review draft. I serve as a non-voting member of the committee and I have been involved in discussions for revisions to both the ASHRAE 188 standard and the ASHRAE Guideline 12, which also deals with how to minimize Legionella bacteria in building water systems. The committee is trying to complete the standard in time for the ASHRAE meeting in Dallas this January.

History of Legionnaires' Disease

Legionella was first discovered at the Bellevue Stratford Hotel in Philadelphia following the U.S. Bicentennial Convention of the American Legion in July of 1976. Of the thousands of people attending the convention, about 600 attendees were staying at the Bellevue Stratford Hotel. During the second day of the convention some of the participants began falling ill. The symptoms included fever, coughing and difficulty breathing. A few days later, one of the veterans from the convention died. Over the next few days, more and more of the Legionnaires died. By the end of the epidemic, a total of 221 people had been infected and 34 people had died.

The term "Legionellosis" is used to describe the illness caused by any species of the family of bacteria called Legionella. From May 1973 to October of 1978, only 500 Legionellosis cases were reported. That's not to say there were only 500 cases. It is because most people and medical professionals were unaware of its existence so the majority of the Legionella cases are never tested for, reported or diagnosed correctly. There is still a lot to learn about Legionnaires' disease. People continue to die from it and the media usually only reports it when there is a death or significant outbreak.

Many researchers do not suggest routine testing for Legionella since it is commonly found just about everywhere regardless of what you do. However, we are able to control the growth and the chances of the bacteria multiplying to a concentration that can be dangerous. Testing for Legionella is not mandatory and if done, should be based on system use and environmental considerations, as well as the population living in and around the area. People with suppressed immune systems are more susceptible to become ill or die from an exposure to Legionella bacteria. Hospitals, nursing homes and senior living facilities are examples of highly susceptible facilities because these types of facilities have a high percentage of people with suppressed immune systems.

ASHRAE Second Public Review Draft

The goal of the ASHRAE 188 Standard is to specify a Standard Practice for use by facility managers and/or owners to prevent Legionella bacteria from growing in the building water systems. The presence of Legionella bacteria in building water systems is not in itself sufficient to cause Legionnaires Disease. There is a series of other things that must occur including:

(1) Environmental conditions that promote the growth of Legionella (e.g., warm water temperatures, biofilms),

(2) A means of transmitting the bacteria to people in the building (e.g., aerosol generation),

(3) And exposure of susceptible persons to colonized water that is inhaled or aspirated into the lungs.

Legionella bacteria are not transmitted person-to-person or by non-aspirated ingestion of contaminated water.

The ASHRAE 188 standard aims to reduce the risk of Legionellosis by specifying a practice to identify the conditions in a building water system that can be made less favorable to the growth and transmission of Legionella. By establishing adequate barriers to transmission of Legionella bacteria, implementing sound maintenance procedures and utilizing effective hazard control, the users of this standard can reduce exposure to Legionella.

Engineers, architects, and system designers also can use this standard and the soon to be released ASHRAE Guideline 12 to determine if their building water system design and engineering practices are adequate or should be revised.

The standard consists of numbered sections followed by informative appendices. The standard sections specify what is required to comply with the standard. The informative appendices and informative references are provided for guidance about how to do things that may be necessary for a given building water system. Building water systems vary substantially in their design and propensity for transmission of Legionella. The informative appendices and informative references to the standard provide suggestions, recommendations and references to guidance which may be used to establish the Hazard Analysis and Critical Control Point (HACCP) plan for any building water system. The hypothetical examples cited within the appendices are not to be interpreted as minimum values nor enforced as requirements, but only as illustrations of how to implement a Hazard Analysis and Critical Control Point (HACCP) plan given certain building construction and operational conditions.

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The principles of hazard analysis and control have been applied in many industries to prevent harm to individuals from recognized hazards. Since 1996, the Hazard Analysis and Critical Control Point (HACCP) plans have been widely used to prevent disease from infectious organisms transmitted from food and water. The World Health Organization specifies use of hazard analysis and control processes for both foodborne and waterborne disease prevention. Because of the widely applied and successful use of the HACCP plans in related industries and because a variety of training materials are available at minimal or no cost, the project committee developing this standard chose to specify the HACCP as the systematic process to prevent Legionellosis associated with building water systems.

The standard's practice requires facility managers/owners to characterize the risk associated with the building and its potential occupants. For those buildings meeting certain criteria, they must next establish a HACCP team with assigned responsibilities and accountabilities. The first job for the team is to describe how water is processed in the building water system and what uses there are for the water by occupants of the facility; this description should be schematically represented in process flow diagrams.

Next, the team is required to perform systematic hazard analysis in order to identify the potential hazards for each step in the process, decide if the risk of those hazards is significant (yes or no), and if "yes," determine what hazard control is being applied or could be applied at that processing step or point in the system.

Every step in the process at which hazard control is applied is a critical control point. For every critical control point, the team must address four issues about the hazard control method being applied: (1) the critical control limit; (2) the hazard control monitoring method; (3) the frequency of monitoring hazard control and; (4) the corrective actions to be taken if the critical control limit is violated.

Lastly, the team must decide how it will confirm that the overall HACCP plan is being implemented (verification) and provide evidence that the plan is effective (validation). The purpose of the ASHRAE 188 standard is to present practices for the prevention of Legionellosis associated with building water systems and to provide risk management methods to prevent Legionellosis associated with centralized industrial and commercial building water systems. ■

Editor's Note: Ron George's column will continue next month in the January 2013 issue of Plumbing Engineer.

The views and opinions expressed in this column are those of the author and do not reflect those of *Plumbing Engineer,* TMB Publishing, or ASPE.

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FPE Corner

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

Aircraft hangar fire protection (Navy style), Part 2

Last month I discussed the criteria used for the fire protection of Navy and Marine Corps hangars contained in UFC 4-211-01N Aircraft Maintenance Hangars: Type I, Type II and Type III, dated 25 October 2004 with Change 3, 16 December 2009.

This month I would like to share some tips learned during the design, construction and acceptance testing of our first hangar fire protection system completed using the new criteria.

Here is a review of key design requirements:

- Overhead sprinkler system, closed-head, wet pipe or preaction, design discharge criteria 0.17 gpm/square foot over 7,500 square feet.
- Grate nozzle pressures between 40 and 45 psi
- Grate nozzles in trenches at maximum 25 feet spacing, trenches at maximum 50 feet spacing
- Design shall include following pressure losses:
    1. 12 psi through backflow preventer
    2. 20 psi through the flow control valve
    3. 42 to 45 percent pressure drop through the foam inductor (If the + inlet pressure is 80 psi, the hydraulic calculation must indicate a loss across the inductor of 33.6 to 36.0 psi.)
- Foam concentrate quantity based on 10-minute duration at 3.9 percent concentration and based on supply calculation. No reserve supply is required.
- Foam retention system size to hold a minimum 10-minute discharge
- Triple IR detectors located such that all points within the hangar are viewed by at least three detectors.
- System activation via manual release stations or operation of two triple IR flame detectors
- Dead-man type abort switch, which will prevent system activation and stop foam system discharge.

