

A TMB Publication

Phc News

plumbing & hydronic contractor news

Water heater market analysis

See story on page 38



WIN A
PRESSING
TOOL!

CORPORATE
REPORT –
CONBRACO

VARIABLE
SPEED
CIRCS

See contest details Page 22

Triumphing over the economy ..Pgs. 44-45

Get the simple facts Pgs. 46-48

Introducing the

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Efficient



Peak Performance for Hydronic and Radiant Heating

HIGH EFFICIENCY

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- Multiple venting options



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1
2
3



What gives you **maximum performance** in all three speeds?



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NRF-36



NRF-45

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- Optional high-temperature check valve
- A 3-year warranty and the support of B&G's excellent service reputation

For more information contact your Bell & Gossett Representative or visit www.bellgossett.com.



Engineered for life

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On the Cover

How does the water heater market project for late 2009 and 2010? Industry experts weigh in on the state of the water heating industry. See story on page 38.

On the cover: Chuck Appleby, owner of Old Lyme, Conn.-based Appleby Plumbing Co., a third-generation family business, sweats a connection for a Bradford White eF water heater.

(Note: For the sole purpose of this cover shot, safety goggles were not used. However, safety eyewear always should be used while soldering.)

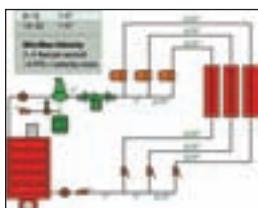
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44 Conbraco on a roll

Morris Beschloss interviews the moving forces behind Conbraco: President Glenn Mosack and senior vice presidents Carole Mosack Lee and Cal Mosack. They offer insight as to how Conbraco is thriving in a weak business climate.

46 Variable-speed circs – a primer

Yes, there's math, but variable-speed hydronic circulators follow the universal hydronics formula; this article demystifies the aura surrounding a technology that has been with us for quite some time.



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plumbing & hydronic contractor news

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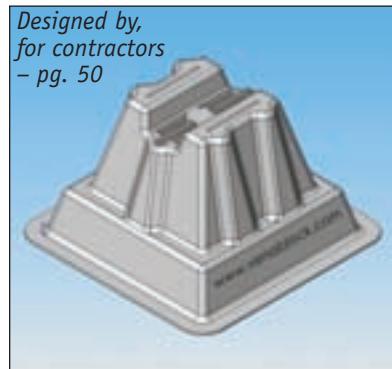
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Sending drains to college — pg. 20



Who Says It's Not Easy Being Green?



Fujitsu makes it hard not to be green with a Federal Tax Credit of 30% and utility bill savings of up to 50%.

With today's economy in turmoil, green is the "in" color. Most people don't realize that as much as half of the energy used in their home goes to heating and cooling. Fujitsu's energy efficient ductless mini-split heat pumps can save homeowners up to 50% on their heating and cooling bill.*



Homeowners can claim 30% of the equipment and labor costs (up to a \$1,500 limit) in 2009 and 2010 on qualifying Fujitsu systems: 9RLQ, 12RLQ, 9RLS, 12RLS, 15RLQ.

Fujitsu has the most efficient heat pump in North America — **26 SEER**, plus 10 Fujitsu systems are ENERGY STAR® qualified in 2009.



Fujitsu not only manufactures green equipment, but we have reduced our factory's carbon emissions to below 1990 levels while doubling production.



*Savings may vary based on model selected, hours of operation and geographical location. Example given based on 26-SEER system versus 13-SEER system.



To find out how you can become a Halcyon Dealer and how being green can make you more green, visit www.fujitsugeneral.com



UL joins Commerce Dept. water standards dialogue

NORTHBROOK, ILL. — Underwriters Laboratories (UL), a global leader in drinking water quality and safety, participated in a U.S. Department of Commerce digital video conference to discuss water quality and safety issues in India. The conference was part of an ongoing series of digital video conferences aimed to develop commercial relations between the United States and India through industry-specific technical dialogues.

The forum, organized by UL, focused on regulatory developments, safe drinking water standards and the existence of conformity assessment capabilities to improve India's drinking water quality and safety.

"With increased pressures to manage human and industrial water properly, India is seeking counsel to help safe-

guard its water supply," said Dr. T.N.V.V. Rao, regional business development manager for UL. "UL is working with government and industry stakeholders in India to address the country's drinking water quality issues. Dialogues like the one the Department of Commerce hosted are essential to leveraging the benefits of conformity assessment for the Indian water market."

Key stakeholders from the United States and India were invited to help lead the safety discussion. Representatives from the U.S. Environmental Protection Agency, U.S. Food and Drug Administration, National Accreditation Board of Laboratories, Planning Commission of India, Bureau of Indian Standards, Quality Council of India and Confederation of Indian Industries will join Dr. Rao at the conference.

Quietside launches new website

CARLISLE, PA. — Quietside Corporation, the largest Master distributor of HVAC products in North America, has announced the launch of their new user friendly website. The company recognized the need to redesign their current website not only to share key information with

their current whole sale distributors and contractors that install their units daily, but also to inform home owners of the growing need to install energy efficient products in their homes. To visit the new website, visit online at www.quietside.com.

AT&T, Xora Inc. to offer tracking solution

DALLAS AND MOUNTAIN VIEWS, CALIF. — AT&T and Xora Inc. announced a GPS locator application that will provide small and medium-sized businesses with real-time visibility into the location of their mobile workforce. The new, easy-to-deploy solution is a Software-as-a-Service (SaaS) application designed to help AT&T business customers improve the productivity and accountability of field-based employees, as well as lower expenses related

to overtime and fuel costs.

The application — Xora GPS Locator from AT&T — is compatible with most AT&T mobile devices, from the most basic phone handsets, to the ruggedized Motorola Tundra™ and Samsung Rugby™, to smart phones such as the BlackBerry® Bold™, to laptops and specialty industry devices. For more information regarding Xora GPS TimeTrack, go to <http://www.xora.com>.

New hydronic website launched

A NEW WEBSITE, www.hydronicworkshop.com, is a hydronic, contractor-direct, online wholesaler with major discounts for contractors. Hydronicworkshop.com is the preferred online wholesaler for Precision Hydronic Products line of manifolds, pre-assembled near boiler piping modules and cost effective hydraulic separators for primary/secondary piping of hydronic heating systems. All Precision Hy-

dronic Products are pressure tested, warranted and made in an ISO certified facility. These products are shipped factory-direct, saving you time and money.

Go to www.hydronicworkshop.com and fill out a simple form to register.

Additional manufacturer direct solar and modular radiant heating board products are available to expand your hydronic business.

PHCC CONNECT 2009 seminars to help contractors build business

FALLS CHURCH, VA. — The Plumbing-Heating-Cooling Contractors — National Association will present several thought-provoking sessions on emerging markets and cutting-edge business strategies that increase profits during the Oct. 21-23 annual convention, CONNECT 2009, in New Orleans. The educational programs are geared toward helping p-h-c contractors learn the newest trends and practices essential to building business today and in the future.

The latest green practices will be covered during several sessions, including GreenPlumbers® workshops on inspection report services and solar hot water and separate seminars on selling "green" to commercial and residential customers. A timely residential fire sprinkler design and installation seminar will be offered to help contractors evaluate this emerging market, which has been sparked by an International Residential Code requirement for residential fire sprinklers.

Expert insight into what the future

holds on the economic, political and home comfort fronts will be provided by featured speakers Stuart Varney, business and financial journalist for FOX News, and Richard Trethewey of "This Old House." A diverse range of seminars will be offered on topics like:

- Is Fabrication for You?
- How to Get the Net Profit You Desire
- Industry Panel: Determining Roles for Success

• Selling in a Down Economy

• Year-end Tax Planning

Many other up-and-coming trends and opportunities for new work will be revealed during a Product and Technology Showcase when contractors can learn about new products, technologies and advancements. Manufacturer-sponsored Learning Labs will delve into the latest trends affecting the industry. For example, InSinkErator will present important information about the beneficial impacts of food waste disposers.

For more information, www.phccweb.org/convention.

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Save 25% more water with the new H₂Option™ Siphonic Dual Flush Toilets.

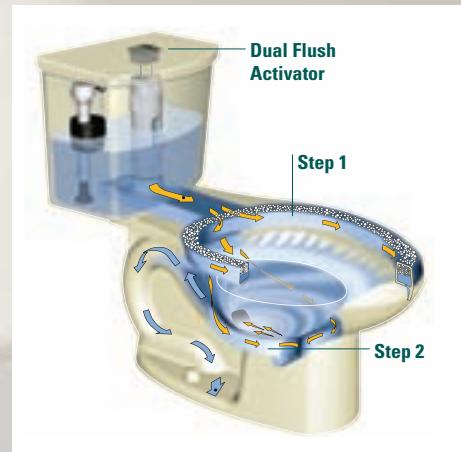
Everybody wants to save water, but nobody wants to sacrifice a good, effective flush. The new H₂Option™ Siphonic Dual Flush Toilets solve that dilemma by delivering a stronger, cleaner and quieter flush than typical dual flush toilets. Our patent-pending, siphonic-action technology provides exceptional performance in both 1.0 gpf light flush and 1.6 gpf heavy flush settings. The result? Cleaner bowl and improved water savings.

To learn more, visit us at americanstandard.com.

Powerful at both light and heavy flush settings

- 1.6 gpf setting achieves maximum 1000g MaP score for bulk removal*
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* MaP testing performed by IAPMO R&T Lab per MaP protocol outlined by Veritec Consulting and Koeller Company.



Two-Step Siphonic Action

- Step 1
Pressurized PowerWash™ rim scours the bowl clean
- Step 2
Jetted siphonic bowl action quickly and completely evacuates bowl contents



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Style That Works Better

Grundfos launches the 'Impossible Tour'

ALLENTEW, PA. — Grundfos Pumps launched the "Impossible Tour," a mobile education center for pumps and pumping systems, with a special daylong event and celebration at the newly renovated Allentown, Pa. distribution center.

The Impossible Tour is part of the "Powered by the Impossible" campaign promoting the launch of the



New ALPHA circulator. With stops in over 40 cities across the United States, including Washington, D.C., Chicago, Denver and Portland, Ore., the truck features many of Grundfos Pumps products including the ALPHA

and recently released CR-H. Each event will allow contractors to gain hands-on training from Grundfos professionals and the chance to experience interactive pump displays.

"The Tour allows contractors and engineers a chance to experience new technology that Grundfos has to offer," said Dennis Wierzbicki, president of Grundfos Pumps USA. "This

mobile education center allows the attendees to gain training and knowledge on the latest products Grundfos Pumps have to offer."

For more info, visit www.poweredby.grundfos.com.

Cannistraro provides full dimension of BIM solutions

WATERTOWN, MASS. — J.C. Cannistraro, LLC is prepared to help lead the construction industry into the twenty-first century through advancements in Building Information Modeling (BIM). The New England based mechanical construction firm has announced the launch of its multi-dimensional BIM services for building owners and facilities managers.

After months of research and product planning, Cannistraro has compiled a suite of services that greatly improves the efficiency of project scheduling(4D), cost verification(5D), and facilities management(6D) using a computerized building model. Solutions can be adapted for both new construction and existing buildings, and can be customized for an owner's project needs. To supplement its product launch, Cannistraro has begun host-

ing a BIM Breakfast Series to promote the many benefits of collaborative BIM for all types of projects.

For more information, visit www.cannistraro.com.



Green business alliance launched

DALLAS — On August 10, 2009, GREENERGY2030.com will launch its free media network as a place to bring "green change" to the world through education, legislative efforts, media outreach and the dissemination of information about alternative energy and sustainable business practices. Through the Greenergy2030 Business Alliance, Greenergy2030.com will serve as a catalyst for entrepreneurs and business professionals seeking to take an active role in their community/industry while positively impacting others' lives, and the world. Green change is what the Greenergy2030 Business Alliance is all about.



