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march 2012 Vol 12 | No 3

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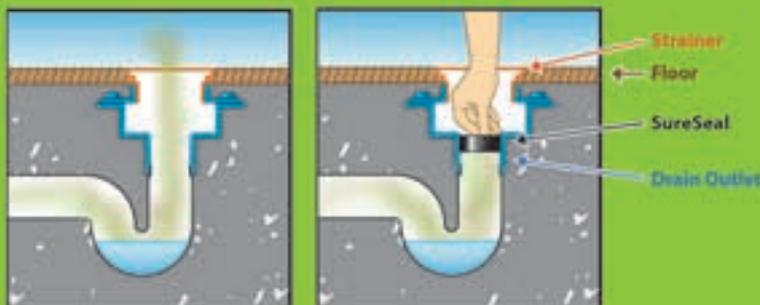
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COVER STORY Comfort Geo

Green before green was cool. N.H.-based M.J. Hayward Mechanical Electrical integrates geothermal designs by Water Distributors, Inc., a recognized global leader in geothermal design.

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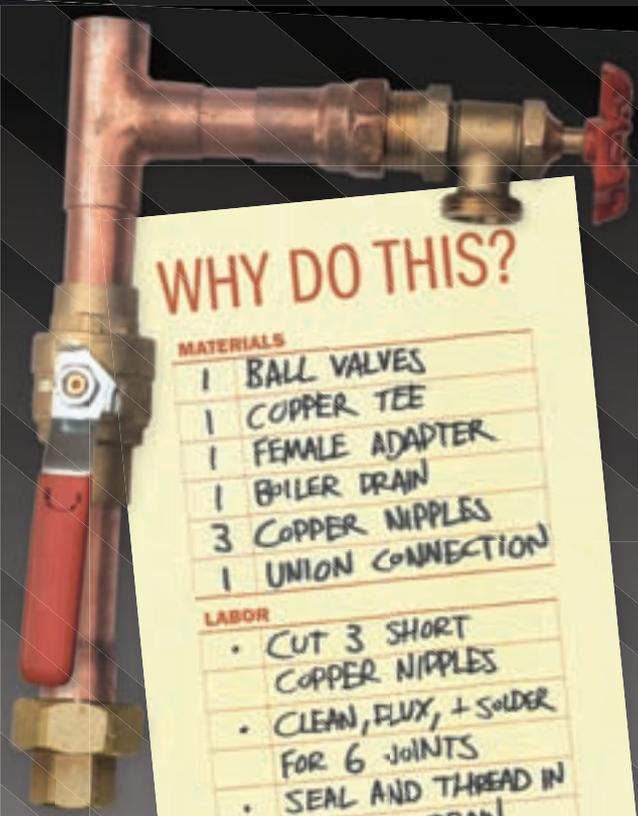
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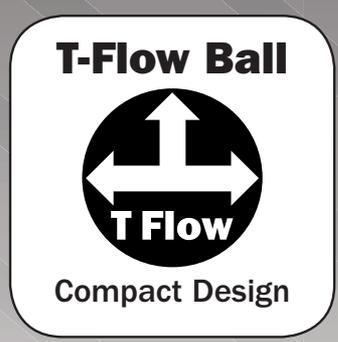
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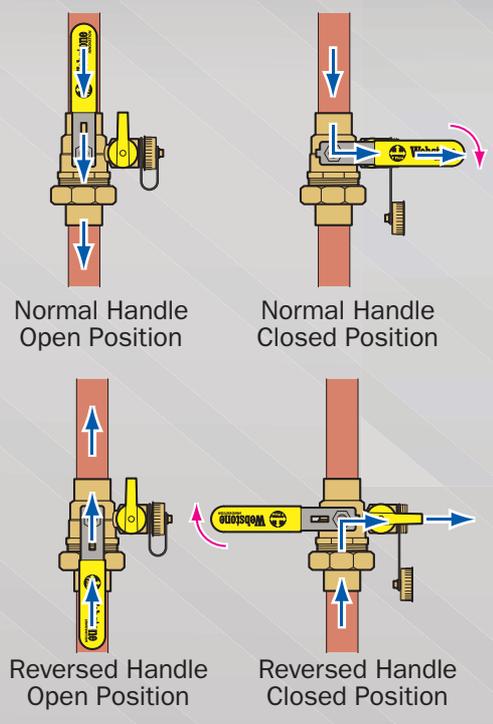
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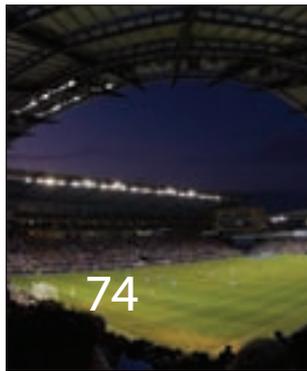


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2012 AHR Expo sets all-time attendance record

WESTPORT, CONN. — AHR Expo show management announced that the 2012 exposition and conference has established a new all-time attendance record with nearly 40,000 registered visitors for the recently concluded event at Chicago's McCormick Place. Together with exhibitor personnel and other attendees, more than 57,000 HVACR professionals participated in the world's largest HVACR event from January 23rd through January 25th.

Based on preliminary registration numbers, the 2012 Show will easily surpass the previous record of 38,534 visitors established at the 2008 Show in New York City. As reported earlier, this year's Show was also the largest AHR Expo in the illustrious 82-year history of the event at nearly 430,000 square feet, making it almost 5% bigger than the 2006 Chicago Show.

AHR Expo donates to Chicago charity

In other AHR news, nearly \$12,000 in entry fees from the 2012 AHR Expo Innovation Awards competition has been donated to an organization that provides services and counseling for families in need in the Chicago area. Metropolitan Family Services will use the donation

to upgrade the HVAC systems for their Midway Head Start facility, resulting in thousands of dollars in energy savings a year.

For more than 154 years, Metropolitan Family Services has been helping thousands of families cope with various challenges through a variety of human services. Metropolitan's Midway Center and Midway Head Start Center serve communities on Chicago's Southwest side, near Midway Airport. They provide area residents with Head Start programming, child care, youth center, domestic violence and parenting programs, as well as a number of other programs and services designed to improve the lives of the area's residents.

Metropolitan spends approximately \$50,000 a year on energy costs for its Midway Head Start facility. Almost half of that money is used to operate both of their rooftop HVAC units and the boiler. With the new HVAC system controls upgrade, purchased with the donation from AHR Expo, both systems will now be able to work in tandem more efficiently and provide consistently comfortable room temperatures for the facility year-round. The new system nearly triples the square footage of the area covered.

Rinnai tankless, home heating products featured in HGTV Dream Home 2012

PEACHTREE CITY, GA. — Rinnai Corporation announced that four of its comfort-enhancing, energy saving products are featured in the HGTV Dream Home 2012. Located at River Meadows Ranch in Midway, Utah, the first-ever riverfront HGTV Dream Home is a modern yet rustic ranch house nestled on the banks of the Provo River. On the interior of the HGTV Dream

Home, three Rinnai® RC98i condensing tankless water heaters, the ES38 ENERGYSAVER® direct vent wall furnace and the ENERGYSAVER® Intelligent indoor fireplace supply energy-efficient water heating and home heating, while five Rinnai Impression® outdoor fireplaces add warmth and ambiance to the outdoor living areas.



A.O. Smith sponsors PGA golfer

ASHLAND CITY, TENN. — A. O.

Smith has renewed its sponsorship with PGA Tour Professional Tommy "Two Gloves" Gainey through 2012. Gainey will be sporting the water heater



manufacturer's logo on his hat and golf shirt. The South Carolina native is a former A. O. Smith employee at its McBee, S.C., water heater plant.

Leonard Valve launches new website

CRANSTON, R.I. — Leonard Valve has launched its new website located at leonardvalve.com. The dramatically redesigned website embodies Leonard's forward-thinking vision and commitment to the growing needs of its customers.

Mitsubishi Electric inks sponsorship deals with golfers Couples and Funk

SUWANEE, GA. — Mitsubishi Electric Cooling & Heating (Mitsubishi Electric) has signed a three-year sponsorship agreement with PGA TOUR and Champions Tour golfer Fred Couples (pictured below, left) and has extended its sponsorship agreement with Champions Tour golfer Fred Funk.

Webstone announces 'Rep of the Year'

WORCESTER, MASS. — Webstone announced that Mechanical Sales has been named as its 2012 Manufacturer's Rep of the Year. Steve Markee (Proprietor) has been representing Webstone in Michigan since 2004 and has consistently produced new opportunities, ideas and growth for the territory despite facing some of the most challenging economic conditions in the country.

In other news, Webstone's website (www.webstonevalves.com) features a newly expanded Technical Resources section. In addition to providing access to specification and submittal sheets, the site now includes product renderings in both Visio (vsd) and jpg formats.



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PHCC's 2012 Legislative Conference — Taking Care of Business

FALLS CHURCH, VA. — When it comes to legislation, can one person make a difference? Of course! But change is easier and more effective when a single individual joins with many others to speak louder, and with unity.

Now is your chance to get involved in your industry and help influence the laws that govern it. From April 25-26, 2012, members of the Plumbing-Heating-Cooling Contractors—National Association (PHCC) will be “taking care of business” during the annual Legislative Conference in Washington, D.C. Hear from Members of Congress and key regulatory officials, meet with your own congressional representatives face-to-face, and convey the small business priorities that are most crucial to the success of your company.

This year, there will be several highlights of the popular, annual event. First, well-known political commentator Morton Kondracke will present his Washington insider's remarks on Wednesday, April 25th. A journalist for nearly 40 years, Kondracke has covered nearly every phase of American politics and foreign policy, and has done so in newspapers and magazines, television and radio.

Dr. Winslow Sargeant, chief counsel for advocacy for the U.S. Small Business Administration, will then update attendees on small business issues of concern to p-h-c contractors.

Later that evening, to celebrate the 130th anniversary of the trade association, PHCC will honor the organization's founding president with a special Colonel George D.

Scott Congressional Reception on Capitol Hill.

PHCC Educational Foundation offering regional instructor workshops

In other news, PHCC Educational Foundation announced its newest offering, a series of three two-day regional instructor workshops.

These three regional instructor workshops will offer an all-day instructional boot camp as well as a second day of more condensed, high quality seminars focused on incorporating newer technologies into the apprentice curriculum. Regional workshops will be held on May 10-11, 2012 in San Diego; June 7-8, 2012 in Indianapolis; and August 9-10 in Baltimore.

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NKBA report shows high optimism for the start of 2012

HACKETTSTOWN, N.J. — The National Kitchen & Bath Association (NKBA) released the Kitchen & Bath Market Report for the fourth quarter. Although results convey a slight drop-off from third quarter in number of remodels and budgets, showroom visits held steady from a year ago and, with marked increases from 2009 and 2010, optimism for the first quarter of 2012 remains high.

“Although numbers dropped off at the end of 2011, optimism is high and undeterred for the anticipated outcome of the first quarter in 2012,” stated 2012 NKBA president Alan W. Zielinski, CKD. “Dealers are very optimistic, with the NKBA Kitchen & Bath Market Index surging from +9 to +32.”

The NKBA Kitchen & Bath Market Index (KBMI), which measures the confidence of kitchen and bath dealers on a scale of -60 to +60, is at +32 for the fourth quarter, showing that kitchen and bath dealers forecast a healthy expansion in the market over the next three months.

KBMI methodology

The NKBA KBMI is determined by averaging expectations of NKBA member kitchen and bath dealers during the next quarter based on expected increases (+1), decreases (-1) or no change (0) in each market condition. That total is divided by the number of dealers surveyed and multiplied by 10, which gives the

KBMI a range of -60 (pessimistic) to +60 (optimistic). The NKBA KBMI surveys approximately 150 kitchen and bath dealers across North America each quarter.

NKBA KBMI overview

Showroom visits:

- Down 3 percent from previous quarter; 0 percent difference from previous year

- 70 percent anticipate an increase in Q1; 3 percent anticipate a decrease

Kitchen remodels sales volume:

- Down 20 percent from previous quarter; down 49 percent from previous year

- 73 percent anticipate an increase in Q1; 3 percent anticipate a decline

Kitchen remodeling prices:

- Down 11 percent from previous quarter; down 14 percent from previous year

- 35 percent anticipate an increase; 4 percent anticipate a decrease

Bathroom remodel sales volume:

- Down 2 percent from previous quarter; down 11 percent from previous year

- 62 percent anticipate an increase; 3 percent anticipate a decline

Bathroom remodeling prices:

- Down 1 percent from previous quarter; down 3 percent from previous year

- 34 percent anticipate an increase; 6 percent anticipate a decline

Kitchen and bath revenue:

- Down 22 percent from previous quarter; down 48 percent from previous year; 68 percent anticipate an increase, 3 percent anticipate a decline.

Central Mechanical awarded Caterpillar contract

NORWALK, CONN. — EMCOR Group Inc. announced that its subsidiary Central Mechanical Co. Inc. has been awarded a contract for the installation of mechanical systems at an addition to Caterpillar’s work tools campus in Wamego, Kansas.

Central Mechanical will be responsible for the installation of mechanical systems associated with welding bays included within a 40,000-square-foot addition to Caterpillar’s facility, creating a total of nearly a quarter million square feet of manufacturing space. The work will include installation of the sheet metal, plumbing and process piping systems for 16 welding bays.



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Honeywell acquires Fire Sentry Corp.

MINNEAPOLIS — Honeywell has acquired Fire Sentry Corporation, a privately held manufacturer of innovative fire detection and control products for a broad range of industrial markets. The terms of the transaction were not disclosed.

Based in Yorba Linda, California, Fire Sentry's product portfolio consists of fast-responding electro-optical flame detectors, portable test lamps and dedicated control panels that are used by customers in industrial settings such as

petrochemical, semiconductor, paint booth/finishing, automobile airbags and munitions plants. Fire Sentry's products are designed to ensure rapid, accurate, and reliable detection of both hydrocarbon and non-hydrocarbon fires within a single device.

The acquisition will help

Honeywell significantly expand its gas and flame detection and monitoring solutions and builds on the company's acquisitions of System Sensor in 1984 and Zellweger Analytics in 2005, among other important acquisitions in the gas detection arena. The company will be integrated into Honeywell Life Safety and will extend significant synergies in distribution channels, vertical end-markets and global end users.

Wright Tool partners with SMS Equipment as preferred tool supplier

BARBERTON, OHIO — Wright Tool is partnering with SMS Equipment for its maintenance and assembly needs. SMS Equipment, located in Alberta, Canada, chose Wright Tool, based in Barberton, Ohio, as its preferred hand tool supplier for internal use. The companies also plan to establish a direct sales relationship to offer Wright Tool products to SMS Equipment customers.

Both companies operate with the common philosophy of offering solutions to their customers.

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Little Red Schoolhouse a certified LEED education provider

MORTON GROVE, ILL. — Xylem Inc. announced that its Bell & Gossett brand has, through its Little Red Schoolhouse®, been approved by the Green Building Certification Institute (GBCI) as a provider of continuing education for LEED professionals.

Xylem made the announcement in conjunction with Bell & Gossett's sponsorship of the ASHRAE (American Association of Heating, Refrigerating and Air-Conditioning Engineers) winter technical conference and AHR Expo in Chicago.

The content provided in the seminars meets GBCI's goals of facilitating access to high-quality professional development for those in the green building industry. The

courses focus on the application of pumps and related products to improve building system efficiency.

Boulder service company drives green

BOULDER, COLO. — Precision Plumbing, Heating, Cooling and Electric will drive the first all-electric service truck on the streets of Boulder. Fueled by a strong commitment to the environment and to their bottom line, the home service company will use only one half-kilowatt hour per mile, leave no carbon footprint and save up to \$5,000 per truck per year. Electric vehicles offer a better work environment for the driver as well as cleaner air and quieter neighborhoods.

Caleffi North America celebrates 10th anniversary

MILWAUKEE — 2012 marks the 10th anniversary of Caleffi North America, Inc. Formed in 2002 with just two employees, the company is proud to have grown into a leading manufacturer and marketer of hydronic and plumbing products in the United States and Canada. Our rapid growth has been especially pronounced in the aftermath of the post-construction slowdown that began in 2007. This provides high optimism about the prospects for the future as the economy rebounds.

Caleffi's local strategy mirrors its global strategy: provide the market with innovative, premium quality products; back them with excellent customer service and technical support; and foster a work environment that allows us to attract and retain the best people.

Code council's PMG executive director honored at World Toilet Summit in China

WASHINGTON — Jay Peters, Plumbing, Mechanical and Fuel Gas (PMG) group executive director for the International Code Council is one of three 2011 honorees inducted into the World Toilet Organization (WTO) Hall of Fame. The recipients are chosen based on their extensive efforts and contributions to solve the global sanitation crisis that claims the lives of thousands of people every day, most of whom are children.

Peters was selected particularly in recognition of his and the Code Council's consistent contributions to the global sanitation movement, especially in pioneering and initiating the official launch of the United Nations International Year of Sanitation in 2008. During that year's World Toilet Summit & Expo (WTSE), he conducted an education track on global sanitation policies and standards.

The Code Council sponsored the track, in addition to the first-ever ICC USA Pavilion at WTSE, which offered U.S. companies a cost-effective way to reach Southeast Asian prospects.

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OESP Convention to offer free training

PROVIDENCE, R.I. — OESP, the National Association of Oil and Energy Service Professionals, (formerly NAOHSM) will offer a variety of free courses at its



convention from May 20-24, 2012 in Providence. More than 200 indoor and outdoor exhibits will be displayed. All energy-industry professionals will benefit from this event.

OESP's primary mission is education and they deliver on that goal at their convention and trade show. Attendees will have their choice of classes to enhance their knowledge

and skills. In addition to the technical courses offered to all attendees, there will be sessions specifically geared toward managers and owners.

This year OESP will also showcase a major initiative – its Train-the-Trainer program. This is an ongoing program for teachers, including those who are responsible for training within their company, independent trainers, manufacturers' trainers, and instructors. The Train-the-Trainer program begins with a 2.5-day workshop delivered by Penn State. After your initial session, the program will hold annual sessions, focusing on a different industry-related topic each year. All participants receive a PowerPoint presentation developed by the trainer and have an opportunity to practice presenting. The goal of the program is to build confidence and deliver training in a consistent manner.

Three distributors expand '3-in-1' brand into northeast Pennsylvania region

SCRANTON, PA. — Schaedler Yesco Distribution, Inc. (SYD), APR Supply Company (APR) and Industrial Piping Systems (IPS) announced the expansion of their brand, "3 Under 1 Roof" to the Scranton marketplace by spring of 2012. APR, who currently has a branch in Scranton, will move its operation to 745 North Keyser Avenue to complete the cohabitation with SYD and IPS.

With the addition of Scranton, Schaedler Yesco (electrical), APR Supply Company (plumbing & HVAC) and Industrial Piping Systems (pipe, valves & fittings) now share 10 multi-distributor facilities throughout Pennsylvania, six of which contain at least two partners and four that include all three.

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ACCA Council now largest hydronics contracting association

ARLINGTON, VA. — Formed only five months ago, the ACCA Radiant & Hydronics Council (RHC) has attained a membership of more than 500 contracting businesses, making it the largest hydronics contracting organization in the country. The RHC is a division of ACCA, a leading association of indoor environment and energy service professionals.

The RHC is the first ACCA Council representing a specific market segment within the industry. As a “group within a group,” the RHC is led by a group of volunteer leaders and provides special benefits and resources for its member companies. Companies must be ACCA members to participate in the RHC.

“The hydronics market segment was in need of, and ready for, a strong contractor-led organization to meet our unique needs,” said Dan Foley, of Foley Mechanical and RHC Advisory Committee Chairman. “ACCA’s

background working for and with contractors to build a better, more professional industry made them the right organization to facilitate the RHC. It’s evident that the RHC will continue to grow and flourish under the ACCA umbrella.”

“We are extremely pleased with the number of contractors we have on board with the RHC,” said Paul T. Stalknecht, ACCA president and CEO. “We knew there was a need for a contractor-led organization that was focused on hydronics when we started the RHC, and the response we’ve seen shows us that we were on the right track. Led by a dedicated and knowledgeable group of hydronics contractors, the RHC is just getting started, with new training materials, products and events underway for 2012.”

The Hydronics Roundtable, a new two-day conference aimed at hydronics professionals and sponsored

by the RHC, will be held October 9 & 10 in Austin, Texas. The conference will feature a variety of learning labs led by leading hydronics contractors.

ACCA names 2012 Contractors of the Year

In other news, ACCA has named AirRite Air-Conditioning Company in Fort Worth, Texas and K & M Shillingford in Tulsa, Oklahoma, 2012 Contractors of the Year.

“Each year the best contractors in the country apply for this award and share their unique business practices and dedication to our industry’s success,” said Paul T. Stalknecht, ACCA president and CEO. “Our panel of judges always has a difficult task when they have to choose the recipient of these awards. This year, they have again selected two very deserving companies that exemplify the qualities that all the best companies share.”

Want To Get Your Phone Ringing Again?



“I found the Get More Calls Now Program to be a fantastic webinar series. The program was packed with lots of detailed information and resources to help with business acquisition.

“One aspect of the program that was really beneficial to me, was that I could review and download the webinar online, at my leisure. I would recommend this program to business owners looking to get their phone ringing again!”

Michael Moffett
VP of Tom Moffett Plumbing, Inc.

Have you ever picked up your phone just to make sure the line is still connected? Business can be tough when you don't have enough calls. That's especially true in tough economic times...like now. The Get More Calls NOW program will get your phone ringing again, with the best possible return on investment for your marketing dollars. We are so certain this program works, that we offer participants a full money-back guarantee. (What other marketing program offers THAT?)