Where the overhead sprinklers and the low-level foam system share a common water supply, as is often the case, one should balance the sprinkler demand with the low-expansion foam system demand. The sprinkler demand will generally be the larger of the two. The designer should attempt to "match" the minimum residual pressure required for the sprinkler system with the minimum pressure required for the foam. Otherwise a large "overflowing" of the system sprinkler system can occur, affecting water supply flow rates.

As noted above, NFPA 409 requires a supply hydraulic calculation be used to determine the quantity of foam concentrate storage. A supply calculation is one in which the demand flow and pressure are matched to the available flow and pressure, i.e., the demand point rests on the supply curve. The difference could be large, particularly if the demand calculation indicates a sizeable cushion, i.e., if the required pressure at demand flow is considerably less that the available pressure at that flow. The difference between the supply calculation and the demand calculation can be reduced if the supply calculation is permitted to take into account the pressure reducing feature of the flow control valve. It is not clear if UFC 4-211-01 permits this, so I recommend you check with the AHJ. The difference can, of course, also be reduced by designing the overhead sprinkler system and low level grate-nozzle AFFF system efficiently.

The arrangement of the inline foam inductor is extremely important. It must be located horizontally, above the maximum fill level of the concentrate tank. There must be a minimum of 10 pipe diameters of straight piping before and after the inductor and at least 20 pipe diameters of piping between the flow control valve and the inductor. The total length of piping between the inductor and the tank must also be minimized. The Navy prefers this style of proportioning as it eliminates the need for a foam concentrate pump or foam bladder. I admit to having been skeptical about using an inductor for such a large flow rate, but, after seeing it in action, I am a believer now.

The room containing foam storage, proportioning and the foam and sprinkler riser manifold should be amply sized so one can easily move around the equipment for maintenance. UFC 4-211-01 requires the AFFF system riser to be downstream of wet pipe sprinkler risers. Remember to provide adequate space for the required surge suppressors and the very large strainer required for the foam system. This room should be part of the hangar building. If a single foam room is provided, it should be located to minimize the length piping to the AFFF discharge points. It should also have exterior access. Do not route foam concentrate piping or foam solution piping underground or under the structure.

Continued on page 34

Errata: Thanks to an alert reader, I need to issue a correction to my October 2012 article NFPA 20 – CHANGES IN THE 2013 EDITION. In the article I indicated new requirements for defining power supply reliability using two indices, the System Average Interruption Duration Index (SAIDI) and System Average Interruption Frequency Index (SAIFI). These requirements were in fact rejected by the committee and do not appear in NFPA 20. I believe these indices are still useful in that they can provide the engineer with a benchmark with which to judge power supply reliability. Another item regarding a full load (flow) current test did not make the cut. I understand that this item has been referred to those responsible for NFPA 25 for their evaluation.

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FPE Corner

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Acceptance test considerations

Must of the information about acceptance testing for high-expansion foam systems provided in my column published in the July 2011 issue of *Plumbing Engineer*, Aircraft Hangar Fire Protection (a la USAF) Part 3, is also applicable to the low level AFFF systems.

If permitted, the optical detection should be tested using heptane or JP-5 in a one-foot square pan. Take necessary safety precautions and make sure a portable extinguisher is available. Once the pan is ignited and fully aflame, it should be confirmed that at least three optical detectors operate into alarm. Enough tests should be performed to cover a reasonable range of possible fire locations and detector combinations.

Prior to discharging the system using AFFF, the system needs to be "tuned-up" with a water-only discharge. Pressure gauges should be located at the end lines serving grate nozzles to confirm the required minimum 40 psi grate nozzle pressures are achieved. Pressure gauges should also be located near the inlet and outlet of the foam inductor so pressure drops across the eductor can be recorded.

When you are ready to perform the test with foam, make sure the low level piping system is completely drained. A piping system that contains a slug of water or foam solution will bias the test in terms of evaluation the requirement for 30 seconds maximum time between system actuation and foam discharge from the last nozzle.

One last note: When testing with AFFF it is important to stop the operation of the system as soon as possible after complete floor coverage is achieved and a foam sample (for concentration measurement) has been taken. It does not take long to spend a lot of money in foam concentrate by letting the system flow longer than necessary. One person should be in charge of ordering shutdown via a radio or cell phone. A runner should be available in the event this communication fails. The shutdown is a good time to demonstrate how the abort switch functions.

Have a fire safe holiday! ■

***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.*

Sustainable Design

By Winston Huff, CPD, LEED AP BD+C

Large companies lack long-term water strategies

Hurricane Sandy was the latest devastating storm that reminded us of our society's dependence on municipal power, water and wastewater systems. We have grown accustomed to power and water services being available 24/7 and in all weather conditions. Events like Sandy, however, prove this may not always be true.

Usually, when homes lose power or water, residents can use temporary systems or move to hotels or shelters and wait for services to return. This is a short inconvenience that does not result in long-term changes, and daily life can return to normal within a few days. However, this is not always the case for businesses that depend on a supply chain to get materials to a facility so a product or service can be made or provided. A stable supply chain is essential for a business to operate smoothly and profitably, so interruptions or price fluctuations in the supply chain can cause major problems.

Water and wastewater services are important factors in a supply chain. One example is the beverage industry, which depends on water. What happens in times of drought when the water supply is limited? A community may have to decide whether it is vital to keep the beverage business in operation to provide jobs for its employees. The community outside the beverage facility may be affected, as other companies or individuals might have to make water reductions to keep the beverage business in operation.

This also can be the case for businesses where water usage is not as obvious, such as data-processing facilities. Data and data storage are the major product and service that the facility provides. At first glance, water does not seem to be part of the supply chain, but water can be important if it is used in the facility's cooling systems.

Problems in the supply chain that affect the profitability of a company can be reflected in the company's portfolio to investors, and the value of the product and the company can be compromised. Thus, some companies are realizing that they need a plan to deal with water scarcity issues in order to build confidence with their investors.

In October 2012, audit, tax and advisory firm KPMG LLP published a report called Sustainable Insight: Water Scarcity — A Dive into Global Reporting Trends, which is based on corporate responsibility (CR) reports from the world's top 250 companies as listed in the Fortune Global 500 ranking.

Water reporting

The report starts by examining how companies view water management and the threat of water scarcity. 76 percent of the companies, particularly mining and pharmaceutical companies, addressed water issues in their CR reports. Transportation companies and utilities were least likely to report water issues, despite the fact that they can be adversely affected by water scarcity.

For example, large utilities depend on water for power generation. During times of drought, utility demands can rise, even though water levels in lakes and rivers decrease, resulting in higher water temperatures from these sources. During these times, power-generation facilities may have to shut down operations because the incoming temperature of the cooling water is too high. Some power-generating facilities also depend on shipments of coal from river barges, and low water levels in times of drought can limit coal deliveries. The end result is that drought can negatively affect the profitability of power-generating facilities and, in worse cases, harm local communities. Because of these factors, utilities should develop water plans.