"Our vision is to have one million entrepreneurs/professionals on this network by 2030 representing a conservative \$2/5B in overall annual energy savings/reductions. Through the power of technology and real member commitment to green change, we can accomplish these goals," said JD Carr, co-founder Greenergy2030.com.

The Alliance also offers an eco-certification program that is designed to step a small business through the process of becoming an eco-friendly organization while implementing sustainable business practices that will positively impact the bottom line.

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Circle 9 on Reader Reply Card

10

THE PULSE

TOOL TIPS *with Hackman*

MAPP™ gas vs. propylene gas

Tool Tips feature trade tips from Lee "HACKMAN" Breton, marketing services manager for LENOX, team HACKMAN event manager and ear cutter extraordinaire. Every month, HACKMAN shares insight from his 25+ years in the tool industry.

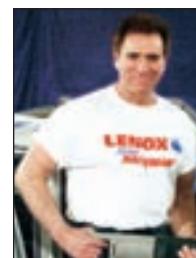
A big advantage to using MAPP gas was that it had the hottest burning gas temperature for hand torches in CGA600 disposable gas cylinders. Back in April 2008, the sole manufacturer of MAPP Gas, a petrochemical company in Canada, closed their doors and as a result halted the production of MAPP gas forever. This forced the industry to find an alternative to MAPP — a search that lead professionals to propylene gas.

Propylene gas is very comparable to MAPP in that it has superior flame characteristics to other fuels and can therefore be used for many of the same applications like brazing, soldering, metalizing, and flame cutting.

The following are the flame temperatures for MAPP gas, propylene gas and propane gas. With the elimination of MAPP, Propylene gas has taken its place as the hottest available for hand torches.

Flame Temperature (in air):

MAPP gas — 3750 degrees Fahrenheit
Propylene gas — 3730 degrees Fahrenheit
Propane gas — 3600 degrees Fahrenheit.



There are currently two choices available when buying a disposable gas cylinder for hand torches. The first is the more traditional 14.1 oz. size available in both propylene and propane gas. The second is the recently introduced Fat Boy™ canister that contains 16.92 oz. of Propylene or Propane gas cylinders.

The Fat Boy cylinder delivers 20% more fuel than the traditional size allowing for longer running time and less changing out of canisters on the job. The new design of this canister is 25% shorter for greater accessibility in tighter work spaces. The new shape also has a larger base diameter to increase stability. A Green Key™ in the cap can be used to drain out



any excess gas once the cylinder is empty — allowing it to be thrown out in the normal trash or recycled through a steel recycler.

FUELS

GASOLINE		DIESEL	
Area	\$/gal. Change	Area	\$/gal. Change
U.S. average	2.557 ↓	U.S. average	2.550 ↓
East Coast	2.525 ↓	East Coast	2.579 ↓
New England	2.578 ↓	New England	2.637 ↓
Central Atlantic	2.578 ↓	Central Atlantic	2.671 ↓
Lower Atlantic	2.469 ↓	Lower Atlantic	2.535 ↑
Midwest	2.512 ↓	Midwest	2.520 ↓
Gulf Coast	2.433 ↓	Gulf Coast	2.513 ↓
Rocky Mountain	2.507 ↓	Rocky Mountain	2.537 ↓
West Coast	2.829 ↓	West Coast	2.643 ↓
California	2.896 ↓	California	2.763 ↓

METALS

*Copper \$2.82/lb. ↑ | **Aluminum \$0.86/lb. ↑

Prices valid as of 8/3/09. Fuel information courtesy of the U.S. Department of Energy <http://tonto.eia.doe.gov/oog/info/gdu/gasdiesel.asp>. Arrows indicate change from previous issue.
* Copper prices according to NYMEX.com. ** Aluminum prices according to metalprices.com.

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Triangle Tube names Western regional sales manager

BLACKWOOD, N.J. — Triangle Tube is pleased to announce the hiring of Rick Mayo as its Western regional sales manager.

Rick joins Triangle Tube with more than 30 years experience in the heating industry and has a solid background in hydronic systems, including system design, start-up, consultation and troubleshooting. He is also an accomplished technical trainer.



Mayo

Gerber Plumbing Fixtures names regional sales managers

WOODRIDGE, ILL. — Ed McCoy has been hired to serve as regional sales manager for Gerber's wholesale team in Carmela, Indiana. In addition, Melissa Berecek-Hays has been

promoted to serve as regional sales manager of new construction in the Western division.

Bradley Corp. announces promotion

MENOMONEE FALLS, WIS. — Bradley Corp. has promoted Erik Mullett to vice president of Division 10 Sales.

Previously, Mullett was regional sales manager for Division 10 Products. In his new role, his responsibilities have expanded to develop the traditional sales channel operations for Bradley's Accessory, Mills Partitions and Lenox Locker product lines.



Mullett

Danfoss product manager receives ASHRAE award

BALTIMORE — Danfoss product manager Mark Hegberg received the Exceptional Service Award from the

American Society of Heating, Refrigeration and Air-Conditioning Engineers (ASHRAE) during the society's annual meeting June 20-24 in Louisville, Ky.

The award recognizes ASHRAE members who have served the or-



Hegberg (center)

ganization faithfully and with exemplary effort.

Roth Industries names VP of sales & marketing

SYRACUSE, N.Y. — Roth Industries has promoted Joseph Brown to senior vice president of sales and marketing. In his new role he will oversee both Roth companies, Roth Industries and Roth Global Plastics, in North America.

NATE honors Top Techs

ARLINGTON, VA. — North American Technician Excellence (NATE) recognized the Five Top Techs from across the country: Tom Bush from Norton, Va.; John Drye from West Lebanon, N.H.; Keith Kane from Omaha, Neb.; Bob Millen from Pratt, Kan.; and Thomas Neary from Rochester, N.Y.

PMI welcomes new chairs

ROLLING MEADOWS, ILL. — Plumbing Manufacturers Institute president Walt Strader of Price Pfister has selected new chairs to serve on PMI's Focus and Standing Committees.

The Materials Performance Issue Committee will be co-chaired by Alston Williams of Price Pfister and Craig Selover of Masco, who was reappointed to a second term as chair. Maja Jankov of Duravit USA will chair the Universal Conformity Assessment Standing Committee with current chair Jeff Baldwin of T & S Brass and Bronzeworks.

The Fair Trade Issue Committee welcomes Dale Gallman of Bradley Corp., who will serve with Robert Easter of Coast WET.

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Energy from nature.

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

- 5 YEAR WARRANTY
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The new math: 1 = 4

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

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From ultra-high efficiency, condensing gas and oil boilers to fossil fuel independent, complete solar thermal systems and wood boilers, Buderus has a dependable and efficient answer for all your heating needs.

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Comfortable. Efficient. Intelligent Heating.

Buderus
Bosch Group

Circle 12 on Reader Reply Card

PMI leads green coalition

ROLLING MEADOWS, ILL.—A coalition led by the Plumbing Manufacturers Institute recently helped Texas join California as the second state nationwide to require high-efficiency toilets (HETs) in all new residential and commercial construction. An HET is defined as a water closet that

uses no more than 1.28 gallons of water per flush (GPF), or 20% less than the 1.6-GPF models mandated by the National Energy Policy Act of 1992 (EPAct).

Texas House Bill 2667, which was signed into law by Governor Rick Perry on June 19, also sets maxi-

mum showerhead flow rates at 2.5 gallons per minute and urinal flush volumes at 0.5 GPF. Effective September 1 of this year, the legislation mandates that toilet and urinal manufacturers phase in HETS over the next four years, starting with 50% of in-state sales by January 1, 2010, and culminating with 100% by January 1, 2014.

For more info, pmihome.org.

NAOPSP draws Showroom pros

ACCORDING TO Peter Schor, industry educator, there are 200+ members that have joined the National Association of Plumbing Showroom Professionals (NAOPSP) Association (www.naopsp.com). The mission of the NAOPSP is to develop and to give the plumbing showroom consultant and showroom manager a network of like professionals to interact with in all levels and responsibilities of the plumbing showroom profession, including: support, education and development resulting in positive change for the profession on a national level.

"The NAOPSP is open to the plumbing contractors with showrooms across the States and Canada. There are hundreds of plumbing contractors with showrooms that will gain great value from the membership, which, by the way, is free," said Schor.

The association will accomplish this via interaction of showroom professionals members manufacturers, and the media. The NAOPSP will seek to support its members through networking, education and interaction with plumbingware manufacturers. This association is not about negotiating better discounts on materials from vendors or manufacturers. There are many "buying groups" that currently do this successfully. The website currently has a member list; LinkedIn group discussion on various subjects; an employment tab; and industry link tab.

MIRO Industries boasts new division

SALT LAKE CITY — MIRO Industries, a leader in rooftop support products announced a new division that will concentrate on innovative, economical rooftop sleeper support products to provide support for conduit and condensate on commercial rooftops. The new division will be called Rooftop Sleeper Support, Inc. and will be a viable alternative to wood products that are often fabricated on the commercial roofing job site. The initial Rooftop Sleeper Support product, RSS4, is made out of recycled PVC material and unlike wood products will not decay or rot over time, which can create failure in the support of conduit as well as damage to the commercial roof membrane. Made in the U.S.A., the RSS4 sleeper support comes in a white color to match the trend in commercial roofing to energy efficient white reflective roofs that reduce building energy consumption and decrease the effects of urban heat islands and air pollution.

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FIELD REPORT

Phc News – AUGUST 2009

Challenge met at government facility

President Obama recently addressed the nation and announced his plan for reviving the weakened U.S. economy. One of the plan's primary focus is on energy efficiency; by investing in the greening of homes and lifestyles, America can reduce waste and spur innovative opportunities.

The speech was well received and many saw the trend before President Obama even announced it. One such case is the partnership between United Mechanical in Dallas, a private

kitchen, showers, numerous lavatories and even a salon. Two 1-million BTU gas-fired boilers, along with a 2,000-gallon storage tank, had been serving the entire compound for decades. When the new Administration made its green intentions known, the facility contacted United Mechanical for advice and help.

Gary Scoggins, design engineer, was charged with the task of designing a system that would service the needs of this mammoth facility. The objectives were to maximize efficiency, ensure



Mike Edenstrom, head installer who built the system at the government project, readies for another day at the job site.

design and build contractor with more than 60 years of experience in specialized skill projects, and a 1-million-square-foot government facility that has an antiquated boiler system serving its modern hot water needs.

The facility (its identity undisclosed due to security) features an onsite commercial



Three pairs of Eternal Hybrid water heaters serve three different zones of the facility. The units are on a header system, allowing for easy swap-out and recirculation to provide quick hot water delivery. Six 200K Btu heaters can closely match the output of the original 2M Btu boilers.

reliability, and improve serviceability. Gary tackled the challenge by carefully monitoring and measuring the usage pattern and actual flows of each fixture. After studying the Facility's hot water needs, a plan was formed.

United Mechanical's highly talented Mike Edenstrom, head installer, zoned the project into three separate loops servicing different functions of the facility. Six Eternal Hybrid water heaters were chosen for ease of installation with PVC venting and recirculation friendly characteristics. Each zone is serviced by two Eternal Hybrids in parallel manifold.

The install is carefully planned as hot water service cannot be interrupted even as new equipment is being installed. Mike skillfully met the facility's requirement by configuring a header system that allowed quick switching of equipment without stopping the hot water service. He also built a custom rack that houses the six Eternals allowing any single unit to be swapped out quickly should any single one go down.