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INDUSTRY MOVERS

Bill Gray named president of Uponor North America

APPLE VALLEY, MINN. — Uponor named **Bill Gray** president of Uponor North America, effective Feb. 15, 2012. Gray is also a member of the Uponor Group executive committee. He has served as the vice president for



UNA Sales since June 2011, where he was responsible for the leadership of all Uponor North American sales efforts in the U.S. and Canada. Previously, he was general manager for Uponor Ltd. in Canada for three years, where he oversaw all Canadian operations, including sales, marketing, demand management and technical and customer service.

Bradley promotes Dommissie

MENOMONEE FALLS, WIS. — Bradley Corp. announced the appointment of **Jon Dommissie** (pictured, left) to director of global marketing & strategic development for the Menomonee Falls-based



manufacturer of plumbing fixtures, restroom accessories and emergency equipment.

In other news, Bradley has promoted **Nate Kogler** to group product manager for the Menomonee Falls-based manufacturer of plumbing fixtures, restroom accessories, and emergency equipment.



James Medina joins Noble Company

NOBLE COMPANY announced the addition of **James Medina** to the position of director of architectural services. Medina will strengthen Noble Company's presence in the world of architects and large-scale contractors for the complete line of Noble products for the tile, plumbing, and fire protection industries.

Caleffi promotes Roger Corrente

MILWAUKEE — Caleffi announced that **Roger Corrente** has been promoted to director of sales. Corrente, based in Rhode Island, joined Caleffi in 2007 and served as national sales manager.

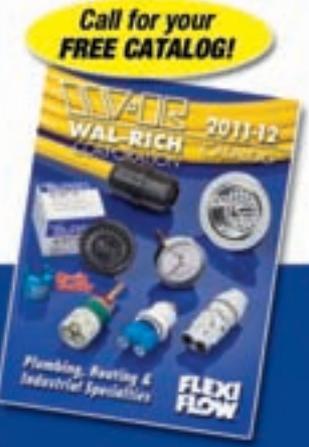


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Residential construction, sales due for a solid 2012 rebound

BY MORRIE BESCHLOSS CONTRIBUTING WRITER

A perfect storm for the moribund housing sector seems to be in the making as the fateful 2012 economic year gains its initial footing. After the residential sector hit rock bottom by the end of the third quarter 2011, steady sales increases marked the last three months, with December reaching the highest pace in more than a year. Although this is only the beginning of the climb out of a trough that has battered the once dominant housing sector since the end of 2007, a combination of positive factors are coalescing to set a solid foundation for a comeback.

With some national regions looking better than the traditional Far West and Southeast

overall scenario. It marks the most dismal component of an economic comeback that is barely getting off of its hind legs. However, a housing return to the halcyon days of the late 1990s and early 2000s will not be in the cards till the end of this decade, if then.

2012 global inflation expectations remain at low ebb

With neither the Producer Price nor Consumer Price indices particularly perceptible, in total, inflation expectations for 2012 will be taking a backseat to rather gloomy global economic predictions emanating from the World Bank. That influential economic prognosticator is downgrading previous global growth predictions from 3.6% for both this year and next to a hopeful 2.5%.

While maintaining a doleful outlook for the developed nations of Western Europe, Japan and the U.S., the World Bank is downright pessimistic about the previous go-go intensity long provided by China, India, Brazil, Russia and other emerging industrial nations.

When examining the inflationary pipeline from its input inception, there is little indication of pressure building at successive levels. Although certain raw materiel, such as iron ore, copper, oil and some rare metals show signs of temporary volatility, even food, cotton and lumber, which had experienced post-recession surges in the last two years, seem to have calmed down.

Much of this current lack of upward price pressure is due to slackening demand, especially that emanating from Europe, a multi-year perennial market for generating developed world imports.

Major game changes going forward are the almost certain diminution of the near double digit increase China's previously explosive gross domestic product experienced. India, a close second in worldwide economic growth leadership, is also scaling down its upscale expectations going forward.

While the U.S., Japan and Germany are expected to keep the developed world's economic head above water,

Much of this current lack of upward price pressure is due to slackening demand, especially that emanating from Europe, a multi-year perennial market for generating developed world imports.

their performances will not be enough to confound (reverse?) the World Bank's relative pessimism. The best unexpected news to be anticipated could well be the United States' manufacturing resurgence, especially in the areas of energy development, industrial construction and retention of America's current export momentum.

However, with excess unemployment, surplus raw

This positive upward turn should also improve the catastrophic employment picture for the thousands of contractors, craftsmen and service personnel that have comprised the highest unemployment percentage for this overall scenario.



single family home geographic areas, prices in general are starting to come off the devastating bottom. Mortgage rates are doing their part by having set a record 3.8% low for a 30-year fixed loan, while consumer sentiment seems more amenable to home purchases than at any time since the housing depression rocked the nation four years ago.

Adding to the improving home construction scenario is the highly-touted switch to rentals, which has been gathering steam for the past year. Although this may seemingly be lessening total single-family housing demand, it's adding to the overall residential construction segment. Although foreclosures and short sales are a further market depressant, they have speeded the ongoing decline of a multi-month inventory backlog.

Along with maintenance expansion and energy-saving improvements in existing homes, this more positive consummate impact will provide solid increases in revenues generated by home construction growth during the next few years. The rental subsector of multi-family building will provide a much needed stimulus.

This positive upward turn should also improve the catastrophic employment picture for the thousands of contractors, craftsmen and service personnel that have comprised the highest unemployment percentage for this



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material supplies, and even sufficient food products a worldwide phenomenon currently, inflationary pressures will likely not play a major role in either 2012 or 2013.

Liquidity crunch bedevils business, industry, consumers alike

In my ongoing contacts with all levels of business and industry, I'm hearing an ever louder concern with accounts receivable collections by raw material suppliers, manufacturers, distributors, contractors and retailers alike, if at different degrees of concern.

With cash liquidity at all-time highs at all steps of the marketing channel, especially banks, you would think that the ability to pay promptly would be greatly alleviated. This belief has been reinforced by the fact that the consumer savings rate is in a long-term plus (3.5%) range for the first time in decades, since the technical end of the recession at the end of 2009.

When digging into this conundrum, I found that the culprit, whether by design or unwittingly, is the U.S. banking system and the nation's ancillary loan providers. Despite the fact that banks as a whole have accumulated in excess of \$1 trillion, the Federal Reserve Board keeps putting increasing pressure on these financial institutions to solidify their reserves and tighten their credit standards. The Fed is even offering a "spiff" for all reserves that the banks maintain, on top of compulsory reserves, necessitated by current legislation.

As in all disaster-rebounding reactions, banks make it more difficult than ever to get loans, even by credit-worthy clients. This is especially true of the various business tiers, in such dicey arenas as construction and automotive, as well as other major sectors digging out from depression-level business arenas. Entrepreneurial initiators find it especially difficult to elicit seed money, unless gilt-edged collateral is made available by the borrower.

Even in the face of an improving economy and all-time low interest rates, cards are being played very close to the vest in all aspects of the market channel. Holding back payments up to 90 days or more seems to be getting more prevalent as inventories are mired in "just-in-time" levels. Also "buy now-pay later" has become a common stratagem by retailers to finance tomorrow's needs today.

Piling that on top of what the post-election economy will bring, in addition to a raft of pending additional government-oriented costs, makes a "wagons in a circle" mentality a prevalent obsession. There is a growing tendency to "hold tight" before paying bills unless absolutely necessary to avoid penalties. Despite an increasingly favorable economic outlook prior to the general election, don't expect the "tightening syndrome" to loosen any time this year.

Identified 'Job Seekers per Opening' remain at recession levels

Of all the statistics I have researched to gain a reasonable handle on the highly politicized unemployment scenario, the one that makes the most sense is the U.S. Labor Department's "Job Opening per Job Seeker" rating.

This ongoing monthly report represents the best classification and is the most understandable in the welter of statistics that bedevil both casual observers as well as

professional analysts. Because unemployment has become the ultimate attention focus of this rapidly expanding election year, both Republicans and Democrats are spinning the results as a way to give either side the victory edge on the final pre-election day accounting.

Due to the multi-faceted approach that has been taken by a polarizing media, the monthly unemployment rate (8.5% in December) seems to be preeminent. This percentage is issued monthly by the Labor Department

Even in the face of an improving economy and all-time low interest rates, cards are being played very close to the vest in all aspects of the market channel. Holding back payments up to 90 days or more seems to be getting more prevalent as inventories are mired in "just-in-time" levels.

and matches up those entering the U.S. work force against the residual group collecting long term unemployment compensation. Ignored in this reckoning are those continuously abandoning job seeking and new entrants, which have outnumbered new hires during the last three years. With the number of potential job seekers shrinking, the official unemployment rate is a self-serving illusion by the current White House.

Since the Obama administration is attempting to break the self-imposed barrier of eight percent unemployed and since failure to improve that lead has signaled the death knell of previous second-term presidential attempts, the Labor Department's limited measurements are the best that the incumbent presidency can hope for.

Labor force participation, which broadens unemployment results to include full employment by those seeking work and eliminates those having retired or withdrawn, paints a more somber picture. By that reckoning, current unemployment would be in the middle teens.

But "Job Opening Availability" seems to be the most rational. It shows that the nation's most recent peak year, 2007, provided only 1.8 workers per job opening against the current 4.21. Although well below the 6.2 reached at the March high of the worst month in the 2009 recession year, it's doubtful that it will go much below the current level throughout the run-up to the November 6 election day.

Although some of this post-recession lack of rebound is due to the disappearance of millions of "hands-on" jobs through technology or construction and automotive, the jobless situation has further worsened. This is due to the White House's imposition of more stringent financial regulations and union-supported National Labor Relation Board decisions. This has led to the confidence lack by America's business community, which cites Obama's unvarnished support of the Environmental Protection Agency's aggressive activities. These events are not expected to change as the president's first term gravitates toward a potential re-election climax. ●

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Inside the MCAA

As this year's MCAA Convention heads to *Walt Disney World*® Resort in Florida, *Phc News* caught up with incoming president Mac Lynch and outgoing president Mark Rogers on their thoughts regarding the MCAA, the economy and mechanical contracting in general. The following is the exclusive Q&A:

Mac Lynch

Please provide name, title and company:

William "Mac" Lynch, President, William F. Lynch Co. Inc., Worcester, Mass.

How did you get involved with the mechanical contracting industry?

Ours is a family business started in 1919 by my grandfather. Originally, we only did plumbing, but when my father took over in 1948 the company added pipefitting services and, in 1958, we purchased a sheet metal company. As I was growing up, our company was expanding, and I was afforded the opportunity to work after school and on weekends for a few hours helping clean the shop, restock fittings, take inventory and help out during our move to a larger facility in the mid-sixties. I studied mechanical engineering at Northeastern University in Boston and, after graduating, obtained licenses as a Professional Engineer, Master Plumber and Master Pipefitter in Massachusetts.

How does your experience help you

Over the years, I've learned that you need to rely on many people in order to get things done. Our MCAA board, executive committee and past presidents are very talented, knowledgeable and experienced leaders. As president, I intend to reach out and rely on their knowledge and advice as necessary to develop the best industry response to whatever issues may arise. We have a great national staff at MCAA who are respected in the industry, and they do a lot to help our contractor members and local associations. I have learned enough over the years to realize that leaders can come up with ideas and initiatives, but they need good people working with them to carry through and put the ideas into practice.

What are your initiatives for the MCAA for 2012?

Improving educational opportunities for our members has always been one of my goals while serving on our local New England MCA Education and Career Development committees. It is one of the best opportunities for return

on investment of our members' dues and MCAA has, in my mind, the best offerings out there. We have opportunities that include the Institute for Project Management, the Advanced Institute for Project Management, the Advanced Leadership Institute, our national education initiative, our education sessions at our annual convention, our various conferences throughout the year and free webinars, both live and recorded, for our members.

As union contractors, we plan to continue our joint strategic planning initiative with the United Association. We have made great progress this past year and a half by presenting the contractor's business model to local union business managers and by presenting the issues facing business managers on a daily basis to our local MCA execs. We will continue to work together to become more competitive and regain market share.

Finally, we plan to continue the excellent job we have done in government relations and continue to keep watch on onerous laws and regulations. These, for the most part, just prevent our businesses from running efficiently and usually add great costs for compliance.

I would summarize by saying that we need to continue and enhance our educational offerings, build on our relationships with our union partners, continue our diligence on what is happening in Washington and do what is required to prevent over-regulating our industry.

You now stand among the shadows of prestigious past MCAA presidents. Can you describe the significance of being chosen to lead the MCAA?

It is a great honor and humbling to be chosen for this position. This association has been in existence for over a hundred years, and been many great people have held this office. During the course of the next year, I will be visiting many local associations and, during these visits, would expect to share what MCAA is doing, learn from them about their unique challenges and how they go about addressing them locally and discuss what MCAA can do further on their behalf. The constant communication of knowledge and ideas across the country between our national and local associations helps the entire industry.

What do you see as the top three or so obstacles facing contractors in 2012?

BIM and spatial coordination, compressed schedules and contractors not being prepared for a recovery are the three things I foresee as obstacles in 2012.

Let me explain further. The decision



Mac Lynch

makers on construction projects are allowing less time from final approval by their financial advisors until the end of said projects and, as a result, the design phase of the project is often compromised. As contractors we all too often face incomplete design, tight or unrealistic schedules and an expectation that we should further lower our pricing.

Our industry has been touting BIM for several years now, and the owners are listening. They believe that it will lead to lower costs, fewer change orders and shorter construction schedules. Although this may be correct if BIM is used properly, many owners or CMs have failed to add the time at the beginning of a project for the A/E firms to properly design and for the MEP trades to coordinate and take advantage of the time savings afforded by prefabrication.

I also believe that, as conditions improve and more work is contracted, many contractors may have cut back too much and not taken the time to improve their work processes and so might be unable to meet these expectations of the owners.

What are some market segments that could be on the rise for 2012? (Healthcare, education, commercial green, etc.)?

I think it depends on the particular region of the country, but, in general, I believe that hospital, institutional, sciences and higher education fields will provide most of the work until businesses have the confidence to fund private projects.

At this time, most green projects are driven by paybacks and ROI, not social conscience. A good amount of the ROI is supplemented by rebates by utilities or by tax incentives. Hopefully, these programs will continue, and additional

➔ Continued on p 30



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incentives will be forthcoming to move these projects forward, thereby reducing our nation's dependence on foreign energy.

I've heard a lot about stimulus money driving jobs in the construction market and that money is starting to dry up. What can contractors do to stem the current economic tide?

They should step back, take a look at their businesses, see what they do best and try to improve in areas where they may be weak. It is never too late to educate your employees to improve your business. They should also look to see if there are any new markets in their areas that are being ignored by their competitors and that they may be able to enter. One private market that appears to be on the upswing in many regions is multifamily housing.

For contractors that can't make the March convention, explain the significance of attending a regional educational seminar, etc.

MCAA's annual convention is truly an educational and social experience that should not be missed. Everyone who has ever attended one says that. Not only are the sessions topnotch, the value of interacting with and learn from contractors from across the country is, as MasterCard says, "priceless." MCAA's



numerous other educational offerings also allow you to learn in class and from your peers, much like the national convention, just on a smaller scale. And contractors shouldn't ignore MCAA's full slate of webinars, which are all free as a benefit of membership.

Mark Rogers

Please provide name, title and business.

Mark Rogers, COO of West Chester Mechanical Contractors Inc., Chester, Pennsylvania.

Can you describe the significance of being chosen to lead the MCAA?

Being chosen to lead MCAA is an incredible honor and opportunity. Being a young president has its benefits and may have had challenges, but it has been nothing short of exceptional. The support I have received from the past presidents, local MCA executives and other contractor members has been incredible. I hope it will open the door for others to realize they can do this and that their age, size of company or age of business are not

impediments to being the leader of a great organization like MCAA.

I'm sure that as president of MCAA you met a lot of mechanical contractors. Can you describe that experience?

I was welcomed with open arms every single place that I visited. The discussions and interaction have been terrific. This experience will benefit me, my company and our people immediately and in the long term and add to our ability to operate our business even more successfully. The staff at MCAA is the best. I can honestly say that there was nothing that came up that was a surprise to me or that I was not prepared for. It is an honor to represent them.

How did you get involved with the mechanical industry?

I got involved in the business when I was twenty years old and applied to the Steamfitters Union Local 420 apprenticeship program in Philadelphia. After ten years, I started my company in the basement of my home, on two six-foot folding tables, with a computer and a fax machine that I had no idea how to even turn on.

As president, what were/are your initiatives for the MCAA?

I have had three primary goals to promote this year — involvement, education and communication. We need a mix of both young and more experienced people from our industry getting involved in our association. That is how we all learn and get better at what we do. Education is at the core of everything we do. It doesn't matter if it is the MCAA educating its members or the United Association (UA) educating the tradesmen and apprentices. Education, both new and continuing, is vital to our success. Communication between labor and management is critical to tie all these items together.

Do you feel that you met your goals? Explain.

I would say that we have made great strides this past year in all three of these areas, and I am confident that our success will continue going forward. Both the MCAA and the UA have had the opportunity to share with each other what our successes and struggles are on a local and national level. MCAA gave the "Cost of an Hour" seminar about a dozen times in 2011, in front of over 800 UA members so far, and it is continuing.

Did the economy affect your vision as president?

We are constantly trying to stay ahead of trends and, most importantly, we are able to react instantly to issues that affect our members. Whether times are great or times are tough, we continually put educational programs on for our people to help us adapt.



Mark Rogers

This year we offered a program to help members prepare to come out of the recession even stronger and better.

What advice do you have for the struggling contractor?

Struggling contractors need to keep a close eye on their cash flow. Taking on jobs with no profit in the bid is more dangerous than ever. Try to keep your team in place and constantly communicate with all of your people to let them know where you are, how things are going and what your plan is. If they are kept in the loop and asked to help out, they will buy into your agenda, because they were part of the process.

I am blessed to have the team in place that we have at West Chester Mechanical. I can honestly say we are on the same page; everyone knows our agenda and has bought into it. I would never have been able to serve MCAA this year as much as I did without their hard work and support. They are the best.

Other than the economy, what was a major obstacle or issue you had to face in 2011?

I have my family and my health. As long as I have these two things, I can face any obstacle.

How do you see the future of mechanical contracting?

I see the future as one of continual change — BIM, green building, new tools, new ways of doing business and on and on. This recession will end, and owners will start building and retrofitting again. That's what is great about our business: It will always be there!

Briefly describe the benefits of MCAA membership? (Seminars, educational materials, conventions, etc.)

Benefits of membership ...Wow! ...where do I start? Education, advocacy, relationships are the big ones, just to mention a few. This is where involvement comes in. Just like anything in life, you get out of it what you put into it. So get involved: Just do it! ●



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MECHANICAL CONTRACTING

| GREEN BEFORE GREEN WAS COOL |

phc march 2012 www.phcnews.com

At Water Energy Distributors, it's all About Experience

You've gotta' appreciate good ol' Yankee ingenuity.

Carl Orio spearheaded development of the standing-column geo-exchange well almost 35 years ago. Today the company he founded in 1981, Hampstead, NH-based Water Energy Distributors, Inc., is recognized as a global leader in geothermal design.

"The light bulb first flickered when we were installing an open-loop geothermal system in 1974," recalled Carl. "The homeowner simply asked, 'Why not put the water back in?'" With the wheels now turning, Carl slowly developed his ideas for what is referred to as the standing column well.

"Later, at one of our first prototype wells in Maine, we were scratching our heads, trying to figure out why our well temps were falling," said Carl. "This old well driller hobbled over and said, in a thick Yankee accent, 'All yah need tah do is spill a little wattah.'"

That was the crucible moment, a revelation: they quickly learned that

the shortening of standing column well depths by more than 50 percent by varying the bleed rates and periods.

Years later, after making vast improvements to the well's design, the Orios and their staff routinely design standing column wells for geothermal systems. Today, the standing column well is regarded as offering one of the highest efficiencies, and lower cost of any geo-exchange system.

Three generations of geo-know-how

Three years after Carl Orio incorporated Water Energy Systems, he brought his daughter Christina into the business as general manager. In 2000, she became president of the firm, changing the name to Water Energy Distributors, Inc. All along, the focus has been the sale and design of sustainable, renewable energy systems.

Over the years, Carl, now chairman of the company, brought five of his six children and one

grandchild into the business. Son Martin serves as VP of marketing and business development. Matt (sales manager) and Nicholas, (technical manager) joined their sister, Diona Roberg, who serves as general

manager. Diona's daughter, Samantha, is the operations manager, representing the third generation in the company.

Together, along with 15 other

employees, they keep the New England States well stocked with high quality geothermal equipment and plenty of industry expertise. With more than 14,000 geothermal heat pumps installed, Water Energy did geo before geo was cool, or 'green' became the flag-bearer for an entire back-to-earth movement. In 2010, the firm sold 2,664 tons of geothermal equipment, making them one of the largest wholesalers of renewable energy heat pump systems in the Northeast.

Variety of work

Although Water Energy Distributors supplies ClimateMaster geothermal heat pumps for residential jobs, the company focuses on commercial equipment as well. One large commercial job was for the Merrimack County Nursing Home, in Boscawen, N.H. Featuring 615 tons of geothermal capacity drawn from 16 large standing column wells, the job proves that size isn't an issue for Water Energy Distributors.