Water scarcity regions

Reporting on water issues is highest in countries where water scarcity is most pressing, such as India, Israel, Spain, Taiwan, Greece and Portugal. Low reporting is found in countries where water is not perceived to be an important issue, such as Canada, Denmark and Finland.

Water Footprint

It is important for a company to know the quality and reliability of the source of the water entering their facility and the wastewater leaving it. Many different water footprint calculations can be used to track this information. (Refer to the sidebar in the online version of this article on www.plumbingengineer.com for more information.)

The study found that only one-third of the top 250 global companies report the water footprint of their company: 100 percent of mining companies and 89 percent of pharmaceutical companies do, but only 20 percent of food and beverage companies and one-third of oil, gas and utility companies conduct a water footprint. The food industry relies on a constant flow of high-quality water, so food and beverage companies should be concerned about the risks they take by not conducting a water footprint calculation.

Water reduction and treatment and reuse strategies

Approximately 44 percent of the 250 companies reported that they use water reduction strategies; just 27 percent report on water treatment. 100 percent of mining companies report water reuse and treatment strategies; 75 percent of chemical companies report water reuse strategies. (These industries are more likely to be required by local and national regulations to reuse and treat water and wastewater than other industries.)

95 percent of companies in India use water treatment, which may be a result of these companies having limited access to municipal water and wastewater systems. Only 19 percent of the U.S. companies reported using wastewater treatment systems.

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Long-term strategies

Companies that are negatively affected by drought, flooding or other weather damage to facilities should seriously consider implementing a water plan. For instance, decentralized water and waste systems or an onsite water storage system can be viable alternatives to relying on municipal systems.

One in 10 of the top 250 companies are adapting to changes in water availability or water scarcity. Companies in the United Kingdom (75 percent), Spain (68 percent) and Brazil (59 percent) are more likely to have a water strategy in place than those in Canada (16 percent), the United States (20 percent) and China (7 percent).

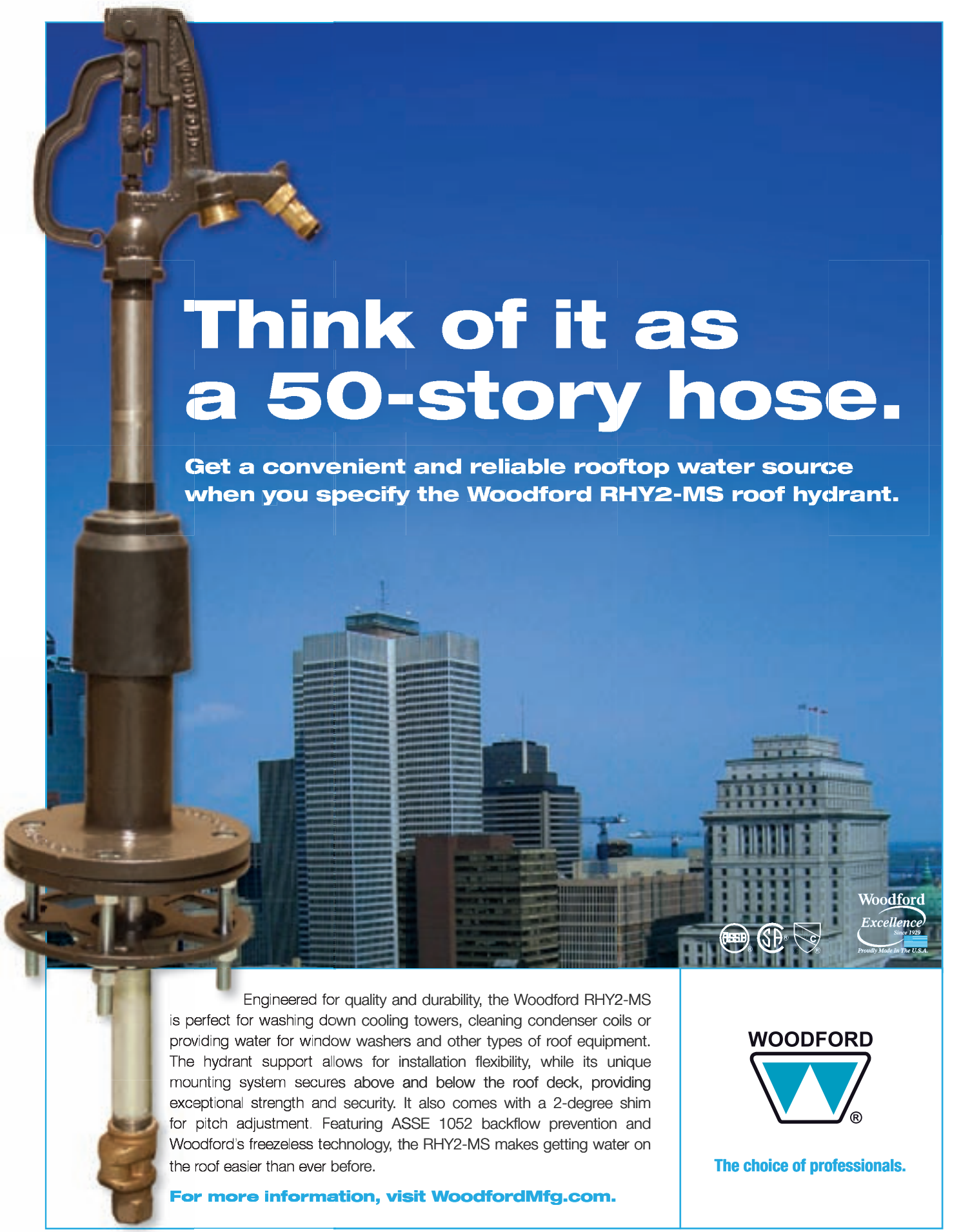
Suppliers

Most industries rely on other companies to supply them with materials to make their products. How reliable is the supply chain to water scarcity? In many cases, more water is used by the suppler than by the producer, so interruptions in the supply chain can present a threat to the manufacturing company. The KPMG report found that only three of the companies reported on their supply chains. This risk can be increased when parts of the supply chain depend on water supplies in other countries. If a supplier is located in a region that does not have a constant supply of water, the entire production process can be at risk.

Conclusion

Companies face many common risks, including financial markets, material shortages, staffing, technology, communications and safety, but water quality and reliability are other risks that are often overlooked. As plumbing engineers we should know the risks and the strategies that can be used to minimize them. We should also be aware of the standards and calculation tools that we can use to better design a facility's plumbing system. ■

***Winston Huff, CPD, LEED AP BD+C**, is a project manager, plumbing fire protection designer and sustainable coordinator with Science Interactive (scienceinteractive.net) in Nashville. He serves as an ASPE representative on the ICC Green Construction, Energy and Water Code Development Committee and is on the U.S. Green Building Council's Water Efficiency Technical Advisory Group for v3.0. He was the founding editor of Life Support and Biosphere Science and has served as its editor-in-chief. He also is editor of Me Green You Green (megreenyougreen.com), a LEED credit databank.*



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Solar Solutions

Bristol Stickney, chief technical director, SolarLogic LLC, Santa Fe, N.M.