Even more impressive, the original equipment took over 200 square feet of space and the mechanical room was very difficult to walk in and out of. After replacing the old system with just six Eternals, the Facility's maintenance crew is overjoyed by the newfound space and ease of access to servicing the equipment. The new system takes up just over 10 square feet of space.

The project was completed just before 2009 rolled around, and the facility is very happy with the results. Not only did United Mechanical and Eternal meet the green challenge, but the hot water service is better than ever. ■



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When you install antimicrobial handles from Chicago Faucets, you benefit from Sureshield® Antimicrobial Technology; a process that provides a consistent release of antimicrobial compounds regardless of the amount of moisture present. An easy retrofit for existing products, and a versatile option for new installations, Chicago Faucets antimicrobial handles are designed for prevention and provide an easy way to add a new level of protection to a facility.

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Chicago Faucets & The Buy American Act

The American Recovery and Reinvestment Act recently signed into law includes a Buy American provision favoring domestic sources. Selecting products that meet the requirements of this Act can help support jobs across the USA and assist in our economic recovery. Over 95% of Chicago Faucets products, more than 1,700 items, meet these requirements. Chicago Faucets... unwavering commitment to quality, backed by know-how and determination that is uniquely American.

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Chicago Faucets Expands Electronic Lavatory Faucet Offering

Chicago Faucets most recent efforts to unite reliability and durability with electronic faucet convenience has resulted in the E-Tronic™ 40. The new line features above-deck electronics for easy maintenance, long-term reliability, and offers a choice of a CRP2 battery or AC adaptor. Uncomplicated installation, easy maintenance and reliability, combined with the water conservation and added hygiene offered with hands-free faucets, make the E-Tronic™ 40 an attractive choice for public lavatories.



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A New, Economical Option for Lavatory Installations

The new 420-CP Single Control Lavatory Faucet from Chicago Faucets combines the durability of solid brass body construction with the dependability of a time-tested ceramic mixing valve. Other features include a polished chrome plated finish, metal lever handle, temperature limit stop, volume control and a 1.5 GPM laminar flow outlet. Easy to install and easy to maintain, the ADA compliant Chicago Faucets 420-CP is a great option for any commercial project.

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Construction employment declines in 333 out of 352 metro areas

ARLINGTON, VA. — Construction employment declined in all but 19 communities nationwide this June as compared to June-2008, according to a new analysis of metropolitan-area employment data released today by the Associated General Contractors of America. The analysis, which ranks the 12-month construction employment change reported by the Bureau of Labor Statistics for 352 metro areas, shows that few places in America have been spared the widespread downturn in construction employment over the past year.

"Construction workers remain, unfortunately, on the leading edge of job losses during this recession," said Ken Simonson, chief economist for the contractors association. "While other sectors of the economy have been hit hard, construction employment has been devastated."

Simonson said that construction employment declined in 333 metropolitan areas since June-2008. The worst hit was Pascagoula, Miss. and Reno-Sparks, Nev., which both lost

one out of every three construction jobs over the past year. More than 200 metropolitan areas suffered double-digit percentage declines in construction employment in the past 12 months, Simonson added.

The association's economist said only 10 cities saw increases in construction employment since the previous June. Those cities include Columbus, Indiana where construction employment shot up over 31% from the previous June and the Weirton-Steubenville area along the West Virginia-Ohio border where construction employment climbed almost 17%. Nine other metro-areas saw no change in construction employment.

Stephen E. Sandherr, the association's chief executive officer, urged Congress to pass a surface transportation bill that the association estimates would create or save over 616,000 jobs for each of its six years. He added that Washington also needed to act on long-delayed legislation to finance vital water, aviation and maritime infrastructure projects.

American Standard creates e-Learning Center

PISCATAWAY, N.J. — American Standard has launched an e-Learning center to provide free product knowledge and sales training to plumbers, showrooms and other building trade professionals. The e-learning center is accessed through the Resources for Professionals section of www.americanstandard.com.

The self-paced training is presented in three modules. The toilets module helps professionals learn how to edu-

cate their customers about high-efficiency toilets, high performance toilets, and third-party performance testing resources, such as Maximum Performance Testing. The faucets module explains how ceramic disc valves, solid brass bodies and high-tech protective finishes deliver guaranteed lifetime performance.

The third module, on water efficiency, has been the most popular.

Cooper New England earns Liberty Pumps top rep award



ROCHESTER, N.Y. — At its recent national sales meeting, Liberty Pumps awarded Cooper New England Sales with the number one rep award for 2008. Pictured from Left to right are: Chuck Shaver, Dave Kinnier, Chuck Schwabe (national sales manager — Liberty Pumps), Charlie Cook (president — Liberty Pumps), Randall Waldron (V.P. of sales & marketing — Liberty Pumps) and Scott Cooper.

The 2-day meeting attended by over 90 sales reps included technical training sessions, live product demonstrations and a tour of the newly expanded manufacturing complex.



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Solar radiant heated apartments lead way in eco-friendly building

ALAMOSA, COLO. — A 40-panel solar heating system is helping to provide the heat for comfortable radiant floors at the Kiva Apartments. Built by owner Mike Peterson, the 18-unit apartment building was constructed to higher energy code standards than what is typically seen in commercial buildings. A tighter building with higher R-values in the walls and ceilings allow for less energy needs for both the heating and cooling season and allow for lower water temperatures supplied to the radiant



floor. This means the solar heating system is capable of supplying a larger fraction of the space heat.

The system was designed and supplied by Low Energy Systems of Denver, a wholesaler specializing in the design of solar and radiant heating, tankless water heaters, and high efficiency hydronic products. Installation was carried out by Randy Valentine, proprietor of Valentine Plumbing and Heating, in Alamosa.

The system uses 40 Buderus SKN 3.0 flat plate collectors (972 square feet of net aperture area) that exchange heat to a 5,900 gallon (22,335 Liters) insulated and lined concrete tank. The system provides 53 percent of all energy needed for space heating and domestic hot water (DHW). Other highlights of the system include a wall hung condensing high efficiency boiler by Triangle Tube; a smart pump with ECM motor by Wilo, which saves 80 percent over standard on/off circulators; modulating non-electric zone valve/thermostat combinations by Oventrop that provide more uniform air temperatures in the zones and are more reliable than standard 24 volt zone valve/thermostat combinations, plus contribute to additional energy savings due to their modulation.

The owner applied and received a grant from the Department of Agriculture for 25 percent of the solar heating system's installed cost. In addition, he is eligible for the Federal ITC solar tax credit of 30 percent and no dollar cap after subtracting the 25 percent due to the grant.

Charlotte Pipe answers indoor non-potable water piping system needs

CHARLOTTE, N.C. — ReUze™, a new CPVC water piping system from Charlotte Pipe and Foundry Company, gives engineers, and others in the green/sustainability industry, a practical, easy-to-install system for non-potable water uses inside of commercial and residential buildings.

Engineers and architects motivated to design projects utilizing non-potable water for indoor use was a major factor in Charlotte Pipe creating this product.

The use of non-potable water can contribute up to 10 LEED points on a project, an astounding 25% of the points needed to achieve a LEED certified building. Available points are even higher if any of these credits are deemed a regional priority by the USGBC regional council or chapter.

ReUze™ is manufactured using the highest quality CPVC compound along with a purple pigment (purple is the uni-

versally accepted color for non-potable water systems). It is marked with two lines of type clearly identifying the contents as "WARNING: NON-POTABLE WATER DO NOT DRINK." The type is 180° apart so that no matter what angle you view the piping system there can be no mistake that the pipe is carrying non-potable water. This ensures that water lines for human consumption are not crossed with non-potable lines.

Circle 18 on Reader Reply Card

Protective floor drain and cleanout covers complete college project

AMCO Mechanical, a mechanical contractor in Montgomery, Alabama, used the Smith+Gard protective floor drain and cleanout covers to help them complete a project under tight time constraints. The College of Education and the Life Sciences Building at a university in Alabama were both scheduled to be finished in one year. In order for this to be accomplished, all of the floor drain and cleanout installations needed to be done without any time consuming setbacks. From the initial concrete pour to the finished tile floor the entire project had to operate efficiently and stay on schedule.

The Jay R. Smith Mfg. Co. representative in Alabama, Fran Williams

of Williams & Associates, knew about the situation and recommended the Smith+Gard floor drain and cleanout covers as a solution to typical job site problems. In the past, contractors would use duct tape or some other job site material to protect floor drain bodies, strainers and cleanout covers. A time-consuming technique known as "boxing out" also would be used to create a void between the concrete and the strainer or cover. After the concrete pour, the floor drain strainers and cleanout covers are exposed for long periods of time. During this time, the strainers and covers can suffer daily abuse causing "tilting and dishing" problems that lead to bigger issues when pouring the finished floor. Cleaning the duct

tape or other job site material from the strainer or cover also can be a messy and labor intensive part of the cleanup process.

Smith+Gard is designed to provide vertical adjustment of floor drain strainers and cleanout covers after the concrete pour and protect

cleanout covers before, during and after the concrete pour;

- Negates the use of duct tape, saving time and labor during clean-up;
- Helps align square floor drain strainers and cleanout covers to tile
- An economical and labor saving installation aid; and
- Patented punch and strip design technology allows for easy removal.

Both projects are ahead of schedule. AMCO Mechanical has used the Smith+Gard protective covers on several other projects resulting in



Smith+Gard — Figure Number 9910 — being installed in an above-grade application at the college job site.

them from abuse during construction. There are three Smith+Gard protective cover sizes available: Figure number 9910 cover fits Jay R. Smith Mfg. Co. 5" and 6" round, and 5" square floor drain strainers; the figure number 9911 cover fits 7" and 8" round and 6" square floor drain strainers; the figure number 9912 cover fits most round cleanout covers up to 7".

The use of the Smith+Gard protective cover has several benefits:

- Vertical adjustment after the pour;
- Protects floor drain strainers or

time savings on the job in installing, adjusting, leveling and cleaning the floor drains and cleanouts. The job site foreman for AMCO Mechanical, Rick Richburg, was impressed with this new product and will continue to use them. In his words, "The final floor work can make or break the installation so it's nice to have some way to make it easy. We don't have to replace scratched strainers and that saves us time and money on the job."

For more information on Smith+Gard protective covers or to contact your local representative, visit www.jrsmith.com.

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BY DAN HOLOHAN,
contributing writer

There are no return-air ducts in this system. The ventilation air enters the house without benefit of a fan. The only way for it to do that is for warm air that's already in the house to leave through the cracks around poorly fitted windows and doors.

There once was a type of radiation that hung heavily inside metal ductwork in the basements of rich people's homes. Much of it is still there. The Dead Men called this "indirect radiation" and they chose it for the wealthy because it combined heating with ventilation. The name "indirect" comes from the idea that the radiators

Hidden radiators

aren't in the same room as the rich people. They preferred their radiators to be discrete.

Indirects heat the incoming air, which then rises through the ductwork to the first, second, and sometimes even the third floor of a big house. They put together most of the indirect radiators just as you would small cast-iron, sectional boilers, and then they muscled them into place. Some of the indirects (and these came later) were made from rows of tightly spaced, finned-steel pipe. But whether they were steel or cast iron, it's often difficult to figure out what size these indirect radiators are because you can't see them. Unless you want to tear open the ductwork. And you don't want to do that. So here are some tips that should help.

First, watch out when you're replacing a steam boiler. Any indirect radiator has to be at least 14 inches higher than the steam boiler's waterline. This is to allow for the gravity return of the condensate back to the boiler. Most of these systems worked on very-low-pressure steam, usually just a few ounces. If you're replacing an old boiler you have to be very careful where you position the new boiler's waterline because indirect radiators often hang very low. If you set your replacement boiler too high, it may partially fill the indirect radiator with water, and that will seriously cut down on the radiator's output.