The 326 ground source heat pumps concealed above the building's drop ceilings keep the 290 bed, 235,000 square-foot facility perfectly conditioned. "I was skeptical at first," said Sid McDonald, director of facilities at MCNH. "The bugs got worked out the first year the system was in, and ever since then, it's has been phenomenal. I was really impressed with everyone involved and the technical solutions that were offered."

Another job using standing column wells as the preferred means of geo-exchange was the Eastman Community's South Cove activity center, in Grantham, N.H. The green-motivated, 3,600 acre, privately held community needed to replace the



selectively bleeding off a portion of the system's cycled water would enable them to maintain proper well temperatures under severe winter or summer conditions. It also allows for



existing activity center, and decided that LEED certification was the goal for the new building.

"There are 1,500 private properties in the community," said Ken Ryder, Eastman Community's general manager. "Our population is around 3,000 in the winter, and 8,000 in the summer." The community members enjoy a variety of amenities, including a professional 18-hole golf course, swimming, boating, fishing, ice skating, hiking and even skiing.

As green as indoor recreation gets

Recently LEED Gold certified, the building makes a formidable addition to their list of energy-wise facilities. Out of 2,500 buildings, the Activity Center was selected as a Green Building of America project in 2009. The new single story facility, with beachfront placement next to Eastman Lake, is 15,000 square foot with a mechanical loft.

"Experience is the key to a great installation," said Christina Orio. "The best equipment in the world

doesn't do any good without a top-notch contractor." M.J. Hayward Mechanical Electrical, based in West Lebanon, N.H. was chosen as the mechanical contractor for the project. A family business that's in its third generation, Mike Hayward Sr.

believes in maintaining long-term relationships with both his employees and his customers. His efforts show. The basic philosophy of 'get it right the first time' has the Activity Center project at zero call backs. Eastman Community enjoys efficiencies (EER & COP) right out of the ARI charts.

"The building's mechanical room is actually the only space in the loft, everything downstairs is simply for recreation," said Ryder. With a pool, game rooms, kitchen, outdoor pavilion, snack bar,

and adjacent sandy beach, the facility is tailored to four-season enjoyment.

"The post and beam building is insulated with 10 inch SIPS panels across the roof," said Frank Lemay, president of Milestone. "The building's envelope incorporates



"The best equipment in the world doesn't do any good without a top-notch contractor." M.J. Hayward Mechanical Electrical, based in West Lebanon, NH was chosen as the mechanical contractor for the project.

prefabricated walls, which were then air sealed and filled with wet spray

➔ Continued on p 34

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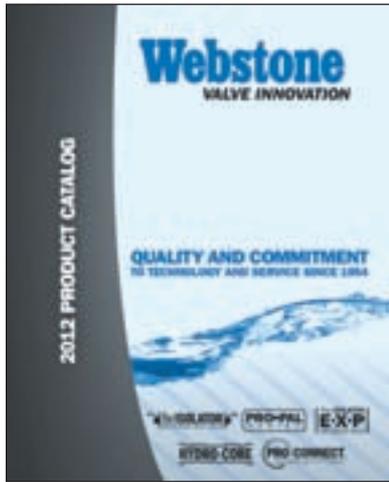
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➔ Circle 100 on reader reply

3-piece ball valves

Three-piece, stainless steel ball valves are now available for use with Viega ProPress® stainless steel systems. The three-piece stainless steel ball valve, the latest innovation in the Viega ProPress stainless steel product offering, features new three-piece construction from high-quality, 316-grade stainless steel. The valves are available in sizes 1/2" to 2" and have a machined ISO 5211 mounting pad for actuators or operators. The ball within the



valve is a full port ball and the handle locks in two positions. The press ends of the valve include the FKM sealing element for higher temperature tolerance as well as the patented Smart Connect® feature. **VIEGA.**

➔ Circle 101 on reader reply



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➔ Circle 102 on reader reply

MECHANICAL CONTRACTING ➔ Continued from p 33

cellulose insulation." Two inches of rigid foam insulation can be found under the indoor pool, and insulated vapor barrier lines the underside of the slab everywhere else. underside of the slab everywhere else.

Standing column efficiency

Serving the 10 ClimateMaster Tranquility water-to-air units for a total of 35 tons of capacity, are two 1,450-foot deep 10-8-6 standing column wells under the building's lawn. Each well is equipped with a seven and a half horsepower submersible pump running off a variable frequency drive.

"Between drilling, test pumping, installing, and start up, we spent about three weeks on the job," said Bart Cushing, co-owner of Cushing and Sons, the driller chosen for the project. "The exchange field at the site could not have been more perfect. The bedrock was excellent, the water quality was excellent, the yield was excellent, and so was everyone involved. From Water Energy Distributers, Milestone, a great excavator and the staff at Eastman Community, the project just couldn't have gone any better."

Uniqueness, inside-out

Water Energy Distributers is a value added distributor uniquely qualified to handle any and all geothermal system design and equipment specific questions.

"We're as involved as the project requires, doing everything in our power to make every job a good installation," said IV Martel, commercial sales manager at Water Energy. More often than not, Water Energy designers work with project engineers to create ideal geo exchange. A pre-start up visit is included, once work has begun, ensuring proper installation. Once startup is complete, the analysis numbers are taken back to the office to calculate equipment COPs.

"ClimateMaster is our major go-to line; their arsenal of products pretty much covers everything," said Martel. "They're the world's largest water-source heat pump manufacturer, and lead the

pack in cutting edge technology. The support that we get from ClimateMaster resources is incredible."

"Even with 2010 being flat, we've grown 53 percent since '05," said Christina. She attributes the company's success to their know-



"Experience is the key to a great installation," said Christina Orio... The basic philosophy of 'get it right the first time' has the Activity Center project at zero call backs.

how and service. Each employee is IGSHPA certified, and four are certified geothermal designers. "The relationship starts with the sale of equipment, not finishes it." ●



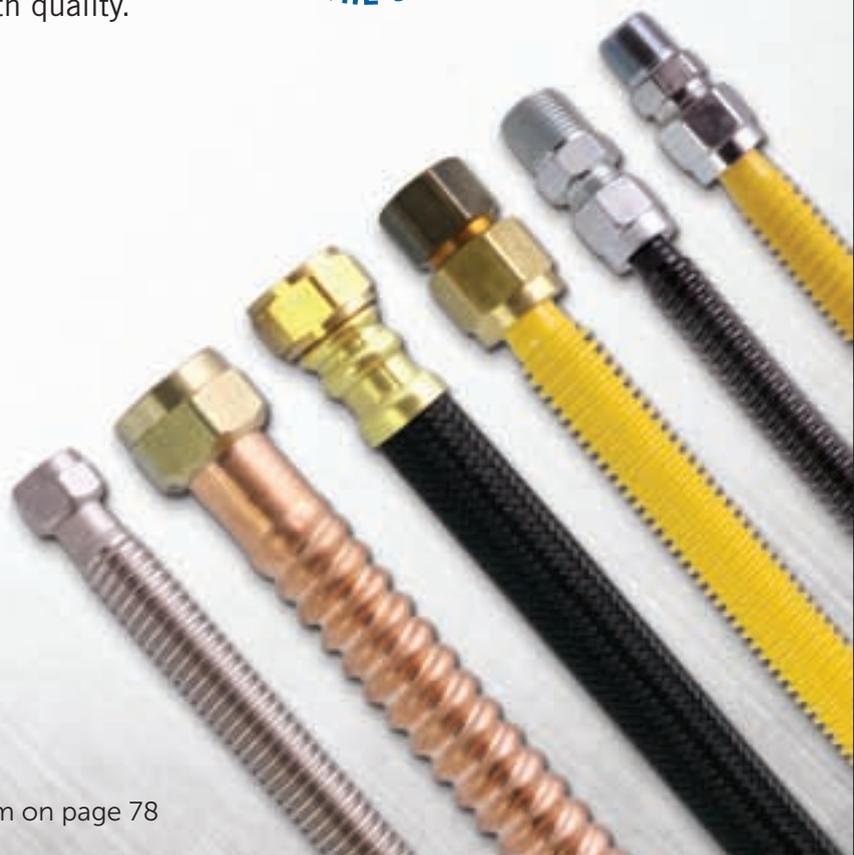
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Markup vs. profit margin

BY RICHARD DI TOMA CONTRIBUTING WRITER

Vito, a plumbing contractor from New York, writes, "I would like an explanation of gross profit. Why is it always better to divide rather than multiply? I thank you in advance."

Good question, Vito. I believe you are asking about the difference between a cost markup and a profit margin. Contractors are often confused about which is the right method to use regarding their selling prices. The multiplication method is a markup of cost and is used by many contractors who don't know about or understand the other method. The division method is the way to address profit margin and looks at the profit as part of the selling price.

The markup method

Contractors using the markup method multiply the cost of a job by their desired profit percentage then add the product of this calculation to the estimated cost. If the cost to the contractor to do the job is \$1,000 and the contractor wants a 10% profit, he/she would multiply the \$1,000 by 10% and add \$100 to his/her estimated cost to arrive at a selling price of \$1,100. As long as the cost remained constant, the contractor would earn \$100 in profit for the job.

There are two problems with the markup method: The

No hits! No runs! No errors! The contractor can recover his/her cost.

contractor shortchanges him/herself and the profit margin is not 10%. Let's prove it. A contractor who wanted to bring in some money while covering his/her cost, might offer the customer a 10% discount since he/she was under the impression that a 10% profit was being made. But, 10% of \$1,100 is \$110. That would leave a balance of only \$990 to cover a cost to the contractor of \$1,000 for the job. That proves that a true 10% profit was not attained.

Using a profit margin

The division (profit margin) method shows a true 10% and how the contractor shortchanges him/herself using the markup method. To utilize the division method, do the following:

1. Subtract your desired profit percentage from 100% to arrive at your profit margin divisor. Using the same example, 100% less 10% would give you a profit margin divisor of 90%. Similarly, if you wanted a 25% profit you would divide by 75%. You get the picture. You choose the desired profit margin and subtract it from 100%.

2. Divide your cost by the margin divisor to arrive at your selling price. In the aforementioned example job you would divide the \$1000 cost to contractor by 90% to arrive at a selling price of \$1,111.11 for the consumer.

This proves that the contractor shortchanged him/herself by \$11.11 using the multiplication method. To further prove that the division method is better, let's see what happens when 10% of the \$1,111.11 selling price is subtracted from the selling price. What do you know? 10% is \$111.11, which, when subtracted from the \$1111.11 selling price leaves the contractor with the \$1000 cost figure. No hits! No runs! No errors! The contractor can recover his/her cost.

Using the division method takes care of the two

aforementioned problems. In the example, it gives the contractor more money (\$11.11 more) at the full price and he/she truly made a 10% profit.

Be aware of the domino effect

Now that I have cleared that up, you must consider the domino effect of this knowledge. It should be noted that, regardless of which method you use, your results will suffer if you do not know your true cost and/or choose a wrong profit margin. Whenever dealing with information, and especially when computers are involved, the letters GIGO (Garbage in Garbage Out) hold the truth. If you incorrectly calculate your true cost of operation, your conclusions will be flawed. And if you choose the wrong profit margin, more garbage will pile up.

A \$100 labor/overhead cost per technician/truck hour (based on selling all available annual technician hours [1,708 hours]) rises to a cost of \$142.86 when you only sell 70% of your available hours. That means you would need a 30% profit margin just to break even. Let's prove it. \$100 divided by 70% (the difference between 100% and 30%) would give you a selling price of \$142.86.

The amount of hours you get to sell is forever fluctuating. Keep the following points in mind when considering your profit margin and selling price.

- No contractor sells all their available annual technician hours for all their technicians all the time.
- There are periods of time when contractors are extremely busy, during which they sell all the time during those periods, and possibly more.
- During normal times, contractors probably sell at best about 70% of all their available annual technician hours.
- During recessions fewer hours are sold
- Regardless of the amount of hours you sell, the bills you accrue for the costs of operation will still come due.

When bills are due and all time hasn't been sold, your total annual operational cost may not rise, but your hourly labor/overhead cost per job does increase. That means lowering your selling prices during slow times hinders your ability to recover your annual operational costs or earn a profit.

- True profit can be lowered as long as you still have the opportunity to recover your true cost.
- In order to lower your cost, you must be certain of your true costs and your cost/profit margin relationship. It is extremely unwise to sell your services below your true cost bottom line.

Thank you, Vito, for bringing up a good question. If any of you have contracting business questions, send them to me. Your questions allow me to address that about which you are concerned. In turn, our noble industry improves for those who read the articles and change their modus operandi.

Contractors that I have coached and who have understood and properly implemented my theories and methods have increased their revenue by, minimally, between 30% and 70%. If you have any questions about my coaching programs, give me a call at 845/639-5050. ●



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The 2012 Uniform Plumbing Code

The newly released 2012 Uniform Plumbing Code aids the user with improved layout design features through the incorporation of our manual of style and innovative efficiency standards and sustainable practices. This edition includes significant changes, with new provisions for alternative water sources for nonpotable applications, rainwater catchment systems, plumbing facilities, and joining methods for water supply and drainage piping.

Chapter 4 has been significantly improved through reorganization in the area of plumbing fixtures by expanding their use and application, water consumption and installation requirements. For example, a recommendation for approval as modified for showers that incorporated their application to applicable referenced standards includes water consumption requirements for a maximum flow rate in accordance with ASME A112.18.1/CSA B125.1. An added provision reduces the risk of scalding by requiring individual and tub-shower control valves to provide such protection based on the flow rate of the showerhead be installed at the point of use. The addition of required waste outlet sizing, referencing material and sizing provisions, and the removal of the requirement for a finished dam curb or threshold to aid the aging

population, are among changes aimed at providing ease of use for the end user.

Required plumbing fixtures is revised based on research conducted by ASPE, the Stevens Institute of Technology, the American Restroom Association and the School of Architecture with the Gender and Women's studies program at the University of Illinois (*Potty Parity in Perspective: Gender and Family Issues in Planning and Designing Public Restrooms*). When designing satisfactory restroom facilities, factors that are considered to decide the minimum number of plumbing fixtures for a preferred service include occupancy, waiting times during peak demand, fixture use and the likelihood of finding a vacant fixture. Potty parity does not always mean there will be the same number of toilets for women and men; parity is measured by the wait time to obtain a fixture. Where we see the most inconsistency occurs in the number of required plumbing fixtures for women and men in mercantile and assembly occupancies that use the same ratio for both sexes. The 2012 UPC recognizes that women need more time, and the minimum required fixtures should accurately represent the population served based on design method.

Chapters 6 and 7 now offer various joining methods and connections to aid the end user in identifying correct methods based on the piping material. The material covered for water supply and water distribution joining methods includes: asbestos cement, brass, copper, CPVC, ductile-iron, PE, PE-AL-PE, PE-RT, PEX-AL-PEX, PP, PVC and stainless steel. The material covered for drain, waste and vent piping joining methods includes: ABS, asbestos-cement, cast-iron, co-extruded ABS, co-extruded PVC, copper, PE, PVC, stainless steel 304, stainless steel 316L and vitrified clay. Step-by-step guidance provides the user with clarification on

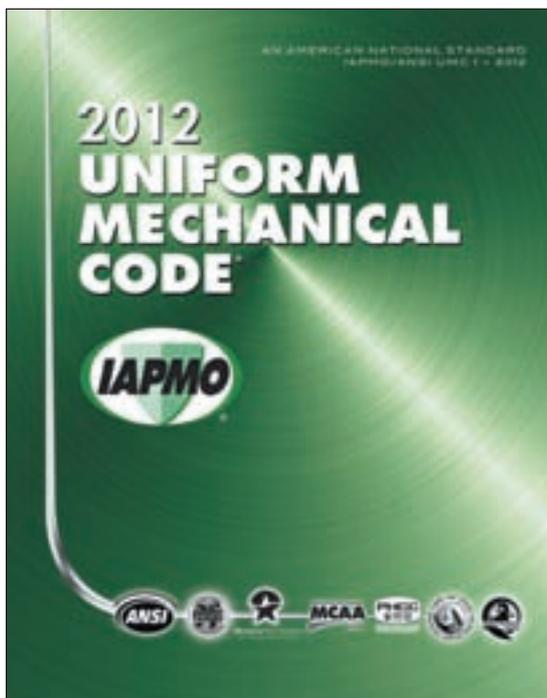


Lynne Simnick is director of Code Development, IAPMO. For more info on IAPMO, visit www.iapmo.org.

acceptable methods of connection to piping materials.

Significant changes apply to Chapter 16 ("Alternate Water Sources for NonPotable Applications") by expanding the scope with alternate water sources and developing code provisions that are specific to each one. The three areas addressed in Chapter 16 are gray water sources, reclaimed (recycled) water sources and on-site treated nonpotable water systems. The new water sources include three types of water disposal: subsurface irrigation, subsoil irrigation and mulch basin systems. Subsoil water irrigation provides a means to disperse shallow drip irrigation lines and mulch basins that collect and spread water in single- and multi-family dwelling applications. The reclaimed water provisions to on-site nonpotable water systems include gray water and other nonpotable water sources that are used for on-site applications. They are unique by installation through prepackaged or engineered systems that are listed and labeled for the intended application.

Chapter 17 is a new chapter dedicated to nonpotable rainwater catchment systems that includes input from the American Rainwater Catchment System Association. This chapter covers irrigation, toilet and urinal flushing with proper treatment; provisions where permits



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are required, maintenance of alternate water sources; and minimum water quality.

2012 Uniform Mechanical Code

Two new appendices cover potable rainwater catchment systems that include operation and maintenance requirements, minimum water quality, material compatibility, controls, backflow prevention, design and installation requirements and sustainable construction practices for plumbing systems as a resource for the Authority Having Jurisdiction.

The newly released 2012 Uniform Mechanical Code assists the end user with enhanced layout design features through the incorporation of our manual of style and includes innovative efficiency standards and sustainable practices by allowing for a wide array of design alternatives to achieve the minimum performance requirements in mechanical systems. In addition, the 2012 UMC underwent significant changes with new provisions for piping, tubing, balancing, louvers, ductwork, safety requirements for refrigeration machinery rooms and an alternative to calculate ventilation efficiency.

Significant improvements in Chapter 3 include provisions for a heating or cooling air system that provides specific requirements with return air, outside air or both, which are designed to replace required ventilation arranged to discharge into a conditioned space not less than the outside air specified in Chapter 4. Standards are referenced for louvers and their locations where installed in hurricane prone regions by providing minimum performance ratings for water rejection abilities and high-velocity wind conditions.

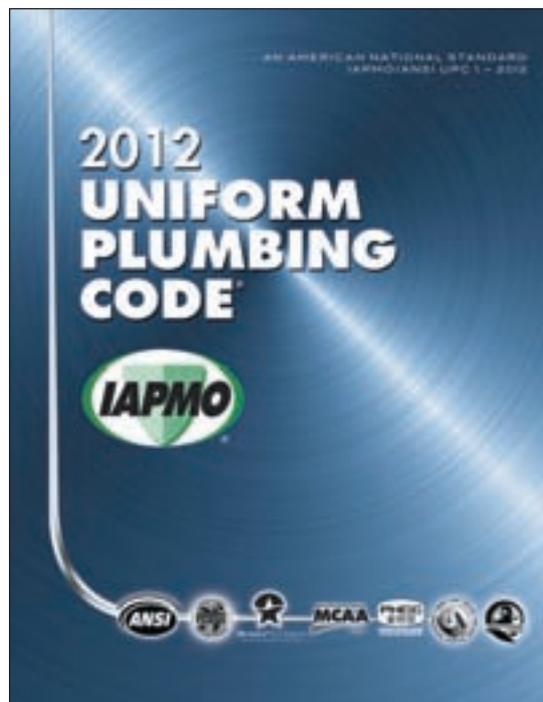
Provisions added in Chapter 4 offer an alternative for calculating ventilation efficiency through ASHRAE Standard 62.1 and updating minimum ventilation rates in breathing zones based on occupancy.

Safety requirements are updated and revised for refrigeration machinery rooms on vapor alarms, emergency control over the ventilation systems, control of ventilation systems and emergency controls. In addition, machinery room ventilation is addressed through the central control over the ventilation system and adding safety provisions for the emergency control through an identified switch. Detector location is critical to early leakage warning in refrigeration

machinery rooms. Because machinery rooms are unattended most of the time, once the refrigerant gas is detected at the levels noted in Chapter 11, a local alarm must be initiated. The alarm is intended to alert occupants inside the area of detection and in the immediate vicinity to prevent any refrigerant gases that might escape from causing harm to those outside the area of release. In addition, the required detectors have the added important role of activating the emergency ventilation/exhaust systems in the machinery rooms. The intent of this section is to provide a safe environment for emergency response personnel when responding to an incident in a refrigeration room. The emergency control switch is a tamper-resistant type that requires more than one action to actuate it. To prevent an accidental start-up, the switch must be capable of only stopping the controlled machinery, not restarting it. The switch must not affect the operation of such life-safety systems as detectors and exhaust equipment. In addition to the manual switch, the required refrigerant room detector must also shut down the same equipment when the vapor concentration exceeds the lesser of the detectors' upper detection limit or 25 percent of the refrigerants' lower explosive limit.

Refrigeration port protection in the form of a locking-type, tamper-resistant cap is added to address illegal venting of refrigerant service ports by unauthorized individuals. This inhalant sometimes poses a serious threat to human life and safety. The typical condensing unit is located outdoors and is equipped with access ports on the vapor and liquid refrigerant lines. These access ports allow for the connection of diagnostic gauges so the refrigerant may be added to or taken from the unit during servicing. The purpose for this section is to prevent exposure to the refrigerant by illegal venting of refrigerant or the intentional inhalation of refrigerant and refrigerant leaks that contribute to the greenhouse gases in our atmosphere.