Bristol's Six Principles for Good Solar Hydronic Design

#53: Award-winning solar combisystem in Los Alamos

A few years ago in this column (spring 2010), I described a unique building in Los Alamos, New Mexico, known as the "Eco Station" (seen in Figure 53-1). It was completed in 2008, houses the administrative offices for the Los Alamos County recycling program and was designed from the ground up to be a model of energy efficiency for small commercial buildings. It was designed to exceed LEED Silver standards, to have 25 percent better energy efficiency than a standard building and to incorporate water saving measures as well. I was the original designer of this solar-hydronic heating/cooling system, including all the piping, wiring and controls. Many of these details are covered in the earlier article.

Figure 53-1: Los Alamos 'Eco Station' with Vertical Solar Heat Collectors

Fast-forward to September 2012. The Radiant Professionals Alliance (RPA) and other mechanical industry leaders (IAPMO) gathered in Chicago for the organization's annual membership meeting and conference, where they announced the winners of their System Design Showcase competition. The Eco Station took two first-place awards. A press release sums it up like this:

"The System Showcase awards, for "Most Innovative System" and "Best Radiant Cooling System," were presented to SolarLogic at the RPA's national conference in Schaumburg Ill. The unique system features radiant heated floors, domestic hot water, solar and high-efficiency boiler heat sources and cooling of the radiant floors via night-sky radiant cooling, which uses the solar collectors at night to shed heat to the sky. This technology was pioneered by SolarLogic CTO Bristol Stickney."

The Eco Station was completed in 2008, but did not become "award-winning" until 2012. There is an interesting story behind this, as well as some further explanation behind the "innovations" and "radiant cooling" that were built into this solar combisystem.

The original system

When completed in 2008, solar heat was provided by a group of vertical collectors that are single-glazed, facing south and contain antifreeze pumped with a Photovoltaic DC circulator as seen in Figure 53-1. A second group of horizontal collectors are mounted on the (nearly flat) roof and were originally unglazed plastic. The plastic collectors are the same kind widely used in our region for solar pool heating in summer and, in this case, are used as radiators to dissipate heat from the building at night. They shared the same pressurized antifreeze that runs through the glazed solar collectors and are connected in a parallel closed-loop. Figure 53-2 shows the unglazed panels that exist on that roof today.

The original control system was typical for small solar heated buildings and is still commonly used today. A temperature control module or relay is required to activate each individual solar temperature control function. So, a number of set-point and differential controls were wired together with additional relays to provide the proper temperature control sequences. Two-stage heating/cooling room thermostats were used to control hydronic temperature flow to each zone. Pump relay boxes and zone valve relay boxes were included as well, and hard-wired into the solar controls.

When installed, a commissioning procedure was followed to make sure the proper temperature setpoints, differentials, dead bands and switch settings were programmed into every individual temperature controller and thermostat. After the initial startup and some minor adjustments over the first few months of operation, the system seemed to be working as designed, well into 2009.

Figure 53-2: 'Eco Station' Unglazed Cooling Panels on Roof

A small weather disaster

Then disaster struck. A catastrophic hail storm hit Los Alamos in July 2009, breaking car windows and destroying rooftops all over town. Although the plastic solar radiator panels were tough and relatively flexible,

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they were no match for that hail, which left hundreds of holes where the glycol leaked out: Hail – 1, Radiant Panels – 0.

The standing-seam metal roof itself held up nicely, and there was no damage to the glazed solar heat collectors or any other part of the heating system. The cooling loop was shut down, and the control system was programmed to ignore the night cooling function; it stayed that way most of the time for the next two years. The solar heating system continued to function normally once the glycol pressure was restored for the heating-only equipment.

Repair, upgrade or abandon

For the next few years, there were a few good-hearted attempts to patch up the Eco Station cooling panels, but the leaks persisted; a permanent solution was going to involve replacing or abandoning all the panels on the roof. Meanwhile, there were personnel changes at the facility and various repair and maintenance people came and went, which increased the delays. Finally, in 2011, after a formal study was completed, a working group began the process of developing a permanent repair.

The group ultimately decided to use this as an opportunity to upgrade the system to be the most effective public demonstration of these energy efficiency measures as possible. The plastic cooling panels would be replaced with "hail proof" metal ones. The piecemeal control system would be integrated, improved and made Internet compatible. Continuous data logging would be needed to provide verification of performance for the building managers and the public.

The upgrade

Once the decision was approved, the upgrade was carried out systematically. The old broken plastic panels were removed, and new metal ones were installed, with relatively minor changes to the mounting hardware (seen in Figure 53-2).

The original temperature controls and relay boxes were removed and replaced with a SolarLogic Integrated Control (SLIC) system that communicates directly with every thermostat, sensor, zone valve and circulator in the heating system. This system uses software, rather than hardware, to implement the proper temperature sequences for solar heating. New room thermostats were installed that are system-compatible. See Figure 53-3 for a view of the boiler room. (The new SLIC control box is to the right of the hot water tank.)

The Photovoltaic DC circulator was replaced with an AC circulator that is controlled more precisely by the new controller for solar heat collection. Even the instant hot water recirculator pump was put under direct control of the SLIC system. A new flow meter was cut into the primary loop to allow direct energy measurement, which is compatible with the energy monitoring and continuous data recording built into the SLIC system. A secure Internet connection was installed so that the SLIC control system can be monitored, adjusted and displayed remotely by system administrators.

Results

The old control system required manual adjustment and could not be monitored remotely. The new SLIC control allows anyone authorized with the right password to watch and adjust the system in real time on any network computer anywhere in the world. This has opened up a new window into the workings of this building for everyone involved. The newly installed flow meter allows Btu energy measurements to be recorded continuously, so now the solar heat and the NSRC cooling contribution can be observed directly. The system temperatures, pressures, on-off status of pumps and zone valves, glycol pH, electrical consumption and other data are recorded continuously and are also available remotely.

The new cooling radiator panels have been providing Night Sky Radiant Cooling (NSRC) throughout the summer and fall of 2012. In fact, the building was just changed over from cooling mode to heating mode in October. A quick look at the cooling data shows that, for example, the peak NSRC cooling recorded a week before the seasonal changeover was 160,000 Btu overnight. The electrical data recorded that night shows that the cooling system consumed about 3.6 kWh to run the circulator pumps. That translates to an equivalent Coefficient of Performance (COP) of about 12.9 overnight. (For every unit of energy consumed by the pumps, 12.9 units of useful cooling energy were delivered to the building.)