Look closely around any indirect steam radiator and make sure the air can get out. Ask yourself that key steam-heating question: "If I were air, could I get out?" Look for an air vent on the outlet side of the indirect. The air has to be able to make it completely through the unit if the steam is to arrive on time inside the unit. I mention this because many of those vents are gone now. They leaked and some knucklehead replaced them with pipe plugs. Plugs don't vent well. That's why we call them plugs.

Within the duct, the indirect radiator has to be about 10 inches below the top, and eight inches above the bottom. The radiators has to be tight against both sides of the duct. These dimensions are crucial to the proper flow of air across any indirect radiator. Sometimes, a cast-iron unit will fail and you might want to replace it with a homemade nest of fin-tube radiation because no one makes cast-iron indirect radiation these days. Watch what you're doing with the fin-tubes, though, because the flow of air is so subtle here, and so important to the unit's Btu output. Respect those dimensions I just gave you.

When the Dead Men used the indirect radiators for ventilation as well as for heating (which was most of the time), they always tried to get the outside air to enter from the bottom of the indirect radiator. If this wasn't possible, they took the next best option, which was to bring the fresh air in from the side opposite the warm air outlet. There are no return-air ducts in this system. The ventilation air enters the house without benefit of a fan. The only way for it to do that is for warm air that's already in the house to leave through the cracks around poorly fitted windows and doors. If you weatherize the house, you'll lose those leaks, and if the warm air can't escape, the cold air can't enter. All ventilation, and a good portion of the indirect radiator's output, vanishes when you weatherize.

Interesting conundrum, isn't it?

The Dead Men based the size of the hot-air flue on the square feet of connected indirect radiation. They allowed 1½ square inches per Square Foot of E.D.R. when they were heating with steam, and two square inches per Square Foot E.D.R. when they were using hot water. They sized the cold air flue to be somewhere between two-thirds and three-quarters the size of the

hot air flue.

If you have absolutely nothing else to go by, you can measure the length and width of the hot air flue to get an idea of what's happening. Multiply one by the other to get square inches. Then divide the total by 2 if you're heating with hot water and 1.5 if you're heating with steam. That will give you a good estimate of the square feet of radiation inside that duct. Another way to guesstimate is to look at the pipe size feeding the indirect radiator. For steam, the Dead Men would generally use a 1¼" pipe to feed up to 80 Square Feet E.D.R. of indirect radiation, and a 1½" pipe to feed up to 100 Square Feet E.D.R. of indirect radiation. If it was a hot-water job, they would use 1¼" for up to 60 Square Feet, 1½" for up to 90 Square Feet, and 2" for up to 100 Square Feet E.D.R... And keep in mind that they weren't using pumps on those hot-water systems; this was based on gravity flow.

Generally, the registers in the rooms are 25% greater in area than the flues that serve them. Again, there are no fans to move the air in this type of system. Everything works by natural convection. That means the air moves more quickly to the upper floors than it does to the lower floors because of the chimney effect of the taller, second- and third-floor flues. Typical air velocities are 1½ feet per second to the first floor, 2½ feet per second to the second floor, and 5 feet per second to the third floor. Notice how the air speeds up as it moves higher. Because of these differences in velocity, each flue served only one floor. And since the air moved more quickly to the upper floors, the Dead Men usually made these flues about 25% smaller than those serving the lower floors. They also used smaller registers on the upper floors. This can get tricky if all you're looking at is the register. And please don't try to equate any of this to a modern forced-air system. It's very different.

Because they used this system for ventilation as well as for heating, they had to allow for more radiation. Their general rule of thumb in the old days was to take a heat loss of the space using the Mills Rule, which the legendary John Mills of H.B. Smith fame came up with. The Mills Rule allowed for one Square Foot E.D.R. for each 2 square foot of glass, each 20 square foot of cold wall, ceiling or floor, and each 200 cubic feet of room volume. The Dead Men would total these three things and come up with a radiation load for the

(Turn to Holohan, page 24.)

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For more info visit: www.energystar.gov/index.cfm?c=products.pr_tax_credits#s1



Circle 22 on Reader Reply Card

Treat Your MVP... Hit the Ultimate Home Run with ECR Brand Products...

City of Santa Fe funds solar start-up

THE CITY OF SANTA FE is taking advantage of its long history in the solar industry by helping to launch a local, renewable energy company. SolarLogic, LLC, a new, solar hydronic technology and manufacturing company founded in Santa Fe in 2008, is leading the way in the creation of seamless, easy-to-install solar heating systems. As an investment in job creation and the local green economy, the City of Santa Fe's Economic Development Division has awarded SolarLogic a grant of \$30,000.

SolarLogic's mission is to increase and speed the adoption of residential and commercial solar hydronic heating systems worldwide by manufacturing and selling a family of products that will spur the development of a large, new generation of system installers. The Company is developing and will manufacture and distribute

two, flagship products: the SolarLogic Integrated Controller (SLIC) and SolarLogic Assisted Solar Heating Design (SLASH-D). Utilizing the SLASH-D web-delivered design service and the SLIC controller, an individual with an existing heating and/or plumbing business but no previous specific training in solar hydronic heating, will be able to specify, quote and install a custom, solar hydronic system.

Along with significant new innovation, SolarLogic is successfully commercializing design concepts developed from the extensive knowledge and years of experience gained in Santa Fe by the professionals at Cedar Mountain Solar.

Further information regarding SolarLogic can be viewed on the website at www.solarlogicllc.com or email info@solarlogicllc.com.

Halsey Taylor drinking fountains selected for PlaNYC Initiative

OAK BROOK, ILL. — On June 12, 2009, Mayor Bloomberg attended a ribbon-cutting ceremony at PS 205K, one of many New York City public schoolyards that have recently been renovated as part of the PlaNYC 2030 Initiative, a comprehensive sustainability plan for the city's future. A collaboration between the New York City Department of Parks & Recreation, the Department of Education and the non-profit The Trust for Public Land, the PlaNYC Schoolyards to Playgrounds Program aims to increase the amount of open space in underserved neighborhoods throughout the five boroughs of New York City and ensure that all New Yorkers live within a 10-minute walk of a park or playground.

Along with the multitude of im-

provements and additions being made to the schoolyards, many will be updated with custom outdoor drinking fountains from Halsey Tay-



lor. The PlaNYC team has chosen to install new Endura™ Steel Wall-mount Drinking Fountains (4705), customized with a specially designed "NYC water" logo and attractive blue color, in many of the newly created parks throughout the city.

Cordless tool survey indicates battery features most important

WEST CHESTER, PA. — Metabo Corp., an international manufacturer of professional grade portable electric power tools and abrasives, recently completed a blind survey of professional and do-it-yourself (DIY) tool users on important cordless power tool features in anticipation of the company's new 18 V lithium ion cordless tool series launch. Two of the three top-rated tool features related to battery life.

The 10 features evaluated included

battery charging time; work time per charge; comfort (size, weight, balance); power/torque; tool life/durability; weight; length of warranty; whether the tool was recommended by someone else; inclusion of a work-light; and battery service life.

Participants rated tool life/durability as the most important cordless tool feature. Battery service life ranked second, followed by work time per charge rounding out the top three.

Holohan

(Continued from page 23.)

building, to which they'd add their standard pick-up factor for the pipe load, which in those days, was 1.56 for both steam and hot-water work.

Once they had this figure, they'd add 25% more if the system was heated indirectly by steam and a whopping 35% more if they were using gravity hot water. This allowed for enough output to heat the cold incoming air. And, by the way, if you use the Mills Rule today you'll come up with a boiler that could probably heat the house with the roof removed.

Consider how all of this can affect a replacement boiler size if you're not going to be bringing in fresh ventilation air. Nowadays, even wealthy homeowners often decide to abandon the ventilation side of their indirect systems so they can save on fuel. You can seal the fresh air inlet and work only with the air in the

house, but you will have to find a way to get the upstairs air back down to the basement. Often, a louvered basement door is all it takes to make that work.

If your indirect radiation is on a steam system, you'll have to know its size in Square Feet E.D.R. to come up with the proper size for the replacement boiler. Take all of what I've told you here into consideration when you do. I hope it helps.

If the indirects are serving a hot-water system, begin with a heat-load calculation on the building as it is today, and base the size of your new boiler on that. These systems, with their high water content, get along beautifully with outdoor-air reset controls and modulating-condensing boilers. Use that approach and the indirects will find the proper output for any given day. Just make sure the air from upstairs can find its way back down into the basement. And don't forget to open the ductwork panels so that return air has a way back into the cool side of the heater. ■

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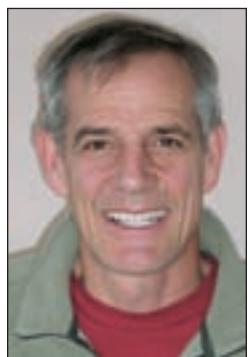
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BY BOB "hot rod" ROHR,
contributing writer

With the solar thermal industry ramping up again, we are seeing high-tech approaches to tank design.

One thing becomes quite obvious when you start designing and installing solar thermal systems: you rarely get exactly the amount of solar energy you need, exactly when you need it.

The easiest and most practical use for solar thermal is DHW, or SDHW (solar domestic hot water). These systems are more often than not a pre-heat system designed to offset a percentage of the total DHW load. The installer or designer determines a solar fraction to what to design and assemble. The solar fraction (SF) is the percentage of DHW load that the solar can be expected to deliver. Basically, it is the amount of energy required to cover the DHW load divided by the energy the solar can contribute to the load. Determining the DHW load is easier said than done. The industry has some rules of thumb, such as 20 gallons per person per day. I think that may be a tad high. Others prefer 20 gallons per day for the first two and 15 gallons for additional family members.

One common sense method is to look at the hot water supply they have and ask if that is sufficient. If they have a 50-gallon 37,000 BTU/hr input tank, that's the number.

Another method would be to put a water meter on the cold supply to their water heater and get a real-time figure. No need to grossly oversize the supply, but then again I have never had a customer complain of too much hot water supply. But I have under-estimated more than

Solar storage: Banking BTUs

one job and have had to correct it on my nickel. Determine to the best of your knowledge, and maybe document what you intend to provide, or supplement with solar.

Back to the supply vs. demand challenge. Generally, these days, the DHW load in a typical residence is required in the morning and evening hours. It may change a bit on weekends when schedules change and clothes washing goes full blast. So really, a residential SDHW system calculates out nicely. Your solar window is open the widest between 10:00-2:00. In a perfect scenario, you want to present the coldest possible tank to the solar array as the sun rises. This drives the efficiency to the best percentage.

When all the cales are said and done, a solar fraction of 45 - 60% is well within reach pretty much anywhere in the United States. We calculate that over a 12-month period, of course. It is quite possible to get 80 - 100% in the summer months and drop back to 30% or less in the colder, less sunny months. Using actual data and software simulations, I feel confident in those projections.

So in a nutshell, a 60-120-gallon storage, with an appropriately sized collector array will provide the solar fraction. It also presents a reasonable payback for a SDHW system.

But all this gets a bit fogger when you start looking at covering heating loads with solar thermal. Right out the gate you realize you get the best, and most, solar when you need it least. You can warm a lot of water all summer long. But what are you going to heat with it?

So the dilemma becomes how, and how much, do you try to store. This is the challenge solar installers have always faced. It hasn't changed in the 30-plus years I have been involved with active solar thermal systems. In a perfect thermodynamic world you could exactly match the solar input, or harvest, to the ever-hanging heating load. I have read about projects in Europe that have DHW and heating fractions right up to 100%. Examine the numbers carefully to see what type of storage capacity is required to accomplish. Snoop around www.jenni.ch to see some of the 90 - 100% SF systems they have built and installed. On one apartment installation, an 8-unit complex required 205,000 liters of storage to get that SF. If my math is correct, that is around 54,000 gallons of solar storage. Could you spec that

sized insulated tank to your customers?