A new appendix provides a comprehensive set of technically sound provisions for sustainable practices and works toward enhancing the design and



construction of mechanical systems that result in a positive long-term environmental impact. Practices include water efficiency in systems through the use of a submeter to monitor large water usage; including make-up water to cooling towers, evaporative condensers and boilers; establishing efficiency measures for cooling towers evaporative coolers; increased air quality provisions to reduce air contaminants; and establishing minimum equipment efficiencies, system balancing, duct leakage, system sizing and systems controls add to the overall design and construction practices. A key feature is system commissioning that ensures such systems are designed, installed and maintained to function as intended over their life cycle that provides the most cost-effective strategy for reducing energy usage.

Members of the plumbing and mechanical industry are looking at these systems as part of the whole building as it relates to designers, owners, installers, operators, users and the community outside the building. Design options utilizing water reuse systems collect the water and reuse the water for irrigation, process water systems and flushing fixtures by using less water and energy. The future of plumbing and mechanical systems lies in the ability to design systems with the "whole building" in mind by using, preserving and respecting the natural biospheric earth systems of recycling air, waste and water. The 2012 UPC and UMC offer sustainable construction practices for both plumbing and mechanical systems, including up-to-date technical advances in the industry all in one document. ●

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| COMMERCIAL PEX |

Value engineering with PEX-a plumbing systems for commercial applications

We live in challenging economic times for the commercial construction industry, where good projects are tough to win and being profitable can be even tougher. In this competitive environment, landing attractive jobs requires a fresh look at your value engineering options.

One of the most effective solutions for managing project costs is the use of PEX-a pipe for your commercial, domestic-water plumbing systems. PEX-a, or crosslinked polyethylene, has been used in the construction industry for decades and has now displaced most of the copper and CPVC plumbing being installed in the residential market. The benefits provided by PEX-a in new residential construction produce even greater value in commercial domestic water applications.

Plumbing pipe options

Copper and CPVC are traditional products that have been used in the plumbing industry for years. But just as the inherent characteristics of those products allowed them to replace old-fashioned galvanized steel and cast iron, flexible PEX-a has significant advantages over copper and CPVC that are fast making it the preferred choice over these rigid pipe systems.

Produced in sizes 3/8-inch to 3 inches in straight “sticks” and coils up to 1,000 feet long, PEX-a plumbing pipe is conveniently available in white, red and blue colors. Using the “Engel” manufacturing method, which results in a very high degree of molecular crosslinking, provides PEX-a with exceptional durability and flexibility. That flexibility, combined with the availability of PEX-a in long coils, eliminates many of the fittings and connections required in rigid copper and CPVC plumbing systems. Eliminating fittings means less material, less installation labor and fewer potential leak points, all of which results in more efficient installs and lower costs.

PEX-a’s flexibility and durability also provide added protection against the damage and leaks caused by freezing and stress cracking. Since

PEX-a naturally expands up to three times its original size without cracking or splitting, frozen water won’t create the expensive leaks that can occur in rigid copper and CPVC plumbing systems.

If you’re using copper for your plumbing jobs, you know how much your pipe costs continue to increase and how quickly those increases can fluctuate. Unlike copper, PEX-a pricing is relatively consistent and affordable. This means that you can quote and win a plumbing job with the confidence that your pipe price is going to remain stable. And you’ll no longer have to worry about jobsite theft of expensive copper.

Fittings

In addition to using fewer fittings than rigid pipe systems, PEX-a plumbing systems allow the use of efficient and affordable fittings made from durable engineered polymers. These “EP” fittings are molded into a wide variety of multiport configurations with varying numbers of inlets and outlets in assorted diameters. These “multiport tees” eliminate additional connections and the labor needed to make them, resulting in even more efficient installations and lower costs.

Connection methods

The natural ability of PEX-a to expand and contract permits the use of an “ASTM F1960 cold-expansion connection,” one of the simplest, strongest and most reliable connections in the industry. Making a PEX-a F1960 connection requires just four easy steps:

1. Cutting the pipe with a plastic tubing cutter.
2. Placing a PEX-a expansion ring



Using the “Engel” manufacturing method, which results in a very high degree of molecular crosslinking, provides PEX-a tubing like this with exceptional durability and flexibility, minimizing the number of connections needed and speeding installation.

on the end of the pipe.

3. Expanding the pipe and the ring with a Milwaukee® ProPEX® expansion tool.

4. Inserting the larger-diameter fitting.

The pipe and ring will then immediately and naturally begin contracting back to their original shape, compressing tightly against the primary and secondary fitting barbs with up to 7,800 pounds of radial force. It’s just that easy: no deburring, no torches, no flux, no solder, no cements and no curing or cooling time.

The resulting permanent connection holds tight in tests up to 1,000 pounds of pull force. In addition, since the pipe is expanded before the fitting is inserted, it’s impossible to dry-fit the connection, eliminating the possibility of incomplete fittings and the resulting blow-off leaks.

Case study: Coborn’s Grocery

Let’s see how these various advantages of PEX-a over rigid piping systems played out on an actual commercial project, the construction of a grocery store in Minnesota.

When Rice Building Systems of Sauk Rapids, Minn., set out to construct a new concept store for St. Cloud, Minn.-based Coborn’s Inc.,

the company had strict orders to capitalize on innovative materials and efficient design, while maintaining the 90-year-old Midwest grocery chain's high standards for quality and customer service.

When plumbing bids went out, pricing for the copper systems that were typical for other Coborn's stores came back way too high. So Rice sent out rebids, opening the doors to alternative plumbing materials, including PEX-a and CPVC.

"The owners wanted value engineering," says Chris Rice, president of Rice Building Systems. "We knew any bid that came back had to incorporate suitable cost savings in addition to intelligent design and efficient installation methods to effectively meet our budget and tight construction schedule."

Scott and Ben Kiffmeyer, owners of Kiffmeyer Plumbing Inc. in Sauk Rapids, 19-year veterans in the plumbing industry, had used PEX-a

The benefits provided by PEX-a in new residential construction produce even greater value in commercial domestic water applications.

pipe in several previous installs. They offered a unique idea that would provide the value engineering that Coborn's was seeking, while also conforming to the stringent construction schedule.

"Rice came back asking for ideas, and we went to them with the concept of running PEX-a underground," said Scott Kiffmeyer. "That's how we got the job."

The underground PEX-a concept came from a presentation Kiffmeyer



Taken at a college dormitory re-piping project where all the copper was replaced with PEX-a tubing, this photo shows an isolation and balancing valve with PEX-a tubing in an overhead support application. Unlike copper, the pricing for PEX-a is relatively consistent and affordable, which also makes the material less vulnerable to job-site theft.

Plumbing received from Dean Corrigan of FourMation Sales and Casey Swanson, commercial sales representative from Uponor, a PEX-a manufacturer located in Apple Valley, Minn. Uponor also offers design and technical support for plumbing, fire sprinkler and radiant floor heating and cooling systems.

"They needed to get the plumbing system in quickly, so this was a great approach to speed up their construction schedule," says Swanson. "It was also much more cost-effective than doing copper overhead."

The plumbing system, which used ½ inch through two-inch Uponor AquaPEX® pipe for the 36,330-square-foot store, ran the PEX-a pipe underground instead of overhead, like a typical copper plumbing system application. The underground PEX-a system also incorporated Uponor's EP fittings, which are approved for direct burial in soil.

The underground installation started in mid-August; the store opened just 14 weeks later, in mid-November. Both Rice and Kiffmeyer estimate installing PEX-a

underground saved at least a week, compared with installing an overhead copper pipe system. "PEX-a provided great time and labor savings," says Scott. "That, in turn, offered great cost savings for the owner."

A subsequent in-depth analysis of the installed cost of the plumbing system revealed dramatic savings. When compared to the copper systems installed in previous Coborn's projects, the Uponor PEX-a system reduced labor costs by 37 percent and material costs — including pipe, fittings, insulation and various accessories — by 54 percent, for a combined savings of 46 percent. See chart.

Conclusion

As the Coburn's case study clearly demonstrates, by delivering significant material savings, faster installs and reduced liability, PEX-a is changing how commercial jobs are being plumbed. With its established and quantifiable benefits over copper and CPVC, PEX-a is rapidly becoming the preferred value engineering solution in commercial construction. ●

Jayson Drake is the senior product manager of plumbing and fire safety at Uponor, a manufacturer of PEX-a tubing and a supplier of radiant heating and cooling, plumbing and fire sprinkler systems. He can be reached at jayson.drake@uponor.com.

COSTS	COPPER	PEX-A	DELTA	
			\$	%
LABOR	\$22,800	\$14,400	-\$8,400	-37%
PIPE AND FITTINGS	\$11,839	\$6,104	-\$5,735	-48%
INSULATION	\$8,480	\$1,200	-\$6,311	-74%
INSULATION (UNDERGROUND)	\$0	\$969		
GAS, SOLDER AND MISC.	\$300	\$0	-\$300	-100%
HANGERS AND STRUT	\$2,400	\$706	-\$1,694	-71%
LIFT RENTAL	\$1,000	\$350	-\$650	-65%
MISC. COMPONENTS	\$3,000	\$3,000	\$0	0%
TOTALS	\$49,819	\$26,729	-\$23,090	-46%

| ICC NEWS |

What's New in the 2012 International Plumbing Code® (IPC)

BY LEE CLIFTON

The IPC continues to emphasize both prescriptive and performance-related provisions. The code changes have made many improvements to the 2012 code that provide clarity of content, resolve common interpretation issues and give plumbing contractors and engineers the tools necessary to take advantage of new technology. A proven venting system method has been added that now compliments the most extensive collection of venting options in the world.

Here are just a few of the significant changes.

Section 802.2 Installation of indirect Waste Piping

2012 Code: 802.2 Installation. All indirect waste piping shall discharge through an air gap or air break into a waste receptor or standpipe. Waste receptors and standpipes shall be trapped and vented and shall connect to the building drainage system. All indirect waste piping that exceeds ~~2~~ **3 feet 30 inches (762mm)** in developed length measured horizontally, or **4 feet 54 inches (1372mm)** in total developed length, shall be trapped.

Exception: Where a waste receptor receives only clear water waste and does not directly connect to a sanitary drainage system, the receptor shall not require a trap.

Commentary: In the past, indirect waste piping was required to be trapped where it exceeded 24 inches in horizontal developed length or 48 inches in total developed length. The justification for increased developed lengths without a trap, 30 inches for a horizontal measurement and 54 inches in total developed length is based on Section 1002.1 addressing fixture traps, including the allowance of 30 inches center-to-center for a combination fixture as permitted in Exception 2. The 54-inch total developed length allowance is simply the 30-inch horizontal length allowance plus the 24-inch vertical distance allowed from a fixture to its trap. The changes are considered logical and will provide consistency

➔ Continued on p 46

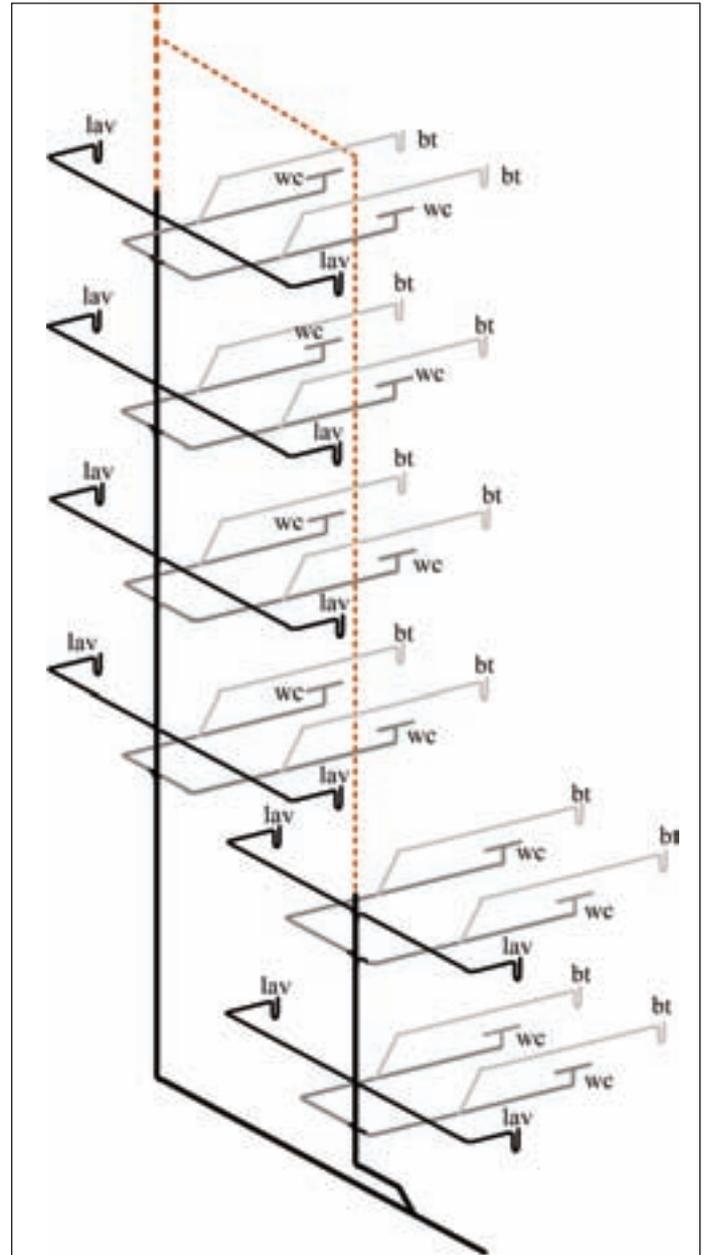
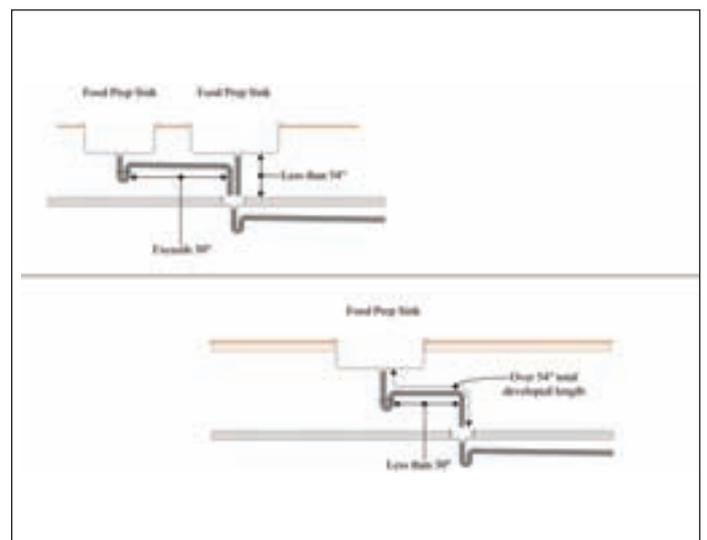
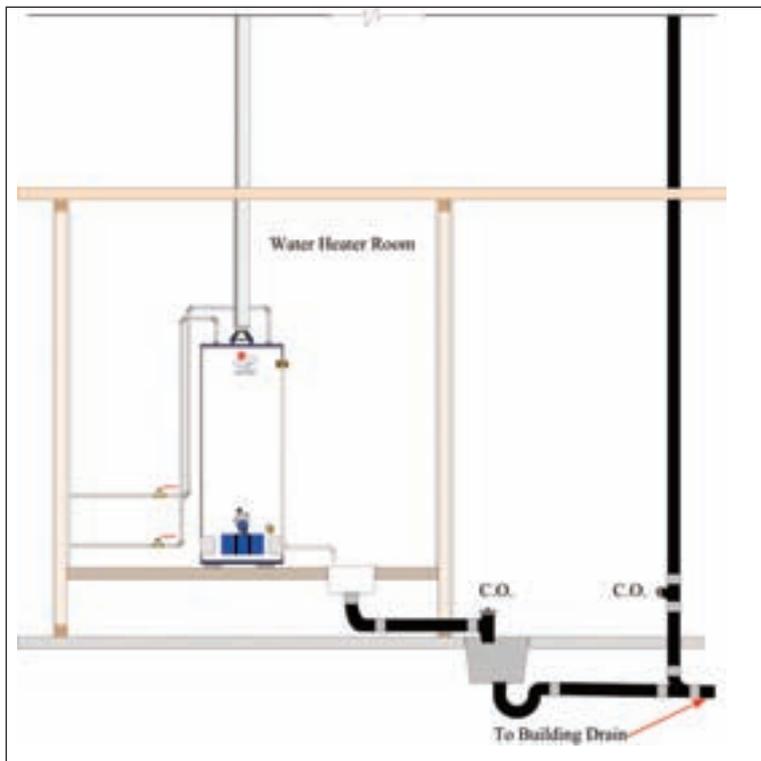


Figure 917 Single Stack System For a Six Story Building



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- Advanced design uses unique technology
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OneFlow Anti-Scale Systems

OneFlow® Anti-Scale Systems prevent scale by transforming dissolved hardness minerals into harmless, inactive microscopic crystal particles. A full line of solutions for cold and hot water, including tankless water heaters, hot beverage systems, appliances, steamers, etc.

Connection Sizes:
 ½" to 2" (15 -50 mm)

Flow Rates:
 Up to 75 gpm (285 lpm) /450 gpm (1710 lpm) in manifold configuration



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Series Pro SE Water Softeners are designed for residential and light commercial use applications ranging from 30,000 to 90,000 grains of hardness removal capacity at flow rates up to 15.5 gallons per minute.

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- 1" (25mm) plumbing connections



— UV Disinfection —
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This durable system provides high quality UV disinfection at a superior value. Provides disinfection for chlorine-resistant bacteria, virus and cysts. Ideal for wellwater applications.

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with other allowances in the code. The new exception is fundamental in that traps are unnecessary for clear-water waste in an indirect piping system.

Section 917 Single Stack Vent System

917.1 Where permitted. A drainage stack shall serve as a single stack vent system where sized and installed in accordance with Sections 917.2 through 917.9. The drainage stack and branch piping shall be the vents for the drainage system. The drainage stack shall have a stack vent. (Additional information and sizing table provided in section 917 is not shown here.)

Commentary: In a single stack vent system the drainage stack serves as



both a drainage and vent system. The drainage stack and branch piping are considered as vents for the drainage system as a whole. Pipe sizing in a single stack drainage system is larger



than in a conventional one; however, a significant cost saving is achieved by the reduction of the vent piping needed. This venting system serves as a viable alternative to the more traditional systems that are being used.

For a more in-depth preview on the significant changes that have occurred to the 2012 International Plumbing, Mechanical and Fuel Gas Codes (PMG), ICC has made available a 20-

minute video presentation at youtube.com/user/ICCMEDIA. This overview of changes to the 2012 International PMG Codes will give you a preview of what the *Significant Changes to the International Plumbing Code, International Mechanical Code, and International Fuel Gas Code 2012 Edition* publication has to offer. The webinar will inform code users on how helpful the new book is in identifying the specific code changes that have occurred and, more important, help them understand the reasons behind the changes. ●

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The International Code Council is a member-focused association dedicated to helping the building safety community and construction industry provide safe and sustainable construction through the development of codes and standards used in the design, build and compliance process.

Lee Clifton, ICC-PMG, is director of plumbing programs.

A proven venting system method has been added that now compliments the most extensive collection of venting options in the world.

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Saves Money-One Pull Stop Box™ replaces a stub out, mounting bracket, valve and escutcheon.

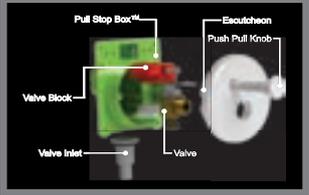
Installs Quickly-Simply crimp, sweat or cement the inlet of the valve to the supply line and fasten the box to the wall.

Visually Appealing-There are no ugly stub outs or angle stops protruding from the wall.

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Easy to Use-The simple, intuitive push/pull action on the Pull Stop Box™ starts and stops the flow of water easily.

Versatile-The Pull Stop Box™ can be mounted in any direction and even share the same stud side-by-side with another Pull Stop Box™ or a Hyco strap can be used.






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KAUST under construction

King Abdullah University of Science and Technology (KAUST) near Jeddah, Saudi Arabia, combines several planning and design elements to achieve greater sustainability. The university's new campus was constructed on a 22-mile (36 km) stretch of desert 50 miles (80 km) north of Jeddah along the Red Sea. The campus is part of a larger master plan, which includes a new town of 10,000 to 12,000 people that surrounds and supports the university.

KAUST was designed to propel the Kingdom into the 21st century, with modern teaching facilities and

KAUST students study in a comfortable environment, and the university is able to achieve its mission to advance science and technology to new levels.

equipment costing \$1.5 billion. The university's mission is to advance science and technology to new levels by educating tomorrow's leaders, while catalyzing the diversification of the Saudi economy and addressing challenges of regional and global significance

All campus buildings meet the strict ASHRAE Standard 55-*Thermal Environmental Conditions for Human*



The university's new campus was constructed on a 22-mile (36 km) stretch of Saudi Arabian desert, 50 miles (80 km) north of Jeddah along the Red Sea.

Occupancy, guaranteeing that interior temperatures and humidity will remain at comfortable levels. To help meet the campus's unique HVAC needs that result from the extreme climate in the region, as well as from some very demanding system challenges, Xylem recommended Bell & Gossett Series VSX double-suction, split-case pumps.