After the building was switched to heating, "solar only" mode was chosen to allow the mass floors of the

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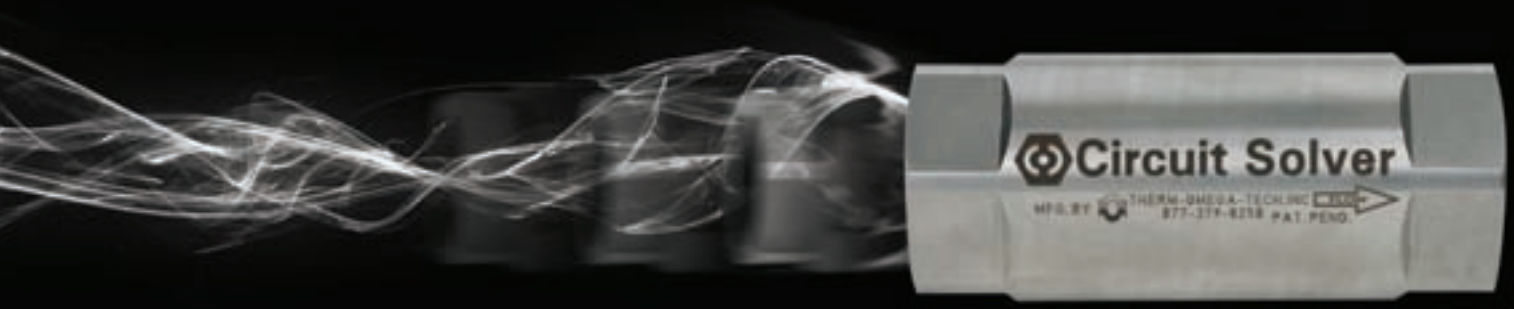

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building to warm up without using the backup boiler. The data shows that the peak solar heat recorded right after switching to solar heating was around 200,000 Btu per sunny day. (This is useful heat delivered to the building, not just solar available from the collectors.) As the weather gets colder, the system will eventually be switched to "normal" heating mode for the rest of the winter, so that the backup boiler will operate automatically when needed.

Final notes

These articles are targeted toward residential and commercial buildings smaller than 10,000 square feet. Brand names, organizations, suppliers and manufacturers are mentioned only to provide examples for illustration and discussion and do not constitute any recommendation or endorsement. Back issues of this column can be found in the archives at the TMB Publishing and SolarLogic LLC websites. ■

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.*

The Prime Directive for Solar Heating

Always design and install solar heating equipment that is at least as reliable and trouble-free as the conventional system it replaces. Whenever possible, provide performance, longevity and controls that surpass the conventional alternatives. To meet the prime directive, try following these Six Principles: Reliability, Effectiveness, Compatibility, Elegance, Serviceability and 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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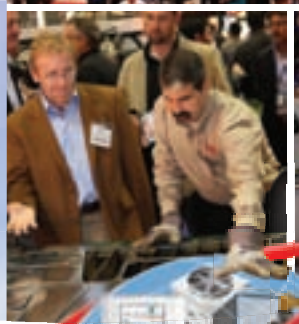

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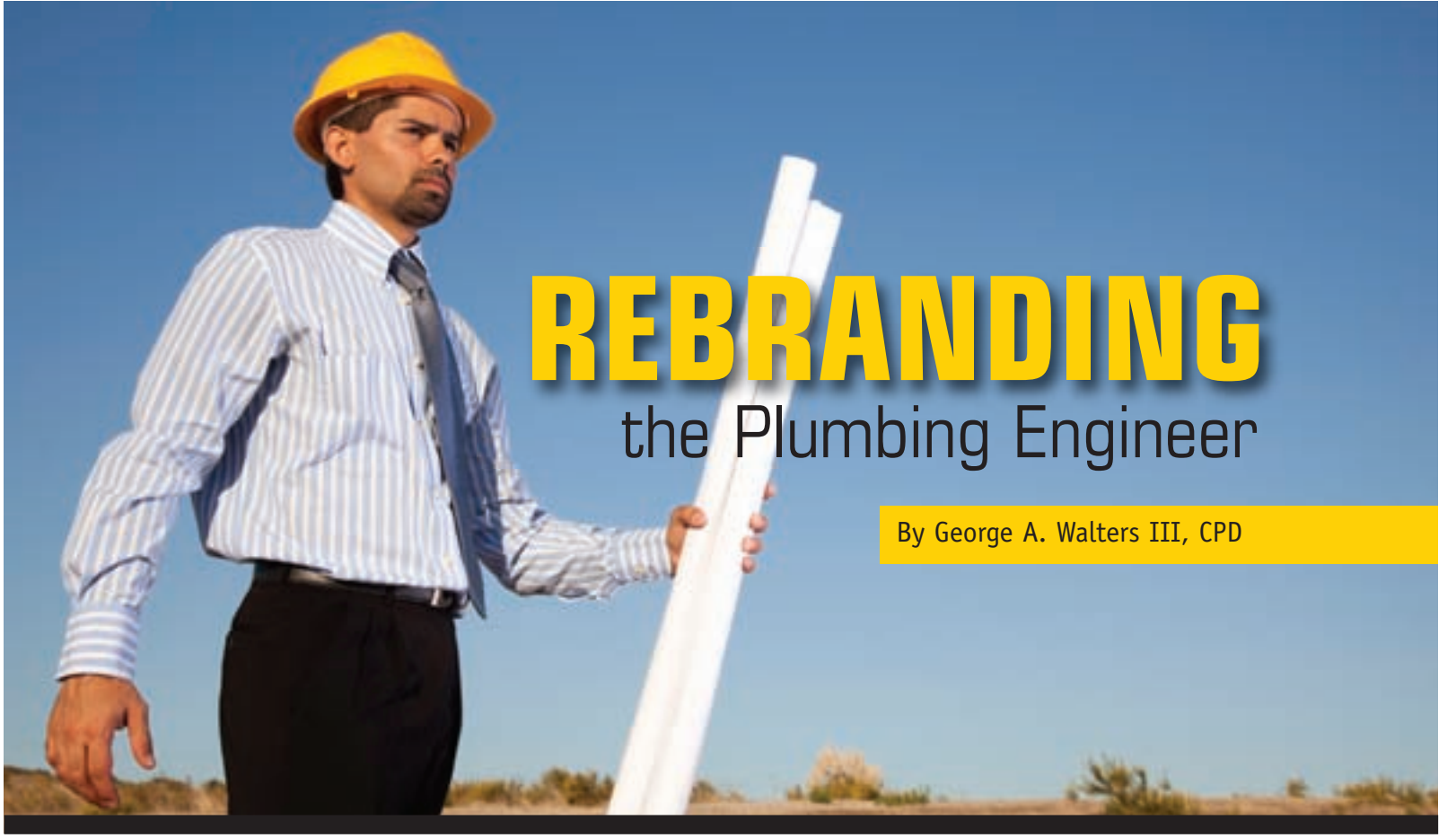

REBRANDING
the Plumbing Engineer

By George A. Walters III, CPD

A few months ago I was invited to participate in an ASPE Young Engineers (AYE) focus group. During the conference call, the moderator, ASPE executive director/CEO Jim Kendzel, MPH, CAE, sparked some interesting dialogue, which inspired ideas on how to encourage young engineers to become plumbing engineers.