But there is some encouraging news for those interested in chasing down the solar storage challenges. Water, being the medium we all work in, becomes the best shot at storage. It's cheap, easily stored and shuffled and a fairly good conductor of heat.

Here are a couple examples of how to put it to use: Cedar Mountain Solar owner Bristol Stickney writes a monthly column for *Phc News*. In his writings, Bristol has described a developed means to store excess solar energy in the mass of the building. Typical jobs he installs have a radiant heat component. They use a series of controls and zoning to store the energy in various zones of the radiant slabs. Care must be taken to prevent overheating the space and allowing uncomfortable temperatures in those zones, of course.

Bob Ramlow of Wisconsin loads up a large sand bed under the slab as a parking space for solar gained during the summer months. This can take him deep into the heating season, depending on the building loads and storage capacity available.

Still the most common thermal storage remains insulated tanks containing plain old tap water. Tanks are readily available in all sorts of sizes, shapes and configurations. Tanks with coils inside for heat exchange have been popular over the years. We now see tanks available with multiple coils inside for various temperature outputs and loads. With the solar thermal industry ramping up again, we are seeing high-tech approaches to tank design.

Stratification chambers, lances or fiber materials are being used to encourage the tank temperatures to stratify. Several manufacturers offer tanks with a wax-like product on the top for some latent heat storage. Tank-in-tank designs are another approach. Several manufacturers install small capacity stainless steel flash tanks inside the solar storage tank. The concept is to store small quantities at elevated temperature to address Legionella concerns. Some wild stratification tanks are being built these days. Yet other brands use small ECM circs to "stack" the tank in layers. Clever concepts.

Tanks with external heat exchangers are another ideal way to look at thermal storage; this allows you to purchase less expensive storage-only tanks. Now you have more options for capacity and this also allows you to size the external heat exchanger

exactly to the load and conditions. If or when the tank springs a leak, a new insulated tank can be installed at a much lower cost.

This is especially true when you start looking at tanks in excess of 120-gallon capacity. Still, other contractors limit tank size to 120 gallons to take advantage of common off-the-shelf products. They then manifold together multiple tanks to configure the exact capacity to match the design. Clever piping and 3-way motorized valves can allow you to "load" these tanks at different temperatures or to match the daily gain, providing sufficient temperatures to meet that load. Large quantities of lukewarm water doesn't help much for covering you heating loads. Certainly, designing your heating distribution temperatures as low as possible will help maximize the solar contribution.

So at the end of the day, and the end of the article, there really isn't a "one size," or one method that fits all approaches to solar storage.

Research and educate yourself on the options for tanks, heat exchangers and controls. Talk to the old solar dogs with years of experience.

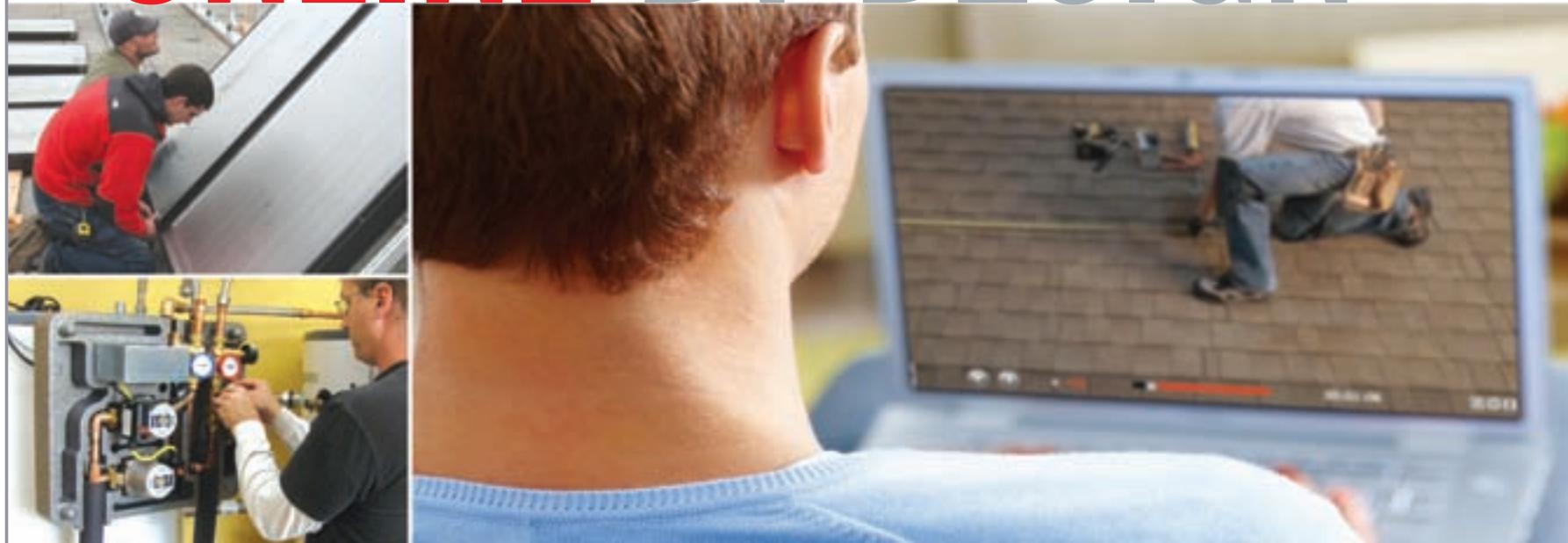
Jump at any chance to attend the Frankfurt ISH show. InterSolar in Munich is another great show to see wild and unique solar storage products. These shows and others have U.S. versions now. Most of the big players in the industry — both foreign and domestic — bring product to the plumbing and solar trade shows across the States.

Domestic tanks suited for solar have been around for many years and new players are entering the market with high-tech solutions. Rheem has built the external coil Solaraid for many years. Vaughn stone-lined tanks are another old name in the industry. Heat Transfer Products has some clever hybrid solar tanks, some with high efficiency back-up burners built in. Lochinvar has a clever approach called the LockTemp, available in sizes from 78 - 2,500 gallons. Bradford White offers 10 or more solar specific tanks. Heat-Flo builds dual coil, stainless steel and solar storage solar tanks. Many solar storage tanks will have a provision for a back-up electrical element. This provides a nice, simple dual-fuel option. ■

Bob "hot rod" Rohr has been a plumbing, radiant heat and solar contractor and installer for 30 years. Rohr has been a long-time RPA member, and has since joined Caleffi North America as manager of training and education.



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BY PAUL ROHRS,
contributing writer

..Engineered steel like Unistrut has an advantage over dimensional lumber. The smaller profile of steel, properly supported, can lend itself to long spans.

Don't leave me hangin'

Walk into any hardware store and it won't take long to find a variety of items designed to hang pictures, cabinets, quilts or curtains. The plumbing and hydronic industry is no different. As an industry, we are required to adhere to codes by correctly supporting supply and return lines for potable water, as well as drain, waste and vent pipe according to the line size we are running. Manufacturers cater to these needs by giving us that same, but expanded variety.

A very common method of supporting equipment involves the use of Unistrut. This article will show samples of strut installs and other ideas of how different contractors use it. Not all of these are for hydronic and plumbing use. The installs can range from garage storage rack, to a straight edge for tile, to a bike rack. My point is that your imagination can be your greatest guide.

Struts come in many styles: Galvanized or painted, with accessories such as pipe rollers, raceway enclosures, mounting brackets and anti-vibration clamps. These few listed items barely scratch the surface for hardware you can attach, mount or secure with struts. When coupled with the necessary washers, nuts and bolts, you have an arsenal of items to support your project. (Feel free to email me if you would like me to send you a pdf guide from one manufacturer that lists all the strut accessories they offer — paul@biggerstaffradiantsolutions.com. As it is available in different styles and lengths, a chop saw, reciprocating saw, or even a hacksaw will be necessary to cut this to length.

A common sight, as in Figure 1, shows a trapeze assembly supporting hot and cold potable water supplies as well as a vent pipe.



Figure 1

You can see that even with a small piece of strut and hangers supporting multiple items, there is still plenty of room left if need be. You could hang supply and return lines for heating systems or boiler vents.

Figure 2 is a boiler install by Frank Wilsey of "All Steamed Up" in New York City. Frank used strut for a chase for his fuel oil line as well as a convenient mount for an electrical disconnect.

Figure 3 is a simple bike rack that was put together. Who doesn't need more storage room in the garage? If you are like most families with bicycles, it doesn't take long for bikes to be scattered all over. This was a central way with a little bit of 1⁵/₈" painted strut and some "inside 45°" brackets to have a way to pull your bike into its own respective stall. Inside that same garage there is a storage rack suspended above the garage door that provides storage



Figure 3



Figure 4

space in an otherwise unused area. Figure 4 illustrates an effective place to store frequently and infrequently used items that are now readily accessible.

(This was an excellent space for the Christmas tree and ornaments.) It is important to note that this storage rack was supported so that it was above any garage-door hardware. This particular project might also be a good illustration of how engineered steel like unistrut has an advantage over dimensional lumber. The smaller profile of steel, properly supported, can lend itself to long spans.

Figure 5 takes us back into the world of hydraulics and



Figure 5

how strut was used in one job to support a shell and tube heat-exchanger, backflow preventer, a circulator motor, as well as some supply and return piping. The angled bracket built out of strut was built with function in mind. A few linear feet of strut coupled with inside 45° and 90° brackets did not cost much to build and as space was a premium, the amount of wall space used was negligible.

In addition to its price, a primary benefit of Unistrut is its availability. Coming from a wholesaling background before becoming a contractor, I commonly referred to strut as an "A" item. There are catalogs available for strut accessories and with a lengthy list, it is up to you to convey your needs and wants to your preferred vendor. Strut clamps for steel and copper are usually readily available as is vibra-clamps. Vibra clamps are just like strut clamps but feature an additional plastic insert that keeps the copper firmly isolated away from steel clamps and strut. One common item I really like is called a "Slick Nut." Figure 6 shows this small galvanized insert has plastic tabs that, when pushed together, slide directly into the channel and can be easily slid to your desired location before being tightened to secure it to a final location.

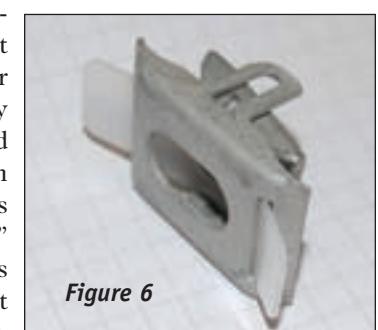


Figure 6



Figure 7

There is a tidal wave of solar projects heading our way and it seems that Unistrut is currently, and will continue to be, used in the mounting of solar panels and associated components. Figure 7 is a fine example of how unistrut was utilized in mounting solar collectors to a standing seam roof.

I hope this article can be used as an illustrative guide for you and your company to see different uses of Unistrut so that they can be modified to your next project. Again, let your imagination be your guide.

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BY ELLEN ROHR
contributing writer

It is easy to do what needs to be done to be successful. Why then, do we fight the flow and embrace the struggle?

Discipline is another word for...

It's summertime in the Ozarks and nature is working her way into my house, my garden and my car. The spiders are creeping their way into my office. The birds are nesting in the roof of the shop. A raccoon ransacked my birdseed in the well house. And yesterday, I watched a big black snake slither its way into the undercarriage of my car!

Life in the country is about beating back nature. You move to a rural community to enjoy the grass and the trees and the critters and the bees. You just don't want them all moving inside. So, you beat them back with broom, mop, weed whacker, power washer and the occasional shout. "Hey, get out of the birdseed." You can slow the tide and carve out your own space. It takes discipline and the right action. (I have no idea, however, what I am going to do about that snake!)