The VSX pumps met and/or surpassed a long list of demanding application requirements, including a minimum specification for 80% efficiency. The requirements also set strict guidelines for Net Positive Suction Head (NPSH) and identified limited space areas that required small pump footprints. VSX pumps were chosen because of their proven vertical split-case (VSC) platform that features vertical-suction and discharge flanges that reduce equipment footprint by up to 40% compared to many horizontal double-suction and large inline pumps.

A total of 27 large series VSX VSC model and VSH model pumps were installed throughout the campus. With motors ranging from 300 to 1000 hp, the installed equipment included:

- Nine VSX-VSC 14 x 16 x 22A, 7,500 gpm/130 ft. with 300 hp, 4160V/60/3, TEFC, 1200 rpm motors

- Nine VSX-VSC 12 x 14 x 22A, 7,500 gpm /380 ft. with 900 hp, 4160V/60/3, TEAAC, 1800 rpm motors

- Nine VSX-VSH 16 x 18 x 19A, 15,000 gpm /196 ft. with 1000 hp, 4160V/60/3, TEAAC, 1800 rpm motors

As a result of its



KAUST was designed to propel the Kingdom into the 21st century, with modern teaching facilities and equipment costing \$1.5 billion.

revolutionary design, the VSX platform offers many installation options. Using CFD technology, the VSX delivers identical performance in any of its three flange configurations, which allows users to maximize piping possibilities and meet a broad hydraulic range for chillers, towers, distributive and general pumping requirements.

Coordinating the design and installation of the KAUST HVAC system was a team effort between engineers, contractors and the Bell & Gossett representatives in Saudi Arabia, who worked to supply specialized drawings, weekly progress and production schedules, vibration monitoring and compliance with industrial specifications.

The massive project started in the fall of 2006 and was finished in just three years. To achieve this ambitious timetable, planning groups accelerated the process with a "Racing the Sun" design, in which HVAC professionals from ten offices across multiple time zones contributed to the planning effort during just one 24-hour period.

The Bell & Gossett VSX pumps helped King Abdullah University of Science and Technology meet its requirement for 80% efficiency pumps, as well as solve many installation challenges. As a result, KAUST students study in a comfortable environment, and the university is able to achieve its mission to advance science and technology to new levels in the region. ●

Solar circulators

By leveraging variable speed control, the new family of SOLAR circulators, offers homeowners up to 80 percent energy savings over standard solar pumping systems. Although the SOLAR series is designed for the lower flow rates that are common in residential and light commercial solar thermal applications, they provide high efficiency performance regardless of flow/head rate. The SOLAR class operates efficiently at flow rates between 0.5 – 40 gallons per minute or gpm, with head rates up to 47 feet high – typical ranges for residential and light commercial forced circulation solar systems. **GRUNDFOS.**

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Condensing tankless

ecoTOUGH™ Series of gas-fired residential condensing tankless water heaters with the new NRC83, an ENERGY STAR®-rated unit designed for smaller homes and multi-family dwellings. Available in both indoor (the two-pipe, direct vent NRC83-DV) and outdoor (NRC83-OD) models, the new wall-mounted units have an energy factor (EF) of 0.92 for natural gas and 0.94 with liquid propane – approximately 30 points higher than a standard, storage tank-type, gas-fired water heater. Featuring a gas-consumption range of 16,000 BTU per hour to 157,000 BTU/h, the NRC83 Residential Condensing Tankless Water Heater is engineered to meet the domestic hot water needs of smaller northern residences with one bathroom, as well as southern homes with two baths. **NORITZ.**

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Flood prevention switches

Family of flood prevention switches safeguard from condensate overflow buildup. Available in Tee, Elbow and bracket-mounted designs, the new switches are attractively packaged and ready for retail sale. Each is easy to install on either the main or auxiliary drain pipe. Rising water within the installation (caused by a clogged air conditioning condensate drain) triggers the switch to shut off the system – preventing water from overflowing. Compliant with UL508 and manufactured of materials that do not rust or stick, each member of the FPS family operates smoothly and provides years of trouble free service. **STANDEX ELECTRONICS.**

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Instant hot water dispenser

Blending contemporary style and maximum efficiency, the Indulge™ Modern is a new instant hot water dispenser. Designed to represent today's pure, minimalist decor, Modern is the ideal complement to contemporary homes. Modern will be available summer 2012 in both hot/cool and hot-only water models. Unlike other brands that operate with dual hot/cool temperature handles, the new Modern dispenser provides additional efficiency for consumers by releasing both hot and cool water from a single handle. Its unique Stay-on™ feature also allows the faucet to remain open for easy dispensing of cool water, making it an ideal addition to any kitchen sink or wet bar. Modern joins the existing Indulge™ Series, consisting of high-end Contemporary, Antique and Tuscan dispensers. **INSINKERATOR®.**

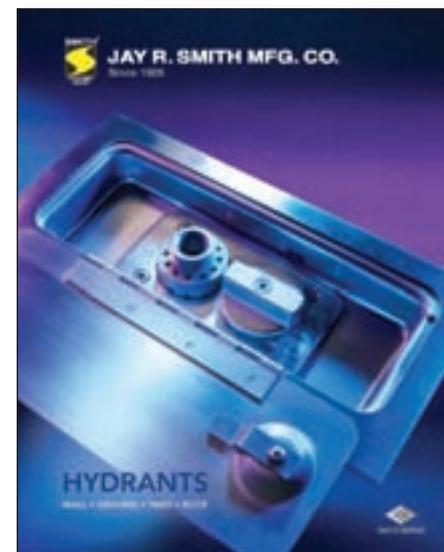


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Hydrants for all building apps

Due to the differences in construction applications, the type of hydrant that is installed, specified and performs up to code can vary greatly by building type. Company manufactures and distributes hydrants that suit all building applications including tilt-up construction projects, commercial buildings, and professional office buildings. **JAY R. SMITH MFG. CO.®**

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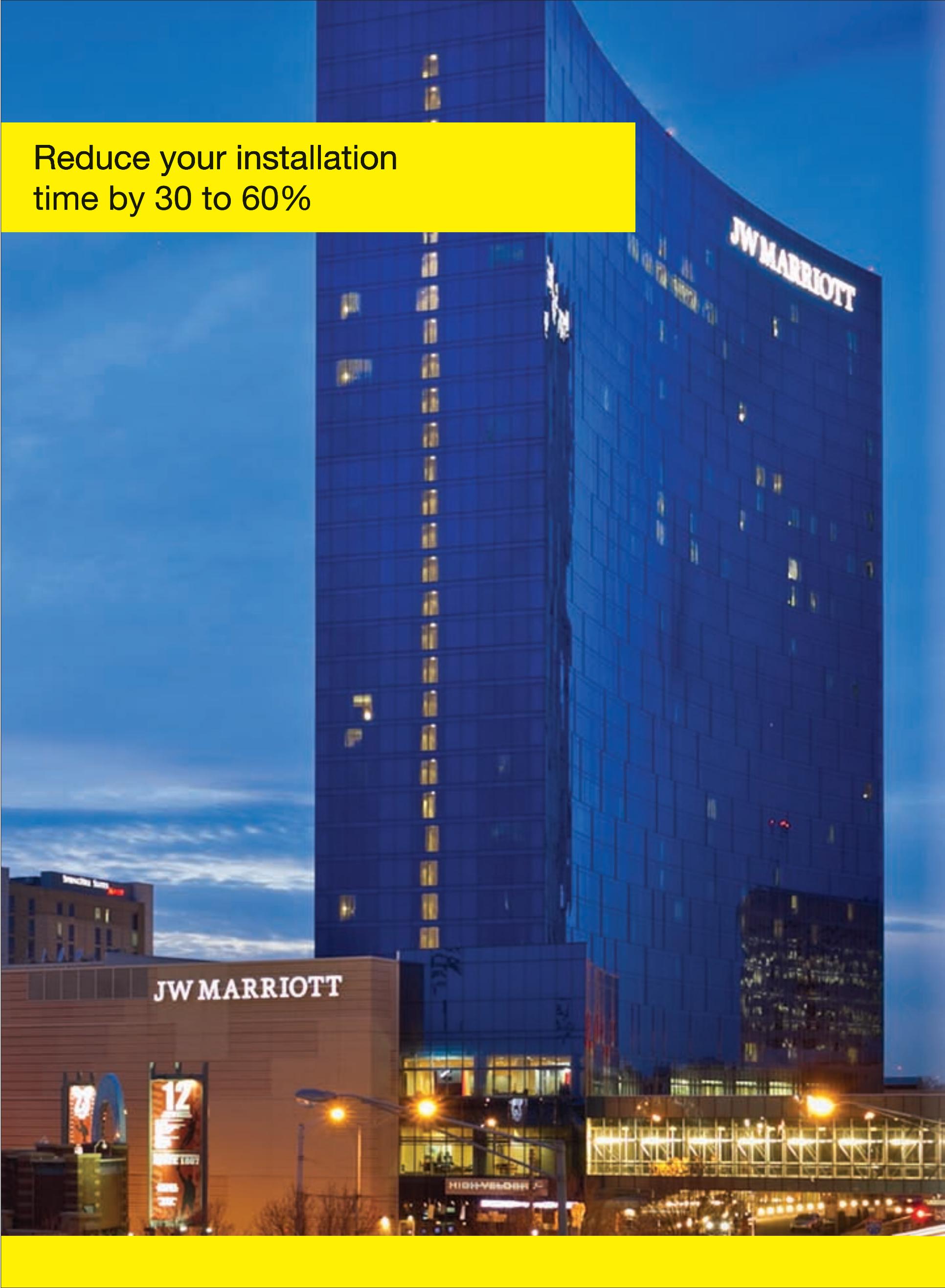
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time by 30 to 60%



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Rod Foley, Project Manager,
North Mechanical Contracting, Inc.

Only Viega offers complete press systems in multiple pipe joining materials, suitable for nearly any application. North Mechanical Contracting, Inc. of Indianapolis, IN, installed Viega ProPress in the new J.W. Marriott because of the labor savings Viega ProPress provides.

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FROM THE FIELD

How online commerce has changed our business

BY DAN FOLEY CONTRIBUTING WRITER

Back in May, I looked at a new project. It was a complete heating system renovation in a 1920s vintage row house in D.C. The job included a condensing gas boiler, indirect DHW tank and radiant on four levels, along with several cast iron radiators. A two-zone AC system was also an option. The project would have been a nice fit for my company, but we were not hired for the job. I had presented a proposal and, after several revisions, I never heard back from the client. The summer heat and its accompanying busy pace came along, and I quickly forgot the project.

Fast forward to January. I received a phone call from the client, who asked me if I could come take a look at the job. She explained that she could not afford my proposal, so she purchased the materials online and hired a contractor to install the system. She requested my help because of problems with the contractor, performance issues and a one-month gas bill that exceeded \$600.

I stopped by and surveyed the job. During a visual inspection, I observed multiple problems, but I did not dig into the system with tools and meters to determine a primary cause. I gathered enough information to determine that I would not be a good fit to resolve the problem.

On the drive back to the shop, I reflected on this set of circumstances. In the end, this client will most likely spend more than my original contract to make this system operate properly. As much of the piping is buried behind walls or in concrete, it was impossible for me to see if the problems could even be fixed at all without major demolition of finished surfaces. I had a bad feeling. It was not sour grapes over losing the job, as I had long since moved on and have plenty of work. Rather, I was thinking about our industry and the change in distribution channels over the 25 years I've been in the trade and over the last 10 years in particular.

The Internet has changed the way we do business. I thought of all the things I've purchased online, including goods and services for my business: computers, office supplies, printers, software, communications equipment and even office furniture. These purchases were made online mostly for speed and convenience. I don't recall shopping or price checking for these items.

One major exception to our purchases has been direct equipment and materials that are used on our projects. Boilers, pumps, tubing, PVF, controls, HVAC equipment, etc., all have been purchased through traditional supply houses with three (or four) step distribution (manufacturer to rep/wholesaler to contractor). I could not think of any major direct material purchase we have made online. The closest that came to mind were pipe markers and placards that I order from an online source and traditional distributors that have online order forms, such as Grainger's.

But what about the new paradigm online distributors that sell the direct materials we typically purchase

A skilled contractor is an artist who creates with a RIDGID 300 and schedule 40 black steel. A basement wall is his canvas. Nothing can replace the years of experience a professional brings to the table.



through local wholesalers to anyone with a credit card. Is this a good thing or a bad thing for our trade? Has it affected your business?

I spoke to my primary hydronics rep, and he indicated that the biggest issue to date was not lost sales, but product support of materials purchased elsewhere, primarily equipment such as boilers, for which the source could be quickly ascertained through a serial number search.

How about manufacturers reading this column? How do you feel about product support, technical assistance and warranty claims on equipment not installed by licensed professionals? In doing a quick online check, I found just about every model of equipment we promote available online.

I'm not sure my company has been affected enough for me to have a strong opinion. I'm on the sidelines just taking it all in. I've heard opinions that run the gamut from, "This will be the end of our trade as we know it," to "This is the 21st century marketplace. Get with it or get left behind." My observation is that the reality lies somewhere between these two extremes.

To step away from my insulated view, I tapped two industry friends on opposite coasts for their views. I called Paul Pollets, owner of Advanced Radiant Technology in Seattle. Paul and I connected more than 15 years ago at an industry function and have remained the closest of friends ever since. What I like most about Paul is that he tells it like it is.

Paul told the story of a recent project for a technology millionaire. The client initially wanted to supply all of the materials. This is where my impatience would have made me walk, but Paul's experience and wisdom won out. He turned what appeared to be a bad deal into a win-win situation. Paul allowed the owner to supply a few select materials but insisted on supplying key components, such as the Viessmann boiler and the radiant materials. Paul also had the client sign a waiver in a revised contract proposal outlining the conditions of the owner-supplied

➔ Turn to FOLEY on p 54

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| FROM THE FIELD | CONTINUED FROM PAGE 52

materials that covered issues such as warranty, incomplete orders, wrong materials, delivery dates, etc.

Paul also made sure that his overhead and profit were covered, even on the materials supplied by the owner. As Paul put it, “My rent, insurance, truck costs and gas did not go down because the owner supplied some components.” In the end, the client was happy, Paul was happy, and the client got a professionally installed job. Paul even got additional work through change-orders when the client saw his impressive work. This is one way to turn a negative into a positive.

Next I called my friend Rob Brown of Northeast Radiant Technology (NRT) in Gardiner, Maine. Many know Rob as NRT Rob from his presence on several websites and message boards. He started his company

All of these products are worthless without a skilled practitioner to properly specify the right components and install them professionally... You cannot sell the experience of a skilled professional online.

approximately 10 years ago, primarily as a radiant design company. He was an early adopter of online commerce, with a website presence generating the majority of his business from the start.

Rob’s company has evolved over the years, from primarily a design company to a design firm that also provides mechanical packages to support its designs. Rob’s customers are both DIYers and professional contractors. Roughly one third of his business is local, with the balance originating online.

NRT supplies radiant materials and components as well as pre-fabricated control panels that include the near boiler piping, pumps, valves and controls — wired, labeled and tested. Rob draws the line at supplying boilers and other combustion equipment. He stands by his belief that this equipment should be provided locally by licensed, certified contractors with the proper training and combustion analysis equipment.

Rob emphasized that his Internet sales were in support of his detailed designs and came about through client demand. His customers were unable to find these products locally, so Rob filled a niche. He supports all of the products he sells, including technical support and warranty processing.

Where do local wholesalers fit into this new market? Here is where they can add value: product support and product availability. If a wholesaler does not have the product on the shelf when I need it, the wholesaler has not added value. If all they can do is drop ship an item from a manufacturer, it becomes a paper transaction. At what point does it become easier and less expensive to order online? If you have reduced the equation to website forms and widgets, with no added value, the Internet

suppliers will beat you on price. Then it becomes a race to the bottom to see who can provide the lowest price. But if you have a part or component available when I need it, price becomes a secondary concern.

I cringe when I hear a rep talk about inventory turns and cost of keeping parts in stock. I recognize that it costs money to keep inventory. But you can’t sell something that you don’t have, and it’s unfortunate when the bean counters dictate how you run your business, to the extent that products are not on your shelf when they are needed. You need a big-picture perspective to make sound decisions.

One of my primary suppliers recently lost \$200,000 of my radiant business because they couldn’t keep two bags of half-inch brass fittings on the shelf. Their inventory system sent the product back because it didn’t “turn” enough. After fighting this inventory system for a year, I was forced to make a change or risk losing my sanity. That loss of my business doesn’t even count the additional sales in pumps, fittings, PVF and other components that were purchased along with the radiant materials. They lost \$200,000+ in exchange for about \$50 in brass fittings — brilliant. My point is that if you provide local support and availability, other concerns are secondary.

All of these products are worthless without a skilled practitioner to properly specify the right components and install them professionally. Sure, there are skilled DIYers who can do nice work but, in my experience, this is the exception rather than the rule. You cannot sell the experience of a skilled professional online. I can buy paints, brushes, palettes and canvas at Michael’s, but it doesn’t mean I can paint like Picasso. A skilled contractor is an artist who creates with a RIDGID 300 and schedule 40 black steel. A basement wall is his canvas. Nothing can replace the years of experience a professional brings to the table.

This is where we contractors come up short. This is where I failed my D.C. client. We must get better at conveying the value of our skills and knowledge to our clients. We must be prepared to explain why we charge \$530 to change out a 007 when the client can quickly see that they can buy the part online for \$81. Be able to quickly respond to this reasonable question or lose this customer or, worse, be branded a crook.

I don’t know that there is a right or wrong answer to the issue of changing market channels. I imagine the free market will sort out who is right. I will explore how my company keeps busy at pricing that is higher than my competitors in a future column.

Meanwhile, I would love to hear how you are dealing with changes in the marketplace, Internet suppliers and DIY competition. If you’re a manufacturer, I would be curious how you control brand equity and product reputation when you lose control of product distribution. If you’re an Internet wholesaler, I would like to know more about your business model. I encourage you to contact me by phone or at the email address listed below. I always appreciate hearing your feedback.

Dan Foley is president and owner of Foley Mechanical Inc., based in Lorton, Va. FMI specializes in radiant, hydronic and steam systems, as well as mechanical systems for large custom homes. He can be reached at 703/339-8030 or at dfoley50@verizon.net.

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| FIELD REPORT |

Designing and specifying precision high efficiency heating equipment

Plumbing and heating contractor Jerry Davis and mechanical engineer Tim Souza live and work on opposite sides of the country, but they are both strong advocates of proven, compact, high efficiency wall-hung boiler systems. They also share an appreciation for installation training and certification as a key success factor for any mechanical specification.

“We only design and install 90%-plus, propane-fired equipment,” says Jerry Davis, vice-president of Dubben Brothers, a hydronic heating contractor and propane supplier operating out of a 106-year-old plumbing hardware store serving the Catskills region of New York state. The firm is in its fifth generation of family ownership, and it still operates

often provides advisory services for specifying engineers in the region.

Tim Souza is a principal at TEP Engineering, a Santa Rosa, Calif.-based mechanical engineering firm serving a diverse clientele base throughout the San Francisco Bay Area. His firm includes six mechanical engineers, as well as staff with over 60 combined years of HVAC and plumbing contracting experience.

“We incorporate high efficiency heating and domestic water systems in our project designs and specifications because of the substantial energy savings they



installing contractor’s qualifications (factory training and certification).

The introduction of higher efficiency and more compact hydronic heating equipment is bringing North America closer to European high acceptance for wall-hung boiler technology. Substantial fuel consumption, utility bill and space savings make fully modulating, condensing wall-hung boilers, such as the Baxi Luna line, a compelling choice for both new home and retrofit applications.

Baxi wall-hung boilers are compact heating appliances that save up to 60% in fuel use and utility bills, cut greenhouse gas emissions up to 90% and free up valuable living space. Baxi boilers are closet-installation approved and are whisper quiet (45 dBA), making them preferred appliances in flood-prone areas. The boilers can be used for in-floor radiant, snow melt, heated towel racks and radiators, as well as for forced air (with a hydronic air handler).

“Our supply house in Oneonta (Irr Supply, the exclusive Upstate New York distributor of Baxi products) introduced us to the Baxi high efficiency product line. We were impressed that it was market-tested, and we attended two technical training sessions put on by the manufacturer before making our first Baxi Luna HT combi boiler installation in September 2006.

“Our first Baxi was in a new home built by a European United Nations diplomat,” says Davis. “It was an easy sell, as the customer was familiar with the product. We have never had a service issue with this unit.”

Over the past six years, Dubben Bros has installed every model of Baxi high efficiency boiler, as well as Baxi solar water heating systems and high output designer radiators.

Tim Souza discovered Baxi heating



Jerry Davis, vice-president of Dubben Bros (center) says his staff members are all thoroughly familiar with Baxi product. They have all attended Baxi training, and are installer certified, and six of the firm’s employees have a Baxi installed in their own homes.

out of its original storefront location at 90 Main Street in Delhi, N.Y.

“We have 17 employees, seven of whom are top-notch plumbing and hydronic heating contractors dedicated to the installation and 24/7 repair of heating systems that we design and build ourselves. The bulk of our installation business is the replacement market as well as new second homes for customers from the New York metropolitan area,” says Davis, whose firm also

produce,” says Tim Souza. “They help us meet demanding Title 24 energy compliance and new California green building code requirements. Additionally, the Baxi combi boiler units save precious floor space by combining the hydronic heating and domestic water production into one compact unit.”