This discussion got me thinking about what it means to be a plumbing engineer from the viewpoint of a young engineer.

What do you think of when you hear the word plumber? Do you imagine a guy standing over a toilet with a plunger, periodically getting splashed with toilet water? Do you picture an overweight man crouched under a sink with his trousers falling down?

What happened to the heroic image of a plumber who protects the health of the nation, as illustrated in the famous American Standard Brands' early 20th century ad campaign? How did this noble career receive such a negative image?

What happened to the heroic image of a plumber who protects the health of the nation, as illustrated in the famous American Standard Brands' early 20th century ad campaign?

Think with me, if you will. What are the five greatest inventions of all time? First we need a few criteria: the number of people who use it or benefit from it, how many lives the invention has saved and whether or not the invention would be possible without a previous invention. While the light bulb, Internet and telephone have been considered by many to be among the greatest inventions ever, none of them could have been invented without electricity. Thus, in my opinion, the five greatest inventions of all time are:

1. Printing press
2. Electricity
3. Indoor plumbing
4. Automobile
5. Penicillin

These inventions have all impacted millions of lives in a positive way, and none of them required the use of a previous invention.

Indoor plumbing may be one of the greatest inventions of all time, but advances in this technology could not have happened without engineers. How are we going to get the best and brightest of the next generation to consider a career in this important field?

The answer: Rebranding!

The plumbing engineer is in dire need of rebranding. Major corporations rebrand all the time in response to negative perceptions, so why can't a profession?

According to a little research on Wikipedia, "Rebranding is the creation of a new name, term, symbol, design or combination thereof for an established brand with the intention of developing a differentiated (new) position in the mind of stakeholders. … In a corporate sense, rebranding can be utilized as an effective marketing strategy to avoid or shed negative connotations."

If the image of a plumber is not appealing, we can't expect the next generation of engineers to pursue a career in plumbing engineering. I propose that we rebrand our profession to eliminate the negative connotation of the word plumber. Besides that, the word plumbing comes from the Latin plumbum for lead, as pipes were once made from lead. Since everything by

law is moving toward lead-free, we should get the plumbum (lead) out of our name as well.

What if we called ourselves hydro engineers?

I can hear the critics now: Hydro engineers already exist. They do civil/environmental work with regards to water. However, according to the laws of semantics, the meaning of a word can be altered by continually using it in a new sense. Over time, the new meaning will gain momentum and catch on. This explains why people drive on a parkway and park on a driveway.

Hydro engineering is a much more appealing term. Imagine being the hydro engineer who develops a system to provide potable drinking water to the next billion people who join our planet, utilizing complex rainwater harvesting systems, water reuse systems, graywater systems, water desalination and water filtration systems. Imagine the challenges the next generation of hydro engineers will conquer to ensure the transport of sewage in reduced water drainage systems that have a high potential of clogging due to low-flow water fixtures.

Here come the critics again: But plumbing engineers work with laboratory and medical gases, vacuum pumps, etc., as well as water and sewage systems. If you call yourself a hydro engineer, then you exclude yourself from working on the gas side of the industry.

This is a good point, but hydro engineers, just like plumbing engineers, can work with all types of fluids. Plumbing is a generic term that encompasses many systems that are not related to water or drainage. Our new name will not limit us to water, but rather illustrates the extent of our expertise. Hydro engineering would be the new umbrella terminology that covers many systems in addition to water.

You might ask: Why should we go through the hassle of changing the name of our profession? Read this quote from the December 2011 issue of *ASPE Times* by San Diego chapter president Scott Newton, CPD:

"As many of you know, the average age of an ASPE member is 57 years. We want to lower that by pitching the idea that plumbing is a much-needed and noble career for engineers to pursue right out of school. I'm hoping students will begin to see the direct role a plumbing engineer takes in protecting the resources of the planet and want to get involved."

Persistent critics — they just don't stop. "But I work for an MEP firm, and I have Autodesk MEP on my computer. Are you going to change these acronyms to MEH firm and Revit MEH?"

Actually, it shouldn't be that hard. Autodesk changed 36 other things when they released Revit MEP 2013. Next year, in addition to the 42 planned changes, they can change the name to Revit MEH 2014.

That brings us to another question: Should we change the name of ASPE to the American Society of Hydro Engineers? Sure, the acronym ASHE already refers to the American Society for Healthcare Engineering and the American Society of Highway Engineers, but why shouldn't we rebrand the Society as well to make membership more appealing to young engineers?

As the world population is expected to increase exponentially, the clean drinkable water supply is only going to decrease as we continue to live unsustainable lifestyles and pollute the rivers, lakes and aquifers that we depend on for life-giving water. Let's be honest. We can live without electricity. We can live without a climate-controlled HVAC system. We can live without the world's fastest and most beautifully engineered cars. We don't even need books hot off the printing press to maintain life.

But who can live more than a few days without potable water?

Let me introduce you to the motto of the new hydro engineer: "Protecting the health of the nation by sustaining the water we need to live."

The federal "lead-free" law goes into effect January 4, 2014. Maybe we should remove the lead (plumbum) from our profession by that date as well? ■

George A. Walters III, CPD, is a graduate of Georgia Tech and has worked as a "hydro engineer" with Newcomb & Boyd since 2008.

2012 Internet Usage Survey

Can anyone remember what it was like to do business before the rise of the Internet? In the past decade, the Web has become more than just a tool: it has revolutionized the way businesses operate and function. Smart phones have taken things a step further, untethering users from their desktops and laptops and providing access anytime, anywhere.

Plumbing Engineer's 2012 Internet Usage Survey helps provide a snapshot of where our readers and plumbing engineers as a group are in relation to the Web, social media, and mobile technology. We would like to thank those who took time to participate in the survey.

More and more we hear about the transition from traditional desktop and laptop computers to more portable devices like smart phones and tablets.

Time Online

Just about all our respondents use the Internet on a daily basis for their business, and the largest response segment, about 31 percent, are online for about 1 to 2 hours per day. Nearly the same number, 29 percent, are online for 30 to 60 minutes each day. About 14 percent are on the Web for 2 to 3 hours per day, and another 11 percent are online more than 3 hours each day. On the lesser end of the scale, about 15 percent of those surveyed use the Internet for work purposes just 10 to 30 minutes each day.

Access Device

More and more we hear about the transition from traditional desktop and laptop computers to more portable devices like smart phones and tablets. While that may be the case in the larger world, among those polled in our survey, the traditional technology holds on strong. About 68 percent of respondents use a desktop computer to access the Internet, and 27 percent use a laptop. Only about 3 percent are using a smart phone and just under 2 percent use a tablet. It will be interesting to see if these results change in the coming year or two, as mobile access and cloud-based applications grow in prominence.