Discipline is a loaded word. According to my dictionary, it means punishment inflicted by way of correction and training. It also means activity, exercise or a regimen that develops or improves a skill; training. Bound by the first definition, I used to hate this word. As I explore the second definition, I am growing to love it.

Discipline your time

The busiest people I know have empty Calendars. If you don't block out your time and plan your week, you will find your time sucked away by everything and everyone. If you don't block out time to work on projects, the projects won't get done. Instead, you will spin on the hamster wheel of too much work and too little to show for it. Once a week, sit down with your To Do list and your Calendar. In my May article, I encouraged you to set Goals for this year, and create your Top Projects list. Have them handy. Review where you want to go and commit to a few hours of focused activity that will move you in that direction. What are the projects – a project is activity that has more than one To Do in it – that will help you solve a problem or expand an opportunity? Block out time on your Calendar to work on them. Here are a few projects, for example...

- Work on Top Projects List (a good start!)
- Redesign the Service Truck inventory
- Create a Training Program for the Customer Service Reps
- Increase calls in through Acquisition
- Revamp the bonus and compensation program
- Establish a safety program
- Write the Operations Manuals

When the project time appears on your Calendar, shut the door, forward the phones and get to work. I rarely schedule more than two hours at a time to work on any project because if I do, I waste time. If I scheduled a whole day to clean my office, I would screw around for six of eight hours anyway. I'd make a cup of coffee, call my sisters, check out USAToday.com, after all...I have ALL day. I noticed that I only do about two hours of focused work if I plan eight hours for a project. So, now I just schedule two hour blocks.

Having the time blocked out on your Calendar increases the likelihood that the project will get done. And, I guarantee that you are wasting two hours every day. Or, spending two hours running around dealing with the fall out of a bad system. If you fix the system, you free the time. Stephen Covey calls this "sharpening the saw."

Discipline your financials

Once a week, compare actual performance to Budgeted. Once a month, close the previous month with a

line by line review of the Balance Sheet and the Profit and Loss statements. These are simple procedures that can make all the difference to your profitability. Intend to implement these systems and move in that direction. If your financials are a slinky-knot mess, consider a few projects that will move you in the direction of a Known Financial Position (KFP.)

- Meet with your CPA and review the financials, line by line.

- Attend a Quick Books class.

- Read "Where did the Money Go?" by yours truly.

Put these projects on your Calendar. And, schedule the weekly and monthly meetings. Hold to them. Hold your bookkeeper accountable for working with you to get to KFP. Be disciplined about your Financial Stewardship.

Discipline your marketing

The phone's not ringing? You may panic, and wonder, "What can I do right now?" Marketing takes discipline. Block out your Marketing To Dos on your Calendar. For instance, if you want to send out a Direct Mail piece once a quarter, pick those dates. Create appointments that say, "Send out Direct Mail pieces!" Then, move backwards in time and plug the needed To Dos in that will help you make sure you can meet those appointments:

- Update Marketing Plan and Budget.
- Brainstorm headlines for Postcards.
- Work with designer on postcard layout.
- Finalize postcards and order them.
- Assemble mailing list.
- Break the project into steps. Block out the time. Are you seeing how elegant and powerful your Calendar can be?

Discipline your counsel

I highly recommend using a consultant. I am one! If you want to learn how to golf, you would take a lesson. Maybe a group lesson, maybe a private lesson. You would practice the techniques you learned. You would experiment with your balance, grip and swing. You would keep score and track what works and what doesn't. You'd take another lesson, maybe from another Pro. And, if you are disciplined, you will get good. If you are talented and disciplined, you could get great.

You can over-do the consulting, however. Are you a guru junkie? Do you search high and low for the next, best, brightest, smartest person to make sense of your business? Do you want someone to just tell you what to do to fix it? You can spend too much time and too much money avoiding what you need To Do to be successful and searching for someone to do it for you. Be disciplined in your approach to consulting and support groups. Too much information is confusing and can be distracting.

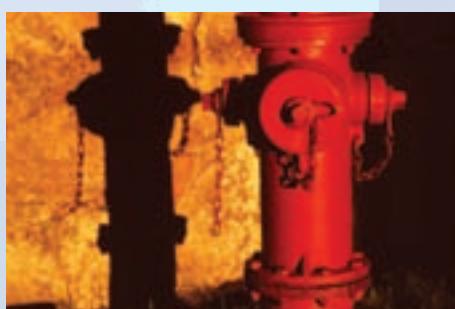
I use consultants to help me develop discipline. For 20 years I have been meaning to meditate for 15 minutes twice a day. In 20 years, I don't think I pulled it off even one day. So, I signed up for a meditation class. At 7:30 a.m. and 9:45 p.m. we meet on the phone and our meditation coach takes us through an exercise. Yep, the appointments are on my Calendar. I am developing the habit, the discipline, and I am enjoying the benefits of more focus and peace of mind.

Discipline your mind

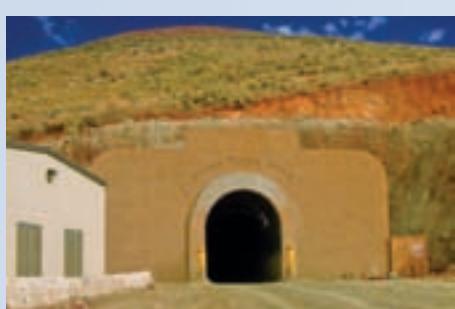
It is easy to do what needs to be done to be successful. Why then, do we fight the flow and embrace the struggle? (Turn to Discipline, page 34.)



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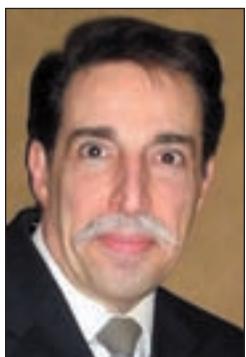
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BY RICHARD DiTOMA, L.M.P.,
contributing writer

Since the revenue that keeps your business alive only comes from consumers, if you don't use correct numbers you will make your situation worse not better. Fewer hours sold increase your labor/overhead cost per hour.

That costly unsold hour factor

As a human, your primary language is second nature to you. But it had to be taught to and absorbed by you to give you the ability to speak without consciously thinking about the actual words you say. However, you should keep in mind that putting your brain in gear before opening your mouth is always the wiser way to utilize the gift of speech.

As a plumbing contractor, you rely on Drainage Fixtures Units (DFUs) to determine the size of drainage piping needed to allow for the proper flow of waste from plumbing fixtures. Many plumbing contractors probably don't consider DFU calculations every day because the methodology of pipe sizes becomes second nature to plumbers who are in the field everyday.

The same holds true for heating and cooling contractors with regards to Btus. These measuring units are examples of things that are presumably constant. Even so, it's always wiser to calculate the loads of each situation to make certain that your pipe sizes and heating/cooling equipment are properly sized before quoting any prices and performing any tasks.

As a business person, the use of the correct application of formulas needed to be successful is also a constant. However, circumstances revolving around factors used in those formulas are in a constant state of flux. Therefore, the costs to run a business must be constantly monitored in order to be certain that you will recover the cost you incur to do the job and give yourself an opportunity to make a profit for your performance. That's what business is all about.

You must correctly calculate your budget in totality. You probably figure your jobs on the time and material needed to perform the task. A correct budget calculation will allow you to interpolate your total operational costs for labor and overhead into your actual cost per technician hour. Even so, as soon as you itemize your costs and add them up the total amount is subject to change because any of the items included in the budget may have increased in cost to you. Therein is one of the causes of the constant state of flux.

After you become adept at calculating and monitoring your budget constantly and correctly, you will develop the ability to build in buffers that will address the everyday fluctuations. To arrive at your labor/overhead cost per tech hour, you would divide your total cost of operation by your annual maximum available technician hours to arrive at your labor/overhead cost per tech hour. But, if you leave anything out or use a wrong number, you will get a wrong result.

In a 5-day/40-hour workweek, a 52-week year will present you with 2,080 annual hours of payroll and overhead expenses per technician. An annual two-week vacation, six holidays and 244 non-billable tech preparatory hours (for daily checking and restocking of truck, etc.) per tech drops your maximum available billing time to 1,708 hours per tech year while you pay for 2,080 hours.

Labor/overhead costs

As of 2009, the overhead cost for one set up truck stocked to deliver PHC services in the USA is probably between \$75.00 and \$150.00 per tech hour without the tech's salary and salary-related expenses. The size and structure of any business could make the overhead cost of any business higher or lower than that particular range. The \$75.00-\$150.00 range is based on contractors selling all 1,708 annual potentially productive hours for every tech all the time.

At an annual technician salary of \$25,000, you would have to add to your overhead cost about \$25.00 per tech

hour to cover the salary and salary related expenses for which you pay. That would make the minimum labor/overhead cost to you per tech hour \$100.00. At a \$60,000.00 annual technician salary, your minimum labor/overhead cost per tech hour would be about \$125.00. And at \$90,000.00, it would be about \$147.00.

The key word to consider is "minimum." Your overhead costs could be higher. At the \$150.00 overhead cost those hourly labor/overhead costs are \$175.00, \$200.00 and \$222.00 respectively. And, in either case, if less than 1,708 hours are sold your labor/overhead cost per sold tech hour will rise even higher.

The 1,708 hours is the maximum possible per tech without overtime. It's a benchmark. By using the maximum available hours, no one can accuse you of padding your cost with regard to any service performed. Figure 1 is based on the aforementioned maximum 1,708 hours per tech. At the top of Figure 1 you will see a range of labor/overhead costs to the contractor starting at \$100.00 per tech hour and increasing in \$25 increments to \$250.00 per tech hour. The majority of contractors across the country will probably fall in the \$125.00 to \$200.00 range. Figure 1 shows the effect upon your labor/overhead cost per tech hour when all your maximum available annual tech hours are not sold.

The lower left portion of the chart shows different levels of average daily tech hours sold in a year. The left most column describes the economic times. No one sells all their tech hours all the time. You probably only sell an average of four to six hours per tech per day during normal economic times and less during recessionary times.

The column to the right of the economic times indicates the annual percentage of hours sold compared to the hours that were available. Next, you will see the average annual hours sold per tech. After that, the average number of hours sold per tech starting at seven hours per work day and decreasing in increments of 30 minutes. To the right of the hours sold is the real cost of the hour to you as it relates to the number of hours sold.

For example, if your true labor/overhead cost based on 1,708 potential tech hours is \$100.00 per hour and you only sell an average of five hours per day, your labor/overhead cost per tech hour is really \$140.00. Since your total annual cost of operation is constant; and you only sell an average five hours per tech day (1,220 annual tech hours-71% of your potential tech hours) the unsold hour factor causes your \$100.00 cost to rise to \$140.00. The unsold hours become an unapplied labor expense. A budget cost of \$175.00 per tech hour would cost you \$245.00 at an average of five sold hours per day.

Choosing the correct profit margin

You must now consider your unapplied labor expense. Except for the liars and deniers, no one sells all their available hours. (Turn to Selling all... page 34.)