The similarities and shared values of the two firms also include their preferred high efficiency boiler (Baxi), and what they expect in an

solutions around the same time as Dubben Bros. did. He has specified Baxi combi boiler for affordable housing authority communities in Santa Rosa, among other projects he is designing and specifying. “The California Energy Code requires that mechanical systems for affordable housing projects beat standard energy code requirements by at least 15%,” says Souza. “The Baxi Luna HT 380 combination heating and domestic hot water boiler, for instance, enabled us to beat standard requirements in most cases by 60% for space heating and 45% for domestic hot water.”

A leading European heating manufacturer since 1867, Baxi has been at the forefront in developing wall-hung boiler technology over the past four decades and manufactures 4,000 boilers a day for export to 70 countries, including the United States.

Up to 98% energy efficient, the low-NO_x Baxi Luna HT light commercial range includes three fully modulating, condensing heating-only models, ranging in high output of 153 MBtu/h and 348 MBtu/h. Twelve Baxi commercial boilers may be strung together, using a staging controller, to produce a total output of up to 4.2 MMBtu/h. System redundancy and impressive



Tim Souza, principal at TEP Engineering, a Santa Rosa, Calif., has specified Baxi combi boilers to meet California codes for affordable housing authority communities in Santa Rosa, among other projects.

turndown ratios make this wall-hung system attractive for commercial applications. Baxi boilers are shipped from the factory set up for natural gas; they are easily converted to propane, using the QAA73 controller made for Baxi by Siemens.

All Baxi boilers are Energy Star



Dubben Brothers is a hydronic heating contractor and propane supplier serving the Catskills region of New York state and operates out of this 106-year-old plumbing hardware store.

rated and CSA approved, and the heat exchanger bears the ASME H-Stamp. The North American line also includes fully packaged residential models (112 MBtu/h down to 32 MBtu/h output), available in combination heating and domestic hot water (Baxi Luna HT 380) or heating-only mode (Baxi Luna HT 1.33). The combi model can heat a home up to 5,000 square feet and produce 3.9 USGPM (at an 80-degree temperature rise).

Baxi engineers have included multiple built-in safety features, including the following: electronic, gradual ignition (no standing pilot light/no open flame); high temperature limit (set with supplied QAA73 controller made by Siemens); flue high limit switch; central heating high limit switch; fan pressure switch; differential pressure switch; flame sensing electrode and a redundant gas valve plunger (that activates if the primary plunger fails); back flow prevention devices; Grundfos pump with air vent; expansion tank; frost protection; automatic self-diagnostics and a Legionella prevention function.

“We have not installed any other brand of gas boiler since we switched to Baxi,” says Jerry Davis. “We like the product’s reliability, versatility for new or retrofit applications, venting options, ease of service, the factory training, product certification and in-market trouble shooting provided by our Baxi reps (J and K Sales). We get good support from Irr Supply, as well as from Marathon International, the North American distributor of Baxi products”

Dubben Bros. staff members are all thoroughly familiar with Baxi

products. They have all attended Baxi training and are installer certified, using an interactive Baxi training and certification CD-ROM. In addition, six of the firm’s employees have a Baxi installed in their own homes, and others are planning to follow suit.

“Efficiency, low sound levels, size, versatility, serviceability and reliability are all key factors in picking the right high efficiency boiler,” says Tim Souza. “The manufacturer’s ongoing support of the product is also essential, notably in a multi-family application. Other important factors include the availability of contractors who are familiar with the product, factory trained and certified for installation and maintenance.”

The California Green Building Code (Section 702, Installer and Special Inspector Qualifications) stipulates that “HVAC system installers shall be trained and certified in the proper installation of HVAC systems including ducts and equipment by a nationally or regionally recognized training or certification program.” These include manufacturer-approved training and certification programs.

Jerry Davis says his firm believes that any mechanical system specification for a high efficiency boiler system should include a requirement that installing technicians be factory certified in order to bid on a project, “even if that qualification is not a state requirement.” ●

To learn more about Baxi products in North America, visit www.wallhungboilers.com.

| INFORMATION IS POWER |

Boiler manufacturer takes hi-tech training to the masses

As mechanical systems continue to grow in efficiency and, inevitably, in sophistication, some manufacturers are upping the ante when it comes to customized training for contractors, wholesalers and engineers. Laars, in Rochester, New Hampshire, is one such firm.

With the market pushing for advanced, more energy-efficient heating systems, Laars managers felt that a new customer outreach and training facility was in order.

Just completed in November 2011, Laars' state-of-the-art, 12,800-square-foot Customer Center is designed to help educate installers about radiant system design, Laars products, and the next generation of heating technology. Contractors, wholesalers and engineers can all benefit from the courses offered.

"Flexibility in training content and techniques was kept at the forefront during the design phase of the facility and curriculum," said Bill Root, VP and general manager of Laars. To maximize the value of each training experience, the staff at Laars tailors classes to the needs of contractor, wholesaler or engineering group attendees. According to Chuck O'Donnell, Laars marketing manager, either pre-structured training courses can be selected or an à la carte approach of training



The main lobby welcomes visitors.

topics can be chosen based on the attendees' level of experience and educational goals.

Crown jewels: high tech, hands on and fully integrated

The Customer Center is a two-story expansion of the Laars headquarters. The first floor consists of a new main lobby to the Laars



A 60-seat tiered classroom features two bays that can display any Laars boiler and/or water heater, and each display unit can be live-fired during training sessions. The classroom can be divided into a pair of 30-seat classes.

facility, a 60-seat tiered classroom used as one large room or two individual 30-seat classrooms, a café that can seat up to 70 and a large outdoor patio next to the café. In-floor radiant heat runs through the lobby and café and an expansive snowmelt system melts winter precipitation from sidewalks and the patio, all sourcing heat from Laars NeoTherm boilers.

Front and center in each 30-seat classroom are the crown jewels. Two bays are capable of displaying any

Laars boiler and/or water heater; each display unit can be live-fired during training sessions. The boilers tie into the facility's existing large cooling loop, allowing for continuous operation of up to two million Btu – one million Btu per 30-seat classroom or two million in one bay.

"We felt it was critical to include

live-fire equipment right in the classroom to create a meaningful experience by allowing the attendees to work with our equipment as they learn," said O'Donnell.

Seamlessly connecting the classroom experience with the live-fired equipment is a state-of-the-art audio/video system. Each 30-seat section has a high-definition projection system with large display screens used for standard presentations. The screens also tie in to ceiling mounted HD cameras to

Condensate neutralizer

Select states require condensate from condensing appliances to be treated before passing into a public sewer system. This condensate neutralizer accessory provides installers with an effective way to eliminate acidity from the condensation that is drained from a condensing boiler or condensing tankless unit. The easy-to-install feature works by running the condensation through a container filled with limestone media, which raises its pH level to make the liquid less acidic, resulting in neutral water that can be drained directly from the unit. Designed for both vertical and horizontal mounting, the condensate neutralizer's user-friendly clear capsule design allows homeowners to see when the limestone media needs to be replaced. **RINNAI.**



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CORP. REP.

➔ Laars, Continued from facing page

pan and zoom into Laars trainers or equipment, allowing for up-close views of system components to enhance the learning experience.

Laars also invested in the latest in video conference hub technology, permitting live streaming of training sessions to the web or to record for later viewing. The live streaming system will offer even further flexibility for training those that cannot travel or for follow up training sessions after attending a live session at the Laars facility.

In-house experience

"It was a great experience for the Laars staff, as many departments were involved in the design and installation of the hydronic and radiant heat

systems," explained Root. "The indoor radiant and snowmelt systems were designed by the Laars application team. Also, over a two-day period, just prior to the concrete pour, many of our employees were involved with the installation of PEX tubing for the addition. It turned into an enjoyable, team-building exercise. Who said Outward Bound has the corner on that market?"

"It was a thrill for so many of us to take interest in and to be closely involved with

our work on the building systems; we can't wait to share this new facility with our customers!" added Chuck O'Donnell.

Signup for courses will be done through area sales managers and also online at www.laars.com. Courses will begin in early 2012. ●

For more information about courses and scheduling, e-mail sales@laars.com.

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BARE BONES BIZ

What I learned at AHR Expo 2012

BY ELLEN ROHR CONTRIBUTING WRITER

I was at the Air Conditioning – Heating – Refrigerating Exposition in Chicago this January on official *PHC News* assignment. My job was to interview leading-edge manufacturers about what's new, what's hip and what's coming in the AHR industry. We call it the Rock 'n Rohr show. I had a blast and learned a lot. For instance, I learned how integral the right venting material can be to the overall functionality of the system and how much support and training is available to you and how much world-wide opportunity is just waiting for you in this amazing industry and that John Barba has an excellent knowledge of TV trivia. You can check out the interviews at www.phcnews.com/webcasts.php.

One cool thing was that my bigger half, Hot Rod, and our son Max were also on assignment at the AHR Expo. Hot Rod was sharing his understanding of all things radiant as part of Team Caleffi. Max was representing Shamrock Sales, a progressive manufacturer's rep firm located in Denver. The Rohrs are the Royal Radiant Family of the AHR industry.

And we aren't the only family who work together. Across the show floor, I met and reconnected with so many people who are passionate about this industry and love being together. What struck me this year is that there is one big table and many family members are sitting in different chairs. There is growth and optimism and fresh approaches to warming, cooling and energy efficiency.

So, how to sell it?

Hot Rod joined John Barba, Eric Aune, Dan Foley and Dave Yates in a lively panel discussion on Selling Energy Efficiency. *Phc News* chief editor John Mesenbrink was Master of Ceremonies, and it was my honor as the panel moderator to wrangle these industry icons. It was the most well attended breakout event of the show. The panelists engaged with the crowd and discussed the over-arching challenge of how to get this awesome energy-efficient stuff sold.

While cruising the show floor, I was dazzled by the AHR industry. As someone who has no technical expertise, I appreciate the miracle of what it is that you do: Make us warm, keep things cool and wring up to 96% energy out of every drop of fuel. All without blowing people up.

So, it was great to present this challenge to the panel: What can we do to get this stuff sold? They shared more than a hundred years of in-the-trenches experience. Here are a few gold nuggets:

- Dave offered a simple sales process checklist. Use the steps to ensure a consistent, outstanding customer experience.
- Eric focuses on comfort. When your customer is comfortable with you, they are more likely to say yes.
- Dan overcame his initial aversion to sales. "If you own a business, you are required to make sales and profits. Understanding the financials helped me become a more confident salesperson."
- Hot Rod offered, "Listen to your customers." That's how a quiet man makes great sales.
- Barba shared, "A boiler is like a pig. It eats fuel and

poops heat." That is a communicative metaphor!

Big thanks to the attendees! They asked terrific questions and challenged the panel. They also shared some personal sales tips. One brave woman shared that she used to be — gasp — a pushy salesperson! She got frustrated by her lack of success. So, she took a sales class and started getting better results with a softer, gentler approach, and it was much less stressful too. Nice!

Enough about the economy

The panelists refused to let current economic woes color their optimism about the industry. There is nothing you can do about "the economy." Instead, address your economy.

It's up to you, dear Manufacturer. Consider the end user in every conversation. When you are selling to the contractor, demonstrate good salesmanship. Ask good questions and listen. Follow each feature with a plain-speak benefit. Focus on how he or she can present the system and solutions to their customer. If your customers can't sell it, you won't sell it. What we have here is an inability to sell. Be willing to see this over-arching problem. Address the fears. Help develop your clients' skills.

Ultimately, it's up to you, dear Contractor. Take a sales class. Develop a checklist that ensures you give every customer an outstanding service experience. Role play with your team members. Ride along and see how they interact with your customers. Video-record your presentation and study it like game film. You just cannot continue to maintain that a person who is building a 10,000-square-foot trophy home is "too cheap" to buy the nice stuff. Consider the impact on your business, on your economy, if you were as good at communicating what you can do as you are at actually doing it. If you can't sell it, you won't do it. You commit to your technical skills. Take the same pride in your sales skills.

The folks who attended got a lot of ideas and specific ideas for improving sales. **Matthew Coleman** got even more! We had a raffle and he won an iPad 2, thanks to *Phc News*. Congratulations!



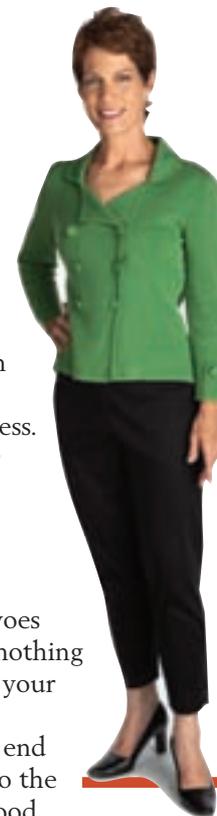
AHR show summary

It was BIG. Here are some statistics from the show organizers:

- More than 39,000 contractors, engineers, distributors, facility managers, manufacturers' reps and other AHR professionals participated.
- More than 58,000 visitors.
- Record exhibit floor: 428,000+ net square feet of booth space.

The technology is better than ever. The industry is full of wonderful, smart, committed people. Now it's up to you to sell it. ●

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Five actionable tips to manage your workforce with mobile resource management

When any organization relies on a mobile workforce, the task of managing out-of-sight employees becomes an endeavor in its own right. Unfortunately, many companies conduct business as usual, not realizing that there are better ways. Cost is a common objection but, often, the status quo has costs of its own.

What's more, many processes are paper-based. When technicians are mired in paperwork, morale drops, and customer service lags when service is slow or when inefficiency drives costs up. Ultimately, inefficiency has a direct effect on a plumbing company's bottom line.

Here we will offer five actionable tips to efficiently and cost-effectively manage your mobile workforce with mobile resource management (MRM).

MRM solutions not only provide a streamlined alternative to managing mobile workers but also offer an ROI that enables them to pay for themselves many times over. A case in point, grocery distributor Nello Pistori saves \$4,000 – \$5,000 per year on fuel with mobile resource management. The savings easily pay for the service.

Tip #1: Gain visibility of employees.

Keeping track of and communicating with mobile employees is a challenge for many plumbing companies. Whether you call them when needed or require that they check in at the start of every shift or job, there are better ways.

With mobile resource management, you can see the real-time GPS location of every technician on a dynamic, web-based map. Whether you're wondering where a technician is or whether he's available to take a new job, all you need to do is check the web-based console for GPS locations and job completion details.

Tip #2: Capture timecard data wirelessly.

Managing payroll data wirelessly is one of the hallmarks of mobile resource management. Technicians clock in and out from their mobile devices, and you can compare the data against the GPS map to make sure they are clocking in from the jobsite and not from home, for

example. Rather than relying on their word, you have compelling data to track technicians' time.

MRM automates and validates payroll with:

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- Automatic date, time and location stamps
- Email delivery of payroll reports to your payroll team
- Reduced overtime with intelligent routing
- Mileage reports verified against completed jobs
- Concrete GPS data to resolve discrepancies
- Powerful reports to analyze payroll on a weekly, monthly or annual basis

Landscape design firm Fine Earth Landscape finds significant payroll savings thanks to MRM. "By cutting back on extended morning breaks and saving even 15 minutes a day with our 44 crew members, we save as much as \$44,000 a year," said co-owner Bernie Mihm.

Tip #3: Communicate complete job details wirelessly.

How do you plan your technicians' days? Do your technicians have to come into the office to print out job information, inventory forms and driving directions? Are you routing technicians efficiently?

With MRM, you can simply create jobs from the web console or upload them from your dispatch system, then send job information and updates to employees' phones or automatically schedule a new job when the previous job is completed. Rather than calling technicians when an urgent job comes in, you can look to the map to see who is closest and available to take the job.

Plus, with MRM's wireless forms, you can eliminate paperwork and time-consuming manual processes to record odometer readings, manage inventory, collect customer signatures, record employee expenses and more. Also, technicians get turn-by-turn driving directions to navigate from one job to the next.

Arizona-based One Hour Air Conditioning & Heating can now easily route technicians, thanks to Telenav, a California-based mobile resource management provider. "Our service commitment says that if we are not on time to an appointment, the customer does not pay for the visit," said office manager Jessica Kelly. "Before having an effective call



With mobile resource management, you can see the real-time GPS location of every technician on a dynamic, web-based map.

routing system in place, we were absorbing 15 – 20% of servicing costs. After implementing Telenav, we saw an immediate increase in meeting our customer timeframes."

Tip #4: Improve customer service with operational efficiency.

Despite advances in wireless technology, field data is still often recorded on paper, which results in widespread productivity losses and customer service deficiencies.

With mobile resource management, you can boost customer service by improving operational efficiency. By automating job dispatching as described above, your technicians complete more jobs in a day, which means your customers get faster service. You can send job completion notices directly to the customer. If a customer calls wondering when a technician will arrive, you can quickly check the GPS location of the technician and give an accurate ETA.

Plus, by tracking the duration of

➔ Continued on p 64

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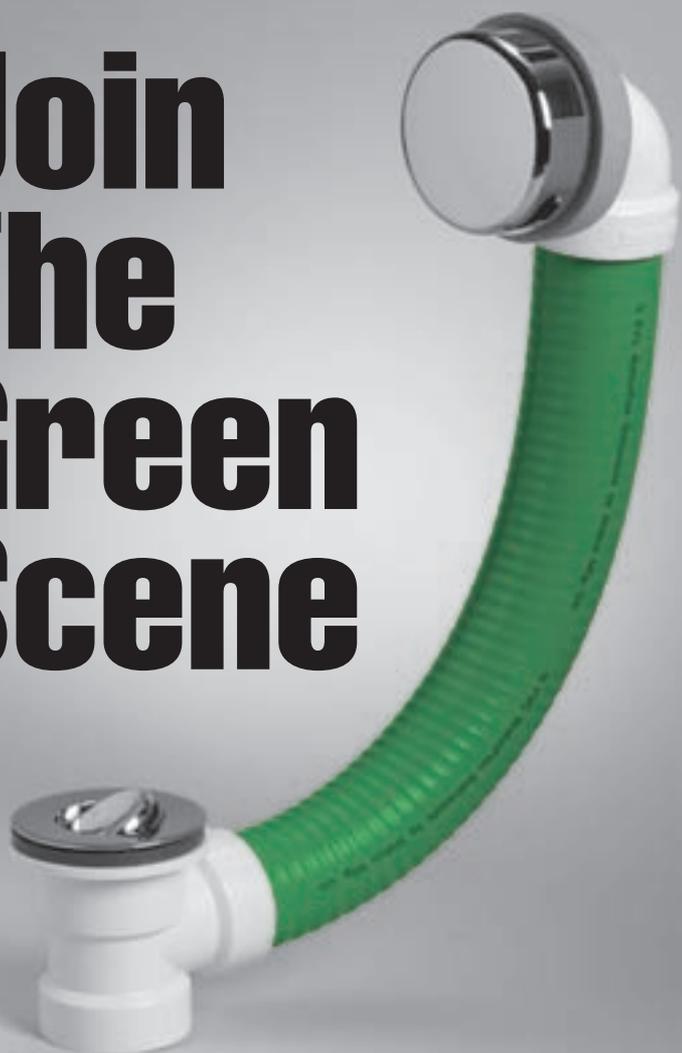
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BUSINESS RESOURCES + TOOLS

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jobs completed, you can ensure your rates are fair and on target. Any savings gained by doing so can be passed along to the customer.

"Today, our technicians are on time to more than 99.9% of appointments, making for happy customers and substantial savings," said Kelly.

Tip #5: Keep an eye on the big picture with business intelligence and analysis.

By managing employees, customers and jobs on paper, many plumbing companies have little power to analyze business operations. Getting through the day — rather than maintaining a big picture perspective of the business — is usually the name of the game.

Avoid this trap with MRM. You can view complete details of any job from the web console. Detailed reports can be scheduled for email delivery at any

Rather than calling technicians when an urgent job comes in, you can look to the map to see who is closest and available to take the job.

frequency, saving you time in getting information to the right people on time. You can import reports directly into back-office systems to assess employee productivity, job costing, expense reporting, inventory management and more.

Conclusion

Mobile resource management has helped thousands of businesses, from small operations with a few vehicles to Fortune 500 firms with enormous fleets, increase control over their operations, cut costs, gain competitive differentiation and improve customer service.

What's more, today's mobile resource management systems have improved dramatically, while the upfront and ongoing service costs have only gone down, making them much more accessible. The result: satisfied customers, happy employees and business success. ●

Keith Halasy is the senior marketing manager for Telenav Inc., a GPS mobile enterprise solution provider. Keith has more than 20 years of experience in location-based and wireless software product development and marketing and holds an MBA from the University of Minnesota. For more information about Telenav's GPS mobile enterprise solutions, visit enterprise.Telenav.com.