Content is King

We also asked those surveyed what type of content they most frequently seek out during their time online. A very high number of respondents, 83 percent, said they use the Internet to find product information. About 79 percent are interested in technical information and articles. About 22 percent browse around for news online, and another 19 percent seek out case studies and project examples.

Product Information

Since product information is such an important part of what our respondents are viewing online, we asked where they most often go to find that information. A whopping 94 percent said they visit manufacturer websites. The rest is a mixed bag of print and online resources. About 36 percent look to print trade publications, and 24 percent look to the online incarnations of those trade magazines. Just over half, 53 percent, still look to print catalogs. Roughly 9 percent consult online customer reviews and a smaller number, just about 4 percent, use social media to learn about products. And the Web is not only handy for learning about products, it's also a popular place to acquire them. Almost 70 percent of those surveyed say they purchase products online.

Social Media

While not a dominant force among the respondents of our survey, social media is on the radar for many. About 33 percent say they use social media for their business. Among those using social media for business purposes, there is a diversity of platform choices. LinkedIn comes up on top, with about 22 percent of respondents using it. Just about 19 percent say they use Facebook, 13 percent use Google+, about 6 percent use Twitter and 5 percent use the video clearinghouse, YouTube. Less than 2 percent use the relatively new Pinterest, and about 5 percent of those surveyed say they use and read blogs.

Just as important as asking a business if they use social media is asking why they use it. The largest group of respondents – 33 percent – use the technology to interact with customers. Roughly 22 percent say they use it to enhance their customer service and another 22 percent use social media to generate leads. About 14 percent of those surveyed are interested in improving their visibility and search engine rankings and 9 percent use social media to drive traffic to their websites. ■

Engineer Profile

Robert J. Shorey Jr., CPD, FASPE, Associate and Plumbing/Fire Protection Designer at TLC Engineering for Architecture, Tampa, Fla.

Can you tell us a little about the history of TLC Engineering for Architecture?

TLC was founded in 1955 by John Tilden, PE, as a small structural engineering practice. In 1967, Ed Lobnitz, PE, an electrical engineer, joined the firm followed by Travis Cooper, PE, a mechanical engineer. The firm became Tilden Lobnitz & Cooper (TLC) in 1981. In 2005, the firm's 50th anniversary, the name was changed to TLC Engineering for Architecture to reflect the continued growth and diversity of the practice.

Today, TLC is ranked as one of the largest MEP and structural engineering firms in the country. We are located in 11 high growth and dynamic cities including our headquarters Orlando, as well as locations in Tallahassee, Fort Myers, Cocoa, Deerfield Beach, Miami, Tampa, Jacksonville, Dallas, Nashville and Chattanooga. Our staff of more than 300 includes 84 PE's, 22 EI's, 11 CPD's, 90 LEED Accredited Professionals, 34 ACG Registered Commissioning Authorities, along with Building Energy Modeling Professionals and many other pertinent engineering specialists. We've provided engineering services for buildings in 47 states including Alaska and Hawaii, plus several foreign countries.

Is there an overarching philosophy that you apply to your projects?

As a firm, we draw on a synergistic approach that capitalizes on specialists throughout the firm allowing us to give responsive, quality "extreme" service tailored to meet the needs of our architect and building owner clients. Our collective goal is to be a leader in creating sustainable environments as the trusted engineering advisor to all stakeholders.

What role does sustainability play in your business, your work, and in your dealings with clients?

Sustainable design and consulting plays a huge role in our business and sets us apart for other firms in the industry. We were among the first MEP firms to commit to the 2030 Challenge and are delivering on that commitment through education, an even greater focus on sustainable

Continued on page 54

The IAPMO Backflow Prevention Institute

Setting the standard in backflow certification

By Sean Cleary, IAPMO

The International Association of Plumbing and Mechanical Officials Backflow Prevention Institute is continuing to expanding its footprint in the field of backflow prevention research, certification and training. Founded by Dr. Stewart Asay in Denver, Colorado in the spring of 1987 as the International Society for Backflow Prevention and Cross-Connection Control, it quickly became an industry leader in training and certification within the fast growing and ever changing backflow industry.

Dr. Asay, a pioneer in the field of cross-connection control and backflow prevention, saw the need for comprehensive training for both plumbing and water distribution employees. In those early years, the Society partnered with the American Society of Sanitary Engineering and the Plumbing Heating and Cooling Contractors of America to develop testing and certification standards for backflow prevention. This collaboration was the beginning of the ASSE Series 5000 Cross-Connection Control Professional Qualification Standard, which has become the referenced standard in all three model plumbing codes.

In July of 1994, the Society was renamed and became the Backflow Prevention Institute, continuing its mission of education and training. In 2004, the Institute became part of the IAPMO Group. Since that time, IAPMO/BPI has grown in size and scope to become the largest of the backflow training providers approved by the American Society of Sanitary Engineering Backflow Certification program. The ASSE certification program, one of the oldest and largest in the United States, is based on the ANSI-accredited ASSE Series 5000 PQ Standard.

IAPMO/BPI uses the ASSE certification because it currently has the most stringent requirements in the industry. It requires potential students to have a minimum of five years of experience in plumbing, water supply or a related field as a prerequisite for training. They also approve the instructors, proctors and training materials. IAPMO/BPI offers four different ASSE-accredited certifications: Backflow Tester, Repairer, Surveyor and Program Administrator/Specialist.

The Institute has also created important training materials and publications used throughout the cross-connection industry. IAPMO/BPI developed the first edition of its IAPMO Backflow Prevention Reference Manual in 2006. The second edition was released in 2010. This edition was updated in cooperation with the United Association of Journeymen and Apprentices of the Plumbing and Pipefitting industry of the United States and Canada. The manual is currently being used in United Association's 300-plus training centers throughout North America.

IAPMO/BPI also publishes *Drinking Water and Backflow Prevention* magazine (*DW&BP*), the only

monthly publication dedicated to the subject of cross-connection. Founded in 1984 as *Backflow Prevention Magazine* and renamed *DW&BP* in 1991, this industry resource has provided thought provoking articles and industry updates for the last 28 years.

In addition to its original location in the Denver area, IAPMO/BPI is rapidly expanding its influence around the United States and internationally. With Dr. Asay becoming more involved in a number of industry projects, the decision was made in early 2011 to appoint Sean Cleary as director of training and education for the Backflow Institute. Cleary, a licensed master plumber who has been working within the plumbing and backflow prevention industry for over 30 years immediately began working to expand IAPMO/BPI training into new jurisdictions on both a state and local basis. As a result of this expansion, the Backflow Institute in 2012 is conducting classes in 11states and is looking to double both the number of classes and the number of locations in 2013. In the state of California, construction of a permanent backflow wet-lab and training facility is underway at IAPMO world headquarters in Ontario, Calif., with a completion date of late December this year.