		YEARLY LABOR/OVERHEAD COST PER TECH/TECH HOURS SOLD							
		\$100.00	\$125.00	\$150.00	\$175.00	\$200.00	\$225.00	\$250.00	
		1708	1708	1708	1708	1708	1708	1708	
SELLING YOUR HOURS:									
Total	Average	Daily Hours Worked	Hours Worked Year						
100%	1708	7	\$1400.00	\$1750.00	\$2000.00	\$2250.00	\$2500.00	\$2750.00	\$3000.00
90%	1537	6.3	\$1300.00	\$1625.00	\$1900.00	\$2125.00	\$2300.00	\$2500.00	\$2675.00
80%	1446	5.8	\$1200.00	\$1500.00	\$1750.00	\$1950.00	\$2150.00	\$2350.00	\$2550.00
70%	1342	5.3	\$1127.27	\$1433.75	\$1680.00	\$1916.67	\$2113.75	\$2340.00	\$2560.00
60%	1225	4.8	\$1040.00	\$1350.00	\$1600.00	\$1840.00	\$2050.00	\$2250.00	\$2450.00
50%	1100	4.3	\$950.00	\$1262.50	\$1533.33	\$1777.78	\$1950.00	\$2150.00	\$2350.00
40%	976	3.8	\$870.00	\$1187.50	\$1466.67	\$1716.67	\$1900.00	\$2100.00	\$2300.00
30%	844	3.3	\$790.00	\$1116.67	\$1396.67	\$1650.00	\$1850.00	\$2050.00	\$2250.00
20%	712	2.8	\$710.00	\$1050.00	\$1320.00	\$1580.00	\$1780.00	\$1980.00	\$2180.00
10%	400	2	\$350.00	\$500.00	\$650.00	\$800.00	\$950.00	\$1100.00	\$1250.00
5%	200	1.3	\$175.00	\$250.00	\$325.00	\$400.00	\$475.00	\$550.00	\$625.00
2%	40	0.6	\$35.00	\$50.00	\$65.00	\$80.00	\$95.00	\$110.00	\$125.00
1%	20	0.3	\$17.50	\$25.00	\$32.50	\$40.00	\$47.50	\$55.00	\$62.50
0.5%	10	0.2	\$8.75	\$12.50	\$16.25	\$20.00	\$23.75	\$28.75	\$32.50
0.2%	5	0.1	\$4.38	\$6.25	\$8.13	\$10.00	\$11.88	\$13.75	\$15.63
0.1%	2.5	0.05	\$2.19	\$3.13	\$3.88	\$4.75	\$5.63	\$6.50	\$7.38
0.05%	1.25	0.025	\$1.09	\$1.56	\$1.94	\$2.38	\$2.75	\$3.13	\$3.50
0.02%	0.625	0.0125	\$0.54	\$0.79	\$0.97	\$1.19	\$1.38	\$1.56	\$1.73
0.01%	0.3125	0.00625	\$0.27	\$0.39	\$0.48	\$0.59	\$0.73	\$0.86	\$0.96
0.005%	0.15625	0.003125	\$0.13	\$0.19	\$0.24	\$0.3	\$0.36	\$0.43	\$0.48
0.002%	0.078125	0.0015625	\$0.06	\$0.09	\$0.12	\$0.15	\$0.18	\$0.21	\$0.24
0.001%	0.0390625	0.00078125	\$0.03	\$0.04	\$0.05	\$0.06	\$0.07	\$0.08	\$0.09
0.0005%	0.01953125	0.0001953125	\$0.015	\$0.019	\$0.023	\$0.027	\$0.031	\$0.035	\$0.039
0.0002%	0.009765625	0.00009765625	\$0.0075	\$0.0099	\$0.0115	\$0.0138	\$0.0155	\$0.0174	\$0.0189
0.0001%	0.0048828125	0.000048828125	\$0.0038	\$0.0049	\$0.0057	\$0.0069	\$0.0077	\$0.0086	\$0.0094
0.00005%	0.00244140625	0.0000244140625	\$0.0019	\$0.0025	\$0.003	\$0.0034	\$0.0038	\$0.0041	\$0.0047
0.00002%	0.001220703125	0.00001220703125	\$0.00095	\$0.0012	\$0.0014	\$0.0017	\$0.0019	\$0.0021	\$0.0023
0.00001%	0.0006103515625	0.000006103515625	\$0.000475	\$0.0005	\$0.00055	\$0.000625	\$0.00065	\$0.00068	\$0.0007
0.000005%	0.00030517578125	0.0000030517578125	\$0.0002375	\$0.00025	\$0.000275	\$0.0003125	\$0.000325	\$0.00034	\$0.00035
0.000002%	0.000152587890625	0.00000152587890625	\$0.00011875	\$0.000125	\$0.0001375	\$0.00015625	\$0.0001625	\$0.00017	\$0.000175
0.000001%	0.0000762939453125	0.000000762939453125	\$0.000059375	\$0.0000625	\$0.00006875	\$0.00008125	\$0.0000875	\$0.00009375	\$0.000096875
0.0000005%	0.00003814697265625	0.0000003814697265625	\$0.0000296875	\$0.00003125	\$0.000034375	\$0.000040625	\$0.00004375	\$0.000046875	\$0.00004984375
0.0000002%	0.000019073486328125	0.00000019073486328125	\$0.0000148125	\$0.000015625	\$0.0000171875	\$0.0000203125	\$0.000021875	\$0.0000234375	\$0.000024984375
0.0000001%	0.0000095367431640625	0.000000095367431640625	\$0.00000740625	\$0.000008125	\$0.00000859375	\$0.00001015625	\$0.0000109375	\$0.00001171875	\$0.0000124984375
0.00000005%	0.00000476837158203125	0.0000000476837158203125	\$0.000003703125	\$0.0000040625	\$0.000004296875	\$0.000005078125	\$0.00000546875	\$0.00000609375	\$0.00000624984375
0.00000002%	0.000002384185791015625	0.00000002384185791015625	\$0.000001859375	\$0.00000203125	\$0.0000021484375	\$0.000002515625	\$0.00000274375	\$0.000003015625	\$0.000003124984375
0.00000001%	0.0000011920928955078125	0.000000011920928955078125	\$0.0000009296875	\$0.000001015625	\$0.0000010744140625	\$0.000001253125	\$0.000001371875	\$0.0000015078125	\$0.0000015624984375
0.000000005%	0.00000059604644775390625	0.0000000059604644775390625	\$0.00000046484375	\$0.000000503125	\$0.000000537265625	\$0.0000006265625	\$0.0000006875	\$0.000000753125	\$0.00000078124984375
0.000000002%	0.000000298023223877484375	0.00000000298023223877484375	\$0.000000232453125	\$0.0000002515625	\$0.00000027344140625	\$0.00000031328125	\$0.00000034375	\$0.0000003753125	\$0.000000390624984375
0.000000001%	0.0000001490116119387421875	0.000000001490116119387421875	\$0.0000001162295375	\$0.0000001253125	\$0.00000013673046875	\$0.00000015625	\$0.00000016875	\$0.0000001809375	\$0.00000018753125
0.0000000005%	0.00000007450580596937109375	0.000000007450580596937109375	\$0.00000005811455375	\$0.0000000625	\$0.000000068359375	\$0.000000078125	\$0.000000084375	\$0.0000000909375	\$0.000000093753125
0.0000000002%	0.000000037252902984685546875	0.0000000037252902984685546875	\$0.0000000290571753125	\$0.00000003125	\$0.0000000341796875	\$0.0000000390625	\$0.00000004375</td		

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Circle 28 on Reader Reply Card

Selling all your hours

(Continued from page 32.)

able tech hours all the time for all their techs. Therefore, the selling price must reflect a profit margin that considers the unsold hour factor and seven-hour benchmark cost calculation. If you don't choose the proper profit margin, you will surely fail to attain your goals. As the risk increases so should the profit margin. Before delving into an example, I should first clarify the difference between a profit margin and a markup.

A profit margin is that portion of the selling price which is left after the total cost of the selling price is subtracted from the selling price. If your selling price to perform a service was \$1,000.00 and you wanted a 10% profit margin, the cost for labor, overhead and material would be \$900.00. The \$100.00 profit would be 10% of the \$1000.00 selling price.

That's different from a markup on cost. Ten percent of the \$900.00 cost for labor, overhead and material is only \$90.00. Taking 10% of your cost which is \$90.00 and adding it to that cost would make your selling price \$990.00 instead of \$1,000.00.

You can use this method, but keep in mind, it doesn't give you a true 10% profit margin. If it did, you could deduct 10% from the \$990.00 selling price and recover all of your \$900.00 cost. But, 10% of \$990.00 is \$99.00. Since you only charged \$990.00, deducting \$99.00 would only give you \$891.00 to cover the \$900.00 labor,

overhead and material cost you incurred. With the \$1,000.00 selling price a 10% reduction would give you the full \$900.00 cost.

Figure 2 shows that a certain profit margin is needed just to recover contractor cost. Example, at an average of five tech hours per day, the contractor with the \$100.00 hourly tech labor/overhead cost (based on all available tech hours being sold) has a \$140.00 cost reality. He/she would have to apply a 28.57% profit margin to the \$100.00 cost just to break even. \$100.00 divided by 71.43% (the difference between 100% sell price and 28.57% profit) would give him/her a selling price of \$140.00 for an hour. Unfortunately, that selling price would still defeat the only reason for which businesses exist. That is, to make a profit.

To make a 10% profit that will cover the risk, that contractor would have to charge \$155.55. That means a 35.71% profit margin must be applied to the original \$100.00 cost. The proof is \$100.00 divided by 64.29% (the difference between 100% sell price and 35.71% profit) = \$155.55. When you subtract the \$140.00 cost from the \$155.55 selling price, \$15.55 is left. When you divide the \$15.55 profit by the \$155.55 selling price you get a 10% profit margin.

In the current recessionary times you may sell even less hours. Since the revenue that keeps your business alive only comes from con-

WHEN:							Cost of labor & overhead		Profit margin	
Your Average Labor/Overhead cost per tech/hour is \$100.00							based on		divisor	
Your maximum available annual hours per tech/tech is 1798							needed to		Time	
Your annual cost per tech is \$179,800.00							Profit margin needed to recover your cost per hour is	in %	your cost is	break even
WHEN:	Avg % off max avail tech/hour	Avg annual # of hours	Avg daily # of hours	Avg. Hrs/ cost per tech/hour	Your actual # of hours	Profit margin needed to recover your cost per hour is	in %	\$100.00	divided by	Time
Best Times	100%	1708	7	\$100.00		7.14%	7.14%	\$100.00	divided by	100%
Normal Economic Times	92%	1586	6.8	\$107.00		7.14%	82.86%	\$107.00	divided by	92.86%
Recessionary Economic Times	80%	1484	6	\$116.85		14.29%	85.71%	\$116.85	divided by	85.71%
Normal Economic Times	75%	1342	5.5	\$127.27		21.43%	78.57%	\$127.27	divided by	78.57%
Recessionary Economic Times	71%	1230	5	\$140.00		28.57%	71.43%	\$140.00	divided by	71.43%
Normal Economic Times	64%	1158	4.5	\$158.56		35.71%	64.29%	\$158.56	divided by	64.29%
Recessionary Economic Times	63%	1176	4	\$176.00		42.86%	57.14%	\$176.00	divided by	57.14%
Normal Economic Times	58%	1064	3.5	\$200.00		60%	40%	\$200.00	divided by	40%
Recessionary Economic Times	43%	732	3	\$233.33		67.14%	42.86%	\$233.33	divided by	42.86%
Normal Economic Times	30%	810	2.8	\$280.00		64.29%	38.57%	\$280.00	divided by	38.57%
Recessionary Economic Times	29%	808	2	\$340.00		71.43%	28.57%	\$340.00	divided by	28.57%
Normal Economic Times	21%	386	1.8	\$386.85		78.57%	21.43%	\$386.85	divided by	21.43%
Recessionary Economic Times	14%	344	1	\$700.00		86.7142%	14.29%	\$700.00	divided by	14.29%
Normal Economic Times	7%	122	0.8	\$1,400.00		92.86%	7.14%	\$1,400.00	divided by	7.14%

Figure 2

sumers, if you don't use correct numbers you will make your situation worse not better. Fewer hours sold increase your labor/overhead cost per hour. That means lowering your prices without thinking will only serve to hurt you, not help you. You can lower your profit margin. But, keep in mind the effect of the unsold hour factor. In the aforementioned example, the contractor could choose to lower his/her profit margin to 29%. That would make his/her selling price per hour \$140.85. It covers his/her cost and makes an 85 cent profit. It is a meager profit for the value that contractor delivers. But, it's still above his/her cost. If he/she lowered his/her profit margin another 1/2 %, he/she would lose money.