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TOOL OF THE MONTH

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WD-40 Specialist is a new line of best-in-class specialty products formulated to give trade professionals the performance they need to get their specific jobs done right. The new WD-40 Specialist line consists of five products: Rust Release Penetrant Spray; Water Resistant Silicone Lubricant; Protective White Lithium Grease; Long-Term Corrosion Inhibitor; and Rust Remover Soak. **WD-40.**

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Water jet high water flow w/o trailer

The newly redesigned JM-3080 Jet-Set™ water jet drain cleaning machine clears stubborn grease stoppages as well as lines clogged with sand, sludge and ice. It features a removable 300 ft. capacity hose reel to allow you to use the higher power of the gas machine on remote or indoor applications. This powerful water jet generates 3000 psi at 8 gpm for plenty of drain cleaning power to break up tough stoppages and flush them away. And it has the highest flow rate available without requiring a trailer. Vibration® on demand helps the hose slide easily down long runs and around tight bends. A tough 20 hp (614 cc) Honda engine with electric start and 2 to 1 gear reducer drives the pump, while a 12 gallon buffer tank protects the jet if the water supply can't match the pump demand. **GENERAL PIPE CLEANERS.**

➔ Circle 112 on reader form on page 78

Hole saw mini kit

Patent-pending, this ultra-compact, all-inclusive kit helps make storing, organizing, and transporting multiple hole saws on job sites easier and more convenient than ever before. The SPEED SLOT Hole Saw Mini Kit's space-saving design fits into any sized tool bag or bucket, making it easy to transport on the job. The kit's portability allows workers to make fewer trips back to the truck, helping to increase productivity. Although small in size at 10 1/4" x 11 7/8" x 3 1/2", the efficiently designed Mini Kit holds as many as six hole saws, ranging in size from 7/8" up to 2 11/16" in diameter. A hard-sided case, robust metal latch and sleek design offer extreme durability. **LENOX.**

➔ Circle 113 on reader form on page 78



Depth setter and dust collector

DEWALT announced the launch of the Adjustable Depth Setter (DWA5537DS) and Dust Collector (DWA500DC), which when used together serve as DEWALT's proprietary Depth Control and Dust System. Designed specifically for use with the SDS Plus drill bits from DEWALT, the system is ideal for professionals in the mechanical, electrical and plumbing fields. The most frequent application of this system is for installing drop-in anchors, which are used to hold threaded rod for hanging pipes, conduit and heavy loads. **DEWALT.**

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SOLAR SOLUTIONS

Bristol's Six Principles for Good Solar Hydronic Retrofit example: Overheat-cooling thermosyphon loop

BY BRISTOL STICKNEY CONTRIBUTING WRITER

I have recently received a number of inquiries about the control of overheating in solar collectors. This is especially important when using large groups of solar heat collectors connected with closed-loop glycol piping. The objective for a glycol cooling system is to keep the propylene glycol from boiling during collector stagnation under full sun and to keep the fluid below the high-limit temperature recommended by the manufacturer. The critical high-limit temperature can vary widely with the brand and type of glycol used. A good target is to keep the fluid well below 230 F; a temperature range of 180 F to 210 F is sufficient for any solar glycol mixture. (For a review of solar overheating concerns, control options and examples, please refer to past episodes of Solar Solutions: June 2009, November 2009, April 2011 and August 2011.)

In an ideal installation, we would like to design the glycol system to be fail-safe during electric power failures, circulator pump failures and maintenance shut-downs (accidental or intentional). So, by definition, this would prohibit the use of electric power or circulator pumps to achieve "emergency" cooling, since electrical failure and pump failure are, in fact, the most likely causes of such an emergency. In an ideal fail-safe installation, the solar thermal energy itself is the most reliable energy source available, and it is this energy that should be used to drive the cooling system. A properly installed thermosyphon cooling loop will perform this function with remarkable reliability. To illustrate this approach, I will show you the details from a retrofit thermosyphon cooling installation that was completed last summer. This retrofit was installed by Jeff Stampfer with Eldorado Solar in Santa Fe.

The example installation

The solar heating system in this example is a large solar combisystem installed on a custom home, originally built in 2007. There were three banks of solar heat collectors, ground-mounted about 200 feet from the house. Each bank contained eight solar collectors, Heliodyne 4' X 10' panels. The combisystem was designed to deliver the solar heat to 18 warm floor zones in the house, to the domestic hot water (DHW) tank and to an outdoor heated swimming pool. The radiant masonry floors in the basement and garage were available to absorb some extra solar heat if needed, but the swimming pool was

In an ideal installation, we would like to design the glycol system to be fail-safe during electric power failures, circulator pump failures and maintenance shut-downs (accidental or intentional).



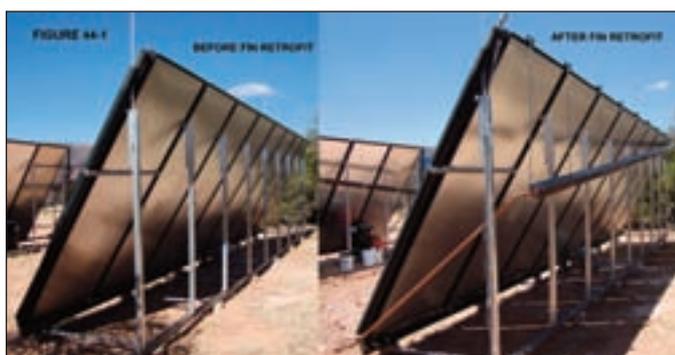
originally intended to take most or all of the "extra" solar heat whenever it was available throughout the year.

In recent years, the swimming pool has been drained for maintenance for extended periods of time. Without the pool to absorb the solar heat in summer and fall, the collectors are often in danger of overheating. A thermosyphon cooling fin retrofit seemed like the most reliable, permanent and trouble-free way of dealing with the occasional loss of the swimming pool "heat dump" zone.

Thermosyphon cooling with fin-tubes

Thermosyphoning can be defined as the movement of fluid around a plumbing loop driven only by a temperature difference across the loop (fluid "pumped" only by heat). Hot fluid is less dense than cool fluid so, when it is contained in a loop, the cool fluid tends to "fall downhill," and the hot fluid tends to "float uphill." This principle can be used to dissipate solar heat by including cooling fins in the plumbing loop.

See Figure 44-1 for photos of the cooling fin loop



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CONTINUED FROM PAGE 66

installed on this job (before and after photos are seen side by side). On a sunny day, if the pumped circulation in the collector stops, the hot fluid in the collector tends to rise to the top header. A top connection at the outlet pipe (Fig.44-2, upper left) connects to cooling fins mounted on the back of the collector (Fig.44-1, right) that contain cool antifreeze, which is heavier than the hot antifreeze and tends to “fall” downhill. A bottom connection at the collector inlet allows the cold fluid to slide downhill into the bottom of the collector as hot fluid rises up and out the connection at the top. This thermosyphoning continues as long as the sun provides heat or until the circulation pump turns back on. When the pump is on,

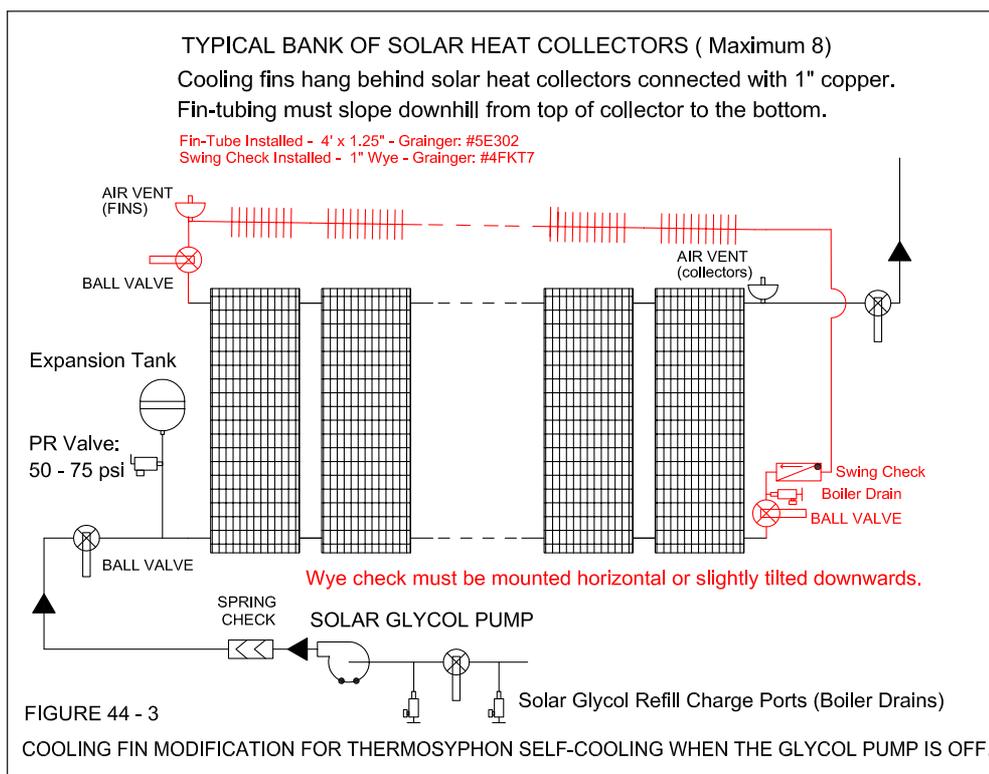
Internally, the flow path in the collectors slopes uphill from the bottom header to the top header, through straight and parallel vertical risers. (Serpentine risers or horizontal risers may not provide proper flow for thermosyphoning and are not recommended for use with this type of cooling system.)

Flow through the collector is “diagonally opposite” for both cooling and heat circulation, which assures even heat flow across the entire surface of all the panels (in at the bottom corner, out at the opposite top corner). See the diagram in Figure 44-3 for more specific piping details used in this installation.

Results: The temperature during cooling episodes was observed to hover around 170 F throughout the afternoon, with no circulator pumps running under clear sunny conditions. Without cooling fins, we have seen collector temperatures in excess of 240 F occur in a matter of minutes under the same conditions.

Final notes

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



the cooling loop snaps shut, using a passive swing-check valve (located near the bottom pipe connection) that closes in response to the relatively high flow and pressure provided by the glycol circulator pump.

The 1" wye swing-check valve shown in the photo (Fig.44-2, lower right) is mounted tilted downward toward the bottom connection. This brass check valve has an internally hinged flap that is held shut only by gravity. When tilted in this position (shown in the photo), very little fluid pressure is required to overcome gravity and open the flap to allow cooling flow. When hot fluid is present at the top of the collector, the density difference between it and the cool fluid in the fin-tubes provides enough pressure to open the flap. We have found (in other installations) that the flap valve works perfectly well even when mounted in a horizontal orientation so, as it turns out, the precise tilt of the swing check valve is not critical as long as the flap valve is positively shut by gravity when initially installed.

Details and results

The cooling loop installed here uses 1.25 inch fin tubes with 1" tubing and 1" valves and fittings. The connective piping and fin tubes are sloped downhill, like a drain pipe from the highest point on the collector, across the back of the collector bank, all the way down to the bottom

recommendation or endorsement. ●

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

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

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

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



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The value of 'green'

BY MAX ROHR CONTRIBUTING WRITER

Green is a great marketing word. It is easy to say, easy to remember and is only one syllable. Green is synonymous with youthful, fresh, new and is the color of money. As a color, just adding a splash of it to a label or business card conveys an environmentally friendly message. However, the word may be losing its value. Green was formerly the symbol of the environmental movement but has now become an overused buzzword. Is the word green on the way to becoming a meaningless and immeasurable marketing adjective?

How do we quantify green? Part of the problem is that there isn't always a way to measure shades of green. Certifying bodies for green products and services are emerging and are a step in the right direction for measuring greenness, but the ways the products or services are graded is different in each case. Carpet padding, sustainable foresting methods and home appliances are all graded by different entities on different scales by different methods. To sort through what green is, and isn't, you either have to know the intricacies of all these different groups or hope that, in a few years, the stronger groups absorb more and more products and services under their umbrellas.

What about the certifications that look legit but aren't really substantial? I picked up a water bottle the other day. The label claimed that the bottle was "carbon neutral." The company's website even has a pdf of the certificate they earned. The label touts that the water is from a glacier in Iceland. If a plastic bottle in my hand in the United States contains anything that was transported from a glacier on an island in the ocean it probably isn't carbon neutral. That is a green oxymoron. Even if a manufacturer uses carbon offsets for every watt of energy that they use, does it matter if they are making something that is harmful to the environment?

Many manufacturers are turning to offsetting carbon to claim green credibility. A carbon offset is a situation in which some sort of green initiative is funded with a percentage of profits; a tree planting charity, for example, or a windpower farm. In theory, supporting renewable projects with business profits is great but, if a company is making the profit on something that isn't environmentally friendly, no amount of carbon offsetting will offset the actual environmental harm caused by the product.

A plastic water bottle is a good example of something that may never be carbon neutral. Single-use plastic containers are harmful to the environment, because they provide 15 minutes of hydration to someone and then spend the next thousand years somewhere on the Earth. Even if that bottle is recycled and other environmental factors are considered, it has to be transported and remanufactured into something else, which requires energy.

What is a good definition of green? In *The Green Marketing Manifesto*, by John Grant, green scenarios are categorized into good, better and best. Grant's ideal green product or service will set new standards in reducing environmental impact in a straightforward and honest way. It will effectively tell the story of why the changes made are important. It will support innovation and change the

way people use the product or service. For me, something like a recycled, reusable grocery bag fits these criteria. It changes wasteful habits by changing what we carry groceries home in, reuses existing material, requires collaboration with the consumer to be effective and sets a new standard for consumers.

What about the actual word green? If this word is too vague and overused, what if we start using another word or phrase? Here are a few alternatives:

- Environmentally responsible (Too many syllables and kind of preachy).
- Eco (Easy to say, but somehow more vague than green. From the Latin word oikos, meaning "house").
- Environmentally friendly (Too long, and if the product or service cleans up oil spills, dissolves into nothing or creates new national parks, it probably isn't friendly).
- Energy efficient (Maybe, but a little hard to relate to all green things; sustainably grown hardwood, for example).
- Low impact (Sounds like it will be expensive and not work well).
- Eco ethical (Not bad, but still hard to define. Is it ethical to polar bears or to a consumer's wallet?).
- Small footprint (Maybe. It makes you think of the bigger impact.)
- Verde (Spanish and Italian for green).

The alternatives to the word green seem as flawed as green itself. They are all just as complicated and vague. To some extent, green is in the same category as the word best. They are both bold words that imply something complex, but the proof will always be in the pudding. Maybe the word green doesn't need to be replaced; maybe consumers just need to pay more attention to whether a green claim is based in fact or is just a marketing ploy.

So, the next time you pick up a plastic water bottle that claims to be green by shaving down its cap profile a few millimeters or by some other method, opt instead for a locally sourced, sustainably grown, organic, minimally packaged, hollow coconut filled with water, because that is truly green. But make sure the hole is drilled with an energy efficient, solar- or wind-powered drill. ... Hmm, I guess this green stuff is really complicated. Maybe start by switching to a reusable water bottle and look for evidence of reputable green credentials in the products and services you use. ●

Max Rohr is a graduate of the University of Utah. He is currently an outside salesperson at Shamrock Sales in Denver. He has worked in the hydronics and solar industry for the last 10 years in the installation, sales and marketing sectors. Max is a LEED Green Associate and a BPI Building Analyst and is passionate about green technology. He can be reached at max.rohr@mac.com.

1. Grant, John. *The Green Marketing Manifesto*. John Wiley & Sons, 2007.



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Massive Makeover Goes Solar at Mass Mutual

Mass Mutual AVP Facilities and Green Initiatives Sean Anderson (l) stands with Mike Ortolano with Absolute Green Energy Corp amid the solar array.

For decades, Massachusetts Mutual Life Insurance Company (MassMutual) has recognized the importance of environmental responsibility, making it a key facet of the firm's corporate culture and citizenship. Recent new ultra-green initiatives demonstrate just how far the company is willing to push the envelope. It's a good thing, because, as we all know, the demand for resources increases as a company expands. Yet, MassMutual managers knew there was a better way.

The company's 1.3-million-square-foot headquarters in Springfield, Mass. includes hundreds of offices, a large kitchen and café, a health center, multiple meeting and conference rooms and, on the rooftop, two solar arrays with enough "wow" factor to impress solar connoisseurs.

There are now 96 four-by-ten-foot SS-40 solar thermal collectors manufactured by Solar Skies and a 528-panel photovoltaic array helping to offset some of the facility's energy needs. Installed near the solar thermal panels, the REC solar photovoltaic array provides the facility with 111 kWh of electric energy generation. Together, the two solar installations provide MassMutual with a combined savings of about \$100,000 a year.

"Growing energy consumption was a concern for MassMutual, both from a cost perspective and because of its impact on the environment," said David Brown, VP of MassMutual Corporate Real Estate and Facilities. "The solar installation was a great solution for both issues."

Other modifications throughout the facility add to the successful retrofit. All the changes add up to substantial savings and resulted in a

LEED Silver certification, awarded in early April.

Sustainability within reach

"MassMutual considered solar years ago, but never moved on it until recently, because we were waiting for the technology to become more efficient," said Sean Anderson, assistant VP of facilities operations. "Once the decision was made, the installation took very little time, thanks to a solid design."

Absolute Green Energy Corporation in Worcester, Mass., completed nearly all of the solar design for the project, on both the photovoltaic array and the solar-thermal array. "We're the turnkey integrator for the MassMutual PV system," said Mike Ortolano, president of Absolute Green Energy. "For the solar-thermal system, we did the engineering up front feasibility assessment and output estimates, then turned it over to Harry Grodsky & Co., the mechanical contractor on the job. They did the system design build."

"For this latitude, a 37-degree pitch for the solar collectors is the annual optimum," said Ortolano. "However, the collectors were set at 42 degrees, which provides slightly better performance in the winter, due to seasonal orientation and snow shedding."

Ortolano is quick to point out that the exact pitch is far less important than most people would expect. In fact, the PV collectors at MassMutual are at 20 degrees, so a ballast mounting system could be used. Going with a lower pitch makes the use of a ballast system possible. The advantage of a ballast,

or weighted system, is the elimination of roof penetrations. The solar array is simply "weighted down" to the roof. The higher the pitch on the panels, the more they act as sails, increasing the weight needed to hold down the array.

The roof itself was replaced just before the solar arrays were installed. The new roof is a heat-shedding white PVC membrane and is coupled with the added benefit of protective shading by the large solar arrays.

Although the solar arrays are the facility's most substantial "green" enhancement, MassMutual is no newcomer to the cause for sustainability. Their track record proves it. The main facility has electric car charging docks, offering free power to employees who commute to work in electric automobiles. The company also promotes a car pool program, with nearly 300 participating employees.

In addition to the solar installation, the best energy recovery technology is installed within the large kitchen's venting system. Exhaust fans are triggered by smoke and temperature, rather than running constantly, saving an estimated \$35,000 a year.

Heavy duty hot water

"The solar array is capable of providing up to 50% of the 4,900 gallons of 180-degree water required each day," said engineer Mark Jurkowski, head of the design-build department for Harry Grodsky & Co., Inc. "The new solar thermal system alone saves the company around \$30,000 a year."

The closed-loop solar thermal array produces 540,000 Btu an hour.

The energy takes a circuitous, yet very efficient, journey before reaching water fixtures throughout the building.

A set of Taco 1941 solar collector pumps circulates water from the solar array through two brazed plate, 330 MBH heat exchangers. The solar installation operates at a 15 degree ΔT , with a maximum solar loop temp of 220 degrees and a target temp of 205 in the hot water tanks. Given the extreme pressure changes that solar loops can endure, a Taco CBX series expansion tank was used to protect system components. The solar loop also includes a three-inch 4900 series micro-bubble air separator with internal pall rings designed to remove dirt particles as small as 35 microns in diameter.

Within the potable water system, a pair of Taco 1919B domestic water pumps circulates water through the brazed plate heat exchangers into four, 500-gallon storage tanks. These “solar target” tanks are connected to another 1,000 gallons of existing hot water storage. This reserve, under normal conditions, is used to supply hot water directly to all potable water points-of-use within the building.

The second loop from the heat exchanger tempers water from the utility supply. This solar-tempered water is used as the supply for two existing, 670 MBH, gas-fired water heaters.

The existing hot water system supplies the other 50 percent of heat for domestic water. In the winter, the storage tanks tap four 25 MMBh Babcock & Wilcox steam boilers that



A well-insulated pair of end-suction chilled water pumps with premium efficiency motors move water from the chiller unit to five large air handling units.



Matt Dorval, foreman with the Harry Grodsky & Co., Inc., works on a Taco condenser water pump and suction diffuser.

provide space heat for the entire 99-acre, eight-building campus. During the summer, when space heat isn't needed, the steam plant shuts down, and the two gas water heaters are activated.

As a safety mechanism, the solar array is designed to meet half of the facility's hot water needs. Without a “dump load” to back the system up in case of emergency, in addition to other safety devices, 50 percent of the domestic hot water is the most a solar array can safely supply. In the event that the glycol in the array reaches critical temperatures, a dump load flushes heat from the system into another body of water.

Often times, the hydronic heating system for a building can be used as the dump load, but the MassMutual campus uses a steam system. In this system, when the 4,000 gallons of hot water storage exceeds 205 degrees, a control valve opens, dumping hot water down a drain. At the same time, another valve opens, allowing 55-degree city water to enter the storage tanks. The control valves stay open until the tank temperature drops to 190 degrees.

The most likely scenario would be for this to occur on a sunny weekend, where there is little or no call for hot water from the facility. If for some reason the control valves wouldn't open, there is a fail-safe; emergency relief valves are set to open at 210 F.

The reason MassMutual can store so much water at such a high temperature is because of the mixing capabilities found in the mechanical room and the wide variety of temperatures the facility calls for. Three different water temperatures are used throughout the building. The bathrooms and locker rooms call for 120 F water, while the kitchen uses 140 F water at almost all fixtures. The industrial dishwashers use 180 F water.

LEED Silver system

A year before the solar project started, Harry Grodsky & Co. replaced more than 400 toilets and urinals with low-flush models. Also, as part of the water conservation effort, aerators were installed on all faucets. Combined, these two changes eliminate over 5.6 million gallons of water purchased annually. Including sewer treatment cost, it's saving MassMutual an additional \$30,000.