IAPMO/BPI is putting together training seminars for building officials, plumbing and mechanical inspectors, water purveyors and consumers, to educate all stakeholders about the importance of cross-connection control. These seminars are designed to fill an industry need that has existed for many years. The Institute is working hard to build a bridge between the factions that exist and to promote dialogue between the parties involved. It's time for a frank discussion about where the water supplier's jurisdiction ends and the plumbing code begins. We need to recognize that the industry needs to discuss harmonizing training requirements and backflow product standards.

As an industry leader in codes and standards, IAPMO is working to organize a backflow symposium, scheduled to be held in February 2013 to bring together industry leaders from all areas of the cross-connection industry to find ways to work together on the important issues facing the industry and its consumers. Protection of the public water supply is a vital mission, and IAPMO/BPI is proud to be leading the way in training, certification and education in the cross-connection control industry. ■

For more information about the IAPMO Backflow Institute education and training programs or to become involved in the upcoming IAPMO Backflow Symposium, contact Sean Cleary at Sean.cleary@iapmo.org.

Product News

Plumbing Engineer's Product of the Month

Tankless water heater

A new condensing hybrid tankless water heater is the most technologically advanced gas heater on the market. With an operating efficiency above 94 percent, Energy Star® listing and Low Nox approval, the Hubbell heater is the choice for reliable and accurate hot water for any commercial application. Utilizing a floating all 316L SS heat exchanger, internal circulation system and revolutionary internal buffer vessel, the Hubbell heater ensures long operating life. **Hubbell**.

Circle 100 on Reader Reply Form on page 53

Pipe trades calculator

Pipe Trades Pro is built for those who design, install and retrofit piping systems — pipefitters, steamfitters, welders and sprinklerfitters. Spend less time calculating and looking at charts and more time cutting, welding and placing pipe. Instant answers for: cut lengths, take-outs and odd degree fittings; right angles, offsets and complex rolling offsets; fitting angles, bends, slopes, percent grades, drops; parallel pipe cutbacks; flow rates, velocity, force, volumes; pressure loss for any pipe size, type or distance. Built-in pipe data for materials, type and size. **Calculated Industries**.

Circle 101 on Reader Reply Form on page 53

Dry pipe valves

The DPV-1 dry pipe valve is factory-assembled, trimmed and tested before shipping. A butterfly valve, pressure switches and gauges offer contractors a complete "plug and play" valve. The unit is pressure rated at 250 psi, includes an external reset and employs a unique offset single-clapper design that allows for minimization in installation labor. Ductile iron construction makes the valve lightweight. **Tyco Fire Protection Products.**

Circle 102 on Reader Reply Form on page 53

Steel boiler manifolds

These steel boiler manifolds address the increased demand for prefabricated hydronic system piping components. Feature durable Schedule 40 forged steel pipe construction, with fully welded seams. Benefits include a reduction in fittings and labor, while improving system appearance. Available in $1^{1}/4$ and $1^{1}/2$ inch mains, with $^{3}/4$ and 1 inch zone outlets. Conform to ASTM A53/A733, ANSI B36.1, ANSI/ASME B1.20.1. **Legend Valve**.

Circle 103 on Reader Reply Form on page 53

Energy-efficient circulator

The Grundfos ALPHA will change the way you view circulators. With its permanent magnet motor design, this energy-efficient circulator reduces power consumption by 50 percent or more. The unique patented AUTOADAPT™ feature controls pump performance automatically, thus ensuring lowest possible energy consumption without sacrificing comfort. For installation, you now have the flexibility to use either our unique ALPHA Plug with line cord or the new ALPHA with terminal box for conduit connection applications. **Grundfos**.

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Classifieds

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Advertiser Index

Plumbing Engineer
A TME Publication

1 I wish to receive (continue receiving) **Plumbing Engineer** for **FREE**
☐ Yes ☐ No

2 I am engaged in plumbing engineering: ☐ Yes ☐ No

3 I am also engaged in the following kinds of engineering work:
☐ Piping (a) ☐ HVAC (b) ☐ Hydronics (c)
☐ Sprinkler/Fire Protection (d) ☐ Plumbing (e)

4 I am employed by one of the following:
☐ Architectural/Engineer (a) ☐ Mechanical Engineer (b) ☐ Building Owner/Engineer (c) ☐ Consulting Engineer (d) ☐ Contractor (e) ☐ Design–Construct Engineer (f) ☐ Architect (g) ☐ Manufacturer (h) ☐ Manufacturers Rep (i) ☐ Government (j)
☐ Mechanical Contracting (k) ☐ Other (x) _____

5 My title is: ☐ Construction Manager (c) ☐ Engineer (e) ☐ Owner (o) ☐ President (p) ☐ Specifier/Design (s) ☐ Vice President (v)
☐ Other _____

6 Do you design and specify products? ☐ Yes ☐ No

7 I belong to the following professional organizations:
☐ ASPE (a) ☐ ASSE (b) ☐ ASHRAE (c) ☐ NSPE (d) ☐ Other (e)

8 **Please fill out this form, sign and date below**

Name/Title _____

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Telephone _____ Fax _____

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Signature (required) _____

December 2012

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Engineer Profile

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design, and constant review of how we live at work. TLC has provided more than 19 million square feet of sustainable space, gaining USGBC's LEED certification on 188 projects.

What are some of the things you are most proud of about your work with TLC?

Through the various different types of projects we do at TLC, I have been exposed to many projects that lead to design knowledge from each of those types of facilities. Being in a regional office, I am able to switch from a university type of project with its design differences to a medical or hospital type facility with a totally different design approach. I am proud of my learned ability to be able to adapt to any type of project that might come through our doors.

Are there any high profile or unique projects you are currently working on?

The Florida Polytechnic University Science and Technology Building is a new $60 million, 110,000 square-foot building that provides classrooms and laboratories, a large central atrium and several outdoor assembly spaces. The signature architect's futuristic design required seamless integration of building systems. TLC is performing MEP/FP services and it is set for completion in 2013.


Rendering courtesy of Festina Lente

Anything of note on the boards in the coming year? Any projects you are particularly looking forward to?

There are many projects on the horizon that shall be more focused on sustainable design, such as fire stations and recreational facilities that will involve non-traditional plumbing design methods. I look forward to these new challenges.

What is your take on the implementation of the upcoming lead free legislation? How does it impact your firm, your work and your customers?

There are a few people out there that are aware of this legislation that is set to go into effect on January 4, 2014. It is supposed to reduce the levels of lead used in the domestic water piping system and any fixtures that potable water touches for human consumption. California and Vermont have already implemented similar programs in their respective state codes. From a plumbing designer standpoint, this will raise awareness to the types of products that are indicated/allowed in the specifications.

Any plans or forecasts for TLC in the coming year?

Our future keys to success in the ever-changing market are: high performance engineering; consulting; design assist; and energy services. We are looking conservatively at energy services making up ¼ of our work over the next two years. ■


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