“We replaced an old chiller system in another building on campus at the same time we were there for the hot water project,” said Jurkowski. Two old 120-ton reciprocating chillers were torn out and replaced with an ultra-high-efficiency McQuay frictionless system.

Two Taco FI4011 chilled water pumps move water from the chiller unit to five large air handling units. Additionally, water is supplied to four fully-redundant Liebert computer room HVAC systems. These serve a 1,500-square-foot printing facility within the main building, where temperature and humidity must be carefully controlled. Two Taco condenser pumps move water from the chiller unit to the cooling tower. These system enhancements are estimated to save about 360,000 kWh in energy consumption.

With these and other ongoing energy improvements happening campus-wide, MassMutual has earned the privilege to point proudly to its “green” initiatives.

“The solar installation is an excellent addition to our facility,” concluded Anderson. “Now we have new reason to be disappointed when the sun doesn't shine. Combined with all the other changes, we're reaping the benefits of going green every day.” ●

FIELD REPORT



Viega ProPress® will LIVESTRONG® in Kansas City

U.S. Engineering, in Kansas City, Mo., has installed Viega

ProPress® copper in the new LIVESTRONG Sporting Park in Kansas City, Kan. The \$200 million,

365,000-square-foot stadium seats 18,500 people for soccer games and 25,000 people for concerts and is

one of the most technologically advanced stadiums in the United States. The park's first game was held on June 9, 2011. Construction on the LIVESTRONG Sporting Park began on April 1, 2010, starting with the underground work. Aboveground piping work began in June 2010. Viega ProPress, in sizes 1/2" to 2 1/2", was installed for use in domestic water, condensate drains and indirect food service drain applications.

ProPress offers the unique Smart Connect feature, which allows installers to identify unpressed connections immediately during pressure testing. This provides additional safety and time savings, helping installers finish their work on time or ahead of schedule.

Michelle Land is the senior project manager for U.S. Engineering, a mechanical contractor that works on commercial and industrial projects, including stadiums and office buildings. "ProPress is pretty much our company standard," Land said. "We use it company-

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FIELD REPORT



Fans enjoy a soccer match on a summer evening at the LIVE-STRONG Sporting Park facility.

wide. The Smart Connect feature helped us make sure all our connections were secure.”

U.S. Engineering chose to use ProPress because of its easy installation and safety features. “ProPress is easier to install in the field,” Land said, “and you have no risk of starting a fire, as you do when you solder. We really like it. We’ve tried competitors’ systems, and we like Viega ProPress better.”

According to Land, U.S. Engineering actually finished their work earlier than anticipated. “ProPress certainly made it easier to maintain the schedule,” she said.

Founded in 1893, U.S. Engineering believes that the more they put into a project, the more their customers will receive from it. They offer preconstruction

and fabrication services, as well as other services, such as mechanical construction and commissioning. They provide a high level of service, and their years of experience make them a leader in the industry.

Viega ProPress is the smart, secure method of joining copper tubing. And with Viega’s patented Smart Connect feature, you can be certain that you are providing the most secure, highest-quality installation in the industry.



ProPress offers the unique Smart Connect feature, which allows installers to identify unpressed connections immediately during pressure testing.

LIVESTRONG, founded by cyclist Lance Armstrong, has been helping to improve the lives of people affected by cancer since 1997. Portions of all stadium revenues, including ticket sales and concessions, are donated to fund LIVESTRONG’s programs. ●

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| GEOTHERMAL FORECAST |

A new year for GEO success

In 2011, the Geothermal Exchange Organization (GEO) established itself as the voice of the geothermal heat pump industry. We now have a full-time spokesperson, and we've renewed and intensified work with our Washington, D.C. advocacy team. Most importantly, we have begun the work of establishing GEO with numerous contacts at the state level.

We had an outstanding year at the federal level. GEO-inspired language in an appropriations bill that passed the Senate and House directs the U.S. Department of Energy (DOE) to develop a plan for research and development — and promotion — of geothermal heat pumps (GHPs). Given that 40% of all energy used in this country is for buildings, this new mandate is a huge success. It sends a very strong message from Congress that DOE must promote our technology to reduce thermal loads of buildings.

In the same bill, Congress restored funding to a cash-strapped Energy Information Administration (EIA). Restoring funding for EIA activities is a necessary win for our industry.

We must have credible technical data on GHPs going forward, data the EIA collected until its funding was cut last year. Restoration of those funds should prompt EIA to continue their data collection and analysis of GHPs.

Perhaps most important for the industry during 2011 was that Congress essentially ignored tax rebates in its quest to slash the federal budget. I think we're good for this year but, with a new Congress, 2013 may be a different story. Retaining the rebate is an issue that we must watch closely.

Also important for GEO was finding a champion for GHPs on Capitol Hill in Bernie Sanders (I-Vt.). He amended a bill that was passed and signed into law, directing the Economic Development Agency (EDA) to develop a pilot program for electric utility on-bill financing directed at GHP installations by small business. On-bill financing can go a long way towards reducing the sting of high upfront cost with reasonable terms and convenient installment payments.

We continue to work with



DOUG DOUGHERTY

congressional staff to include GHPs in a clean energy standard (CES) that Sen. Jeff Bingaman intends to introduce in 2012 as one of his final public policy initiatives before he retires from the Senate and chairmanship of the Senate Committee on Energy and Natural Resources. GEO chairman Dan Ellis and our Washington team met with the senator's senior staff in early January to convince them that GHPs should be included in the CES as a renewable energy source, alongside solar, wind and other renewable power technologies.

Though election-year politics will likely preclude the CES gaining any momentum in 2012, the key is for GHPs to be included in CES definitions. That's what we are working on for this year, a "placeholder" for future congresses, putting GHPs in any such legislation from the get-go.

A key GEO function for its members is forming partnerships for the good of the industry. I believe our natural partnerships are with fellow national trade associations that have helped "carry the water" for our industry. The National Ground Water Association; the American Society for Heating, Refrigeration and Air-Conditioning Engineers; Air Conditioning, Heating and Refrigeration Institute; American Council on Renewable Energy and the American Council for an Energy-Efficient Economy all have served as advocates for GHPs. Now that GEO is established, we are working to strengthen our relationships with those organizations and others, including the National Wildlife Federation and the Sierra Club.

For the future, I can't stress enough the importance of electric utility support for our technology. GEO believes that the utility industry can be a tremendous asset to us, as we can for them. The strategy is "carrot and stick." The carrot is GHPs as an accepted renewable energy source. The stick is regulation at the state level for

GEO 2011 — The Year in Review

- GEO conducts its first legislative fly-in, with the board of directors, president and CEO Doug Dougherty, staff, and members of the Washington, DC advocacy team convening meetings with key legislators and congressional staff to promote the U.S. geothermal heat pump industry.
- GEO makes the national trade news with several important publications featuring articles during the year about the association and the geothermal heat pump industry.
- GEO submits comments on Clean Energy Standard to the Senate Committee on energy and natural resources, establishing GEO as the "voice of the industry" in the eyes of Congress.
- GEO submits comments on U.S. Department of Energy Quadrennial Review, and Doug Dougherty testifies at DOE's Capstone Event.
- GEO negotiates favorable changes to EPA Most Efficient Program for 2011 and 2012
- GEO sends letter of support and testifies in favor of S.1142, the Geothermal Exploration and Technology Act of 2011 (introduced by Sen. Jon Tester), before the Senate Committee on Energy and Natural Resources. The bill, which promotes GHP research, passed out of committee by year's end.
- GEO meets with legislators and staff on the Hill, and key agency officials at DOE and its Federal Energy Management Program, the U.S. Environmental Protection Agency, General Services Administration, White House Councils, and the departments of Defense and Commerce.
- GEO exhibits at the Sustainable Energy Coalition Renewable Energy Expo on Capitol Hill
- GEO issues RFPs for DOE project to develop a national certification standard that will cover all aspects of geothermal heat pump installations.
- GEO convenes strategy retreat for the board of directors, staff and Washington team
- GEO efforts lead to On-Bill Financing Program signed into law, starting with testimony by Doug Dougherty in favor of S. 1142, and testimony in favor of the amendment before the Senate Public Works' Subcommittee on green jobs and the new economy by GEO board member Phil Schoen.
- GEO presents at IGSHPA 2011 Annual Conference and Expo, with a keynote address by Doug Dougherty, trade show exhibit, presentations on GEO/DOE project, and a legislative workshop.
- GEO language directing DOE to develop GHP strategic plan and increasing EIA funding was inserted into an appropriations bill that passed Congress and was signed into law.
- GEO begins to focus on the states, with attendance at a meeting of the National Association of Regulatory Utility Commissioners (NARUC), and participation in the first state of Maryland Conference on geothermal heat pumps, leading to GEO assistance in developing a plan for inclusion of the technology in the state's Renewable Portfolio Standard for electric utilities.

GREEN SYSTEMS

utilities to promote our technology to their ratepayers from an efficiency standpoint, while quietly reaping its baseload-building attributes.

More than 30 states have adopted either a renewable energy portfolio standard (REPS), an energy efficiency portfolio standard (EEPS), or both. These standards direct electric utilities to seek renewable sources of electric generation and/or to implement energy efficiency programs at the retail level. Unfortunately, no state has included GHPs in a REPS, and only six states specifically identify GHPs in an EEPS.

GEO has a lot of work to do at the state level. We must convince state officials that GHPs have a positive, dual purpose. Electric utilities can promote GHPs as highly energy efficient appliances, and they can take credit for the renewable energy that GHPs recover naturally from the earth. GEO has achieved success already. We've engaged the Maryland Energy Administration; they are very close to changing their state REPS to include GHPs.

We've established contact with the National Association of Regulatory Utility Commissioners, and we are working with a number of state GHP associations, not only to look at renewable energy standards but also to convince utilities that on-bill financing is a good thing for GHPs. Our work at the federal level will help pave the way. A number of states have on-bill financing, but it's for appliances. So there's a lot of opportunity for GEO at the state level to influence utilities to provide on-bill financing for GHPs and ground loops.

Before the recession, GHPs had a market penetration of only five percent for new home construction. I firmly believe that, when economic growth comes back in the latter part of 2012 and during 2013, our industry can easily capture up to 25 percent of the market. That's because we haven't stood still. We've focused on retrofits, built greater commercial acceptance, fostered awareness and knowledge about GHPs and built a more robust dealer network, with better trained installers and more drillers to install

ground loops.

In addition, federal policy is starting to ensure that the energy efficiency of homes will make a monetary difference for mortgage and investments. This will also help thrust GHPs into the marketplace for new homes. When builders of new homes are installing geothermal, other builders take notice. It's a snowball effect that is very exciting for the future of our industry.

GEO had a tremendous year in 2011, and I have high hopes for a better 2012. But if we are to have an even more prominent voice, we must grow. The bigger we are the stronger voice we will have at the national and state levels. Considering our competition — the fossil fuels industry and big renewables such as wind and solar — it's pretty clear that, for GEO to make a difference, we need "buy-in" from everyone with businesses related to GHP technologies. That includes manufacturers, distributors, dealers, architects, engineers, drillers, electric utilities and cooperatives. Together, we will succeed. ●

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What is your title?

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- General Manager 4 Supervisor 50 Foreman 60
- Estimator 70 Salesman 80 Engineer 90 Other 99

Which of the following types of contracting work does your firm perform? (check all that apply)

- Plumbing A
- Hydronic Heating (boilers/steam) B
- Bath/Kitchen Remodeling C
- Process Piping D
- Private Water Systems E
- Sprinkler/Fire Protection F
- Radiant Heating G
- Other

How many people does your firm employ? (check only one)

- 1-4 (1)
- 5-9 (2)
- 10-19 (3)
- 20-49 (4)
- 50-99 (5)
- 100-249 (6)
- 250-499 (7)
- 500+ (8)

What types of construction activity does your firm engage in? (check all that apply)

- New Construction A Service/Repair B Replace/Remodel/Rehab C
- Design/Build Contracting D Other (please describe on line)

What types of construction fields is your firm engaged in? (check all that apply)

- Residential (1-3 units/houses) A Residential (4 or more units/apts.) B
- Commercial/Institutional C Industrial D Other X

Which range properly describes your approximate annual sales volume in dollars? (Check only one)

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- 1,000,000-4,999,999 (4) 5,000,000-9,999,999 (5) 10,000,000+ (6)

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Armistead Mechanical, Inc. Services, awarded MSCA STAR qualified contractor renewal

WALDWICK, N.J. — Armistead Mechanical, Inc. Services (AMI Services), an affiliate of New Jersey-based Armistead Mechanical, Inc., has been awarded a renewal of its Mechanical Service Contractors of America (MSCA) STAR Qualified Contractor designation, which recognizes excellence in residential, commercial, industrial and institutional HVAC service. The

MSCA is a national trade association that represents heating, air conditioning, refrigeration, and plumbing service contractors.

Armistead Mechanical, Inc. Services, provides mechanical construction and contracting services to industrial and commercial clients throughout the New Jersey/New York area, and is among the largest employers of plumbers and pipe fitters in its region.

B&G® announces second quarter training at Little Red Schoolhouse®

MORTON GROVE, ILL. — Bell & Gossett, a leader in education for the hydronic heating and plumbing industries, has announced its training course schedule for the second quarter of 2012. The free training seminars are offered at the Bell & Gossett Little Red Schoolhouse Education Center in Morton Grove, Illinois, a suburb of Chicago, and are

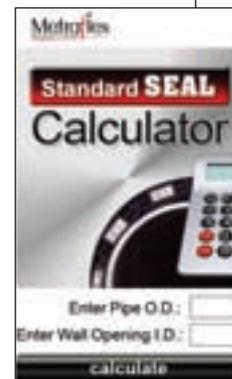
provider of continuing education for LEED professionals as approved by the Green Building Certification Institute (GBCITM). The Schoolhouse's Large Chilled Water Design Seminar and Modern Hydronic System Design Basic Seminar are the pump industry's first courses to be approved by GBCI to provide credit toward the credential maintenance requirements of the LEED Green Associate and LEED AP certifications.

The content provided in the two seminars (*) meets GBCI's goals of facilitating access to high-quality

professional development for those in the green building industry. The courses focus on the application of pumps and related products to enable

MetraSeal app wall penetration seal calculator available

CHICAGO — The new Metraflex MetraSeal app for iPhone and Android helps contractors and engineers quickly calculate the links required to fill a pipe gap in a wall penetration. Once installed on their smartphone or tablet, the app works without a cell signal, so calculations can be made anywhere, at any time, even where reception is non-existent.



water and energy conservation and improve building system efficiency.

"The Little Red Schoolhouse is an industry leader in training and we are excited to add increased opportunities for engineers, contractors and facility maintenance professionals to earn LEED continuing education credits," said Mark Handzel, director of building services marketing for Xylem.

The seminars are tailored to various job functions and areas of expertise and cover a wide range of important topics. The lead seminar instructors are LEED-Accredited Professionals. Upon completion of the three-day seminars, 1.7 CEU credits are awarded to graduates.

* Seminar approved by GBCI to provide credit toward the credential maintenance requirements of the LEED Green Associate and LEED AP certifications.

Modern Hydronic Heating Systems - Basic Seminar *	Mar 26-28
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Design & Application of Water Based HVAC Systems Seminar	Apr 30 - May 2
Large Chilled Water System Design Seminar *	May 7-9
Service & Maintenance of Water Based HVAC Systems Seminar	May 14-16
Modern Hydronic Heating Systems - Basic Seminar *	Jun 11-13
Design & Application of Water Based HVAC Systems Seminar	Jun 18-20

open to engineers, contractors and facility maintenance professionals.

New this quarter, the Little Red Schoolhouse is now a certified

Hurst Boiler launches new website

COOLIDGE, GA. — Hurst Boiler & Welding Co. Inc., launched its newly enhanced corporate website at www.hurstboiler.com. The website is a destination for information related to boilers, boiler systems, integrated controls, manufacturing, renewable energy and energy efficiency.

"Our new website reflects the company's leadership position in the boiler room marketplace," said Jeff Hurst, vice president of sales and marketing, Hurst Boiler. "We have raised our own bar by providing interactive tools and information for our customers, prospects and representatives."

Panasonic announces agreement with Ed Begley, Jr.

SECAUCUS, N.J. — Panasonic announced an exclusive brand license and endorsement agreement with noted environmentalist and actor Ed Begley, Jr. and his representatives.

Under the terms of the agreement, the company will use the endorsement of Ed Begley, Jr. in print and online campaigns to support the marketing of Panasonic HIT® solar panels.

Regal Beloit acquires A.O. Smith Electrical Products Co.; announces restructuring of HVAC units and brands

FORT WAYNE, IND. — As a result of Regal Beloit's acquisition of A.O. Smith Electrical Products Company (EPC) last summer, Regal Beloit has begun transitioning EPC's products to the Century™ and Genteq® brands. The A.O. Smith name may be used through August 2012, in accordance with conditions of the acquisition. Under the new organization, various brands and

product offerings are being consolidated under three distinct brands: Genteq, Century and FASCO®. EPC's motors and hermetics products for OEM customers will be rebranded Genteq. The Genteq brand currently specializes in premium ECM blower motors, capacitors and related products for HVAC OEM applications.

Zager Plumbing & Solar to install solar at office headquarters

DEERFIELD BEACH, FLA. — Zager Plumbing & Solar Inc. is kicking off 2012 with the installation of a 10 kW grid-tied photovoltaic system at its office headquarters, located in Deerfield Beach, Fla.

With the recent drop in prices for solar panels, coupled with the FPL solar rebates, now is a better time than ever to install solar on your home or business if you live in the south Florida area. Zager Plumbing & Solar Inc. was able to secure a \$20,000 rebate through FPL's Business Photovoltaic Pilot Project, which, along with the 30% federal tax credit currently being offered, will help to make the installation extremely cost-effective.

The company sees this as an excellent opportunity to lead by example. Dale Zager, president of Zager Plumbing & Solar Inc., said, "There are a lot of solar installers throughout Florida; however, hardly any have put solar on their office buildings or warehouses." The company hopes that the installation will serve as a demonstration piece for the surrounding community and create positive support for solar energy. "With all the negative publicity the solar industry has received recently regarding the Solyndra scandal, it is easy to overlook the continued benefits of installing a solar energy system," said Zager.

The installation will consist of 46 solar panels mounted to the roof and will be designed to withstand winds of 145 mph. The project will also utilize a performance monitoring system that will show the current and cumulative energy production along with carbon and environmental

offsets. This data will also be available on the company's website at www.zagerplumbingandsolar.com.

Utility customers are able to sell back excess electricity generated by their solar energy systems to the power companies through net metering. Implementing solar projects is also helping companies to promote environmental sustainability initiatives. The new solar energy system at Zager Plumbing & Solar Inc. will offset more than 20,000 lbs. of carbon emissions every year.

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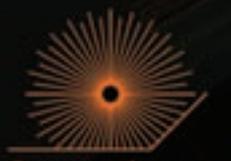
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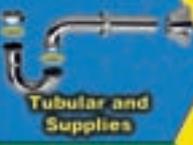
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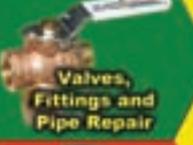
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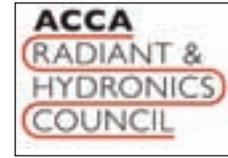


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ACCA: Beyond the palindrome

BY JOHN MESENBRINK, EDITOR



The newly formed Radiant & Hydronics council (RHC) has gained more momentum as it shared part of the 2012 ACCA Conference — which boasts the largest, most exciting learning experience for indoor environment businesses — held in Las Vegas, March 5-8. Look for a more involved radiant and hydronics representation at next year's show. Also, stay tuned as the RHC looks to sponsor "The Hydronics Roundtable," a new two-day conference aimed at hydronics professionals, tentatively set for later this fall. The conference will feature a variety of learning labs led by leading hydronics contractors.

Formed only five months ago, the ACCA Radiant & Hydronics Council (RHC) has attained a membership of more than 500 contracting businesses, making it the largest hydronics contracting organization in the country. "We are extremely pleased with the number of contractors we have on board with the RHC," said Paul T. Stalknecht, ACCA president and CEO. "We knew there was a need for a contractor-led organization that was focused on hydronics when we started the RHC, and the response we've seen shows us that we were on the right track. Led by a dedicated and knowledgeable group of hydronics contractors, the RHC is just getting started, with new training materials, products and events underway for 2012."

The broad goal is to have a strong organization

that represents the hydronics contractor. "We are a contractor-focused, contractor-driven and contractor-led organization," said Dan Foley, chairman of the RHC. This council could not have been organized without the support of ACCA. According to Foley, "We are an advisory council that reports to, and is accountable to, the ACCA Board. We are part of ACCA. The entire organization covers the entire comfort equation: heating, cooling, radiant, hydronics, humidification, filtration and IAQ. All of these components are necessary to deliver comfort to our clients. No one component can stand alone. It is only natural for one organization to cover all aspects of comfort delivery. ACCA is it."

One of the most valuable tools is the ACCA MIX (Management Information Exchange) Groups. "ACCA has had this program in place for years but we are tailoring this program to hydronics contractors. Think of it as a board of directors for your company. Like-minded, non-competing contractors meet several times a year to compare best practices, review financials and share ideas. This is one of the most popular and well-regarded ACCA resources," said Foley. ●

The Air Conditioning Contractors of America (ACCA) is a non-profit association serving more than 60,000 professionals and 4,000 businesses in the HVACR community, who work together to promote professional contracting, energy efficiency, and healthy, comfortable indoor environments. For info, www.acca.org.

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