The percentages you would have to use are determined by the factors surrounding your business. Don't go and use the aforementioned example numbers without being certain that they will address your situation. That means you must do some calculating.

I realize I have thrown a lot of numbers at you. Don't panic. Just keep in mind the logical proportion

between the numbers and apply the correct factors to arrive at your selling prices. It's easier than it initially seems. And, if you need help, I am as close your phone. Just call me at 845/639-5050.

Denying the importance of factual information is a trait of the proverbial ostrich who buries his head in the sand while leaving his butt exposed to face reality. When he gets kicked in the butt, he is to blame.

As always, I wish you good health and much prosperity. ■

Richard P. DiToma is a business consultant and contractor with 38 years of experience in the PHC industry. He conducts seminars, evaluates business operations, publishes customized price guides for contractors and offers continuing support.

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Discipline

(Continued from page 30.)

gle? Emotional and spiritual issues get in the way. Ultimately, your path is a personal journey and your business a reflection of that. A lifetime of negative self-talk and toxic relationships can wreak havoc on the best plan and intentions. Happiness and peace can be cultivated through disciplined practice.

Two thousand five hundred years ago, Lao-tzu dictated 81 verses of wisdom, known as the Tao Te Ching, the Great Way. The 64th verse includes the oft-quoted line, "A journey of a thousand miles begins with a single step."

Discipline is about at once considering the horizon, where you are ultimately heading and taking one single step in that direction. It's

about acknowledging when you fall short and gently correcting course. There is no secret to your success. Apply the basics, today, then tomorrow, and keep moving in the general direction of your intention.

Another definition of discipline... is love.

It takes discipline to keep a house in order, a business humming, a relationship working. Most times, you know what needs to be done. I encourage you to take action. If you don't know, sit with it a bit and ask for inspiration.

About that snake.... ■

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Circle 31 on Reader Reply Card



Adventures in water heating

BY JOHN MESENBRINK,
chief editor

Adventures" as in relating to the volatile economy. Consumer confidence is not exactly where it should be and some economic experts believe that, in time, the economy eventually will dig itself out of this recessive ravine, but not nearly replicative of some of the high times seen from the last half decade.

The fact is that the water heater industry still looks sluggish. "2010 is going to look a lot like 2009, with a slight uptick late 2010," said Chuck

Rohde, wholesale market manager, Rheem Water Heating.

The ever-so positive news is that according to the U.S. Census Bureau and the Department of Housing and Urban Development, June housing starts and building permits issued saw a slight increase — 8.7% building permits, 3.6% housing starts — from May revised numbers. However, the movement appears minute compared to last year's numbers — down nearly 50% in both categories — but builders will take any good news when they see it.

So where do we go from here?

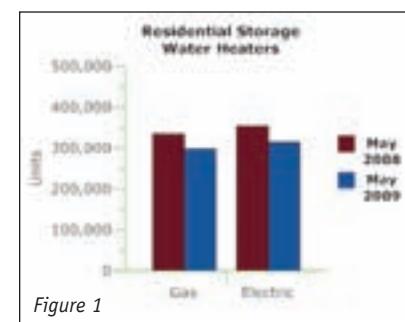
"The economy is certainly one of

the most frequently discussed topics, but most contractors are taking advantage of this time by working with homeowners and facility managers to upgrade their systems instead of waiting for their next job to come to them. We have found that contractors who proactively seek out opportunities, and who do a fair job of selling ROI, are being successful," said Sterling Boston, director of marketing, Lochinvar.

"Along with its partner representatives, distributors and contractors, we have all felt the burden of the economic crisis. The biggest concern we face collectively is from the

global economy and the impact that it has on homeowner's ability and desire to purchase new heating equipment," said Todd Romig, vice president of sales and marketing, Heat Transfer Products.

A great reference point to get a pulse of the water heater industry is to examine shipment data. Every month, water heating shipment data released from the Air-Conditioning, Heating, and Refrigeration Institute (AHRI) can be a good barometer of the water heating market. According to the latest AHRI May shipment numbers, residential electric water heater shipments for May totaled 313,492, an 11.5% drop from the same month a year ago. Residential gas water heater shipments totaled 299,013, a 10.8% decrease compared with shipments for the same month last year. (See Figure 1.) For the year-to-date, about 1,603,970 residential gas water



heaters have been shipped, a 7.4% drop compared with the same period a year ago. For the year-to-date, about 1,597,548 residential electric

(Turn to Water Heater... page 40.)

Water heater options

Even in this economy, manufacturers continue to look to the future with their product offerings. Energy efficiency is driving the market, with Energy Star and green building piloting the ship.

"The economy is the biggest concern, no doubt. However, while the overall market size continues to contract, there are opportunities for customers to incorporate new technologies and expand into new markets, like solar," said Bruce Carnevale, vice president of sales and marketing, Bradford White Corp.

Some key examples include:

Bradford White — Bradford White Heaters recently introduced 14 new indirect solar water heating units, increasing the company's offerings in the solar category to a total of 32 models.

The new water heaters include six EcoStor2 SC double wall, single coil gas backup models, six EcoStor2 SC double wall, single coil TTW gas backup models and two EcoStor2 SC



double wall, single-coil Eco-Defender gas backup models.

Laars Heating Systems subsidiary

Laars will soon introduce a volume water heater version of the successful NeoTherm mod-con boiler. These will be fully condensing, 95% efficient, with a welded stainless steel heat exchanger. There will be five sizes ranging from 150 to 500,000 BTUs.

Heat Transfer Products — The new Phoenix Evolution combines space heating, domestic hot water, and total system control into one compact, high efficiency mod-con unit.

Just five connections — supply and return for heating, inlet and outlet for DHW and system feed — and you're

done. There's no primary-secondary loop to install, no near boiler piping, no boiler/indirect electrical connections, and no isolation valves.

Imagine fitting a 55-gallon water heater, 135,000 Btu boiler, and buffer tank into a space as small as 34" x 53". The new Phoenix Evolution does it!



with system isolation for low temperature baseboard, radiant heating, and hydro air applications built in.

A.O. Smith — The Cyclone® Xi model from A.O. Smith achieves the first water heater endorsement from the Green Restaurant Association (GRA). These models are ideal for restaurant applications due to the high



efficiency of 96% percent and versatile venting capability.

Rheem Water Heating — Consumers enjoy remote, fingertip control of their domestic hot water from virtu-



ally anywhere inside the home. Rheem Water Heating recently announced that (Turn to Options, page 40.)

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Water heater forecast

(Continued from page 38.)

storage water heaters have been shipped, a 10.4% drop compared to the same period last year.

"Many experts were predicting a turn around in the economy in the 3rd or 4th quarter of 2009. I think any improvement will be minor, and probably not until 2010," said Bruce Carnevale, vice president of sales and marketing, Bradford White.

Commercial numbers have declined more with commercial gas water heater shipments for May totaling 6,220, dropping 15% compared with the same month last year, while commercial electric water heater shipments totaling 4,691, an 18.9% drop compared with the same month a year ago. For the year-to-date, commercial electric water heater shipments (24,250) are 16.6% behind total shipments of this product during the same period last year (29,083).

Commercial gas water heater shipments (34,011) for the year-to-date are down 12.8%, compared with the same period a year ago (38,999).

"Water heater unit sales will be the lowest we've seen in a number of years. The softening seems to have flattened out, but we don't foresee a significant recovery in 2010. We see 2010 producing similar results to 2009 in terms of overall industry volume. Where the residential market seems to have bottomed out, we do not see a significant rebound in 2010. We also see a softening in the commercial market that will continue into 2010," said David Chisolm, brand manager, A.O. Smith.

But not all news is doom and gloom. The high efficiency market will continue to grow as a percent of the overall market.

"Our concern is a combination of
(Turn to Water Heater... page 42.)

Options

(Continued from page 38.)

a wired remote control with a liquid crystal display screen (LCD) will be offered on its 40-gallon and 50-gallon, tall and short, power-vent gas-fired water heaters. Available in late July 2009, the remote-controlled water heaters will be Energy Star® compliant, displaying the insignia on the exterior of the units, which will be distinctively identifiable with its black top and bottom pans and white jacket.

Lochinvar — Lochinvar's newly introduced SHIELD Commercial Water Heater comes with a \$50 cash rebate paid to the installing contractor for every unit installed (up to 20 units) through the end of the year. With inputs up to 500,000 Btu/hr, 96 percent thermal efficiency and storage up to 125 gallons, SHIELD has every-



thing it takes to provide the ultimate green operation — without the risk of lime scale buildup inside the tank. Designed to provide a 100% effective defense against this problem, SHIELD is equipped with the industry's most advanced stainless steel heat transfer system located outside of the tank, ensuring the same high efficiency and low operating costs throughout its life cycle.

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Water heater forecast

(Continued from page 40.)

the weak economy, regarding the commercial market, and frustrations



Contractors examine the "nuts and bolts" and inner workings of a water heater at a Bradford White training seminar.

with new technology — there will be a continued push for higher efficiency products, this can only be done with more advanced technology," said Chisolm.

The tax incentives on efficient

water heaters gets mixed reviews on whether it will completely stem the tide. "2009 has not been spectacular

for our industry as a whole, but with incentives such as the \$1,500 Federal Tax Credit for homeowners to use for efficiency upgrades and stimulus money being pushed out on commercial work, there is definitely enough to keep us busy right

now," said Boston.

However, "While the tax incentives will help drive sales for some high efficiency products, I don't believe they will overcome the lack of consumer confidence in spending. Consumers

are investing in higher efficiency products, but there is also a trend toward more basic, lower cost options to heat water as well. We also see that consumers are more likely to repair equipment rather than replace it," Carnevale added.

Although 2010 may forecast soft, it appears to be slowly getting better.

"All indications from the economists that we are listening to is that 2010 will start soft but should be heading back to normal by the 3rd quarter," said Boston.

Although the forecast doesn't look all too rosy for 2010, many manufacturers are clinging to the ideals of more efficient products and helping their customers any way they can. "I don't foresee a lot of improvement in 2010. But, in times like these, sometimes you have to 'make your own light at the end of the tunnel.' The market is down, so we see it as our responsibility to provide our customers with the highest quality, most comprehensive product line

available to them. Some of our new products and technology will open new market niches for contractors — a good way to grow business for all of us," said Carnevale.

High Efficiency — A new line of power direct vent (PDV), tank-type water heaters from Rheem Manufacturing Co., for example, is designed to meet the rigorous demands of today's tightly constructed new homes that seek to maximize both energy savings and air quality. With an Energy Factor (EF) of 0.67, Rheem PDV Water Heaters exceed the new, phase one Energy Star criteria of 0.62 for water heaters, which the Department of Energy made effective on January 1.

A. O. Smith, State Water Heater and American Water Heater brands, for example, all have a comprehensive line of Energy Star®-rated water heaters. Likewise, the A. O. Smith Vertex line, the State Premier Power Vent line and the American Polaris line also qualify for the \$1,500 Federal tax credit. ■



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THE WALL

Dan Holohan's Web site, HeatingHelp.com, features a message board called "The Wall" where hydronic heating professionals post questions and offer answers of all kinds regarding hydronic heating systems. Dan has kindly allowed PHC News to reprint some of the more interesting postings here each month. This section will surely whet your curiosity, so log on to the web site and click on "The Wall" for a treasure trove of useful and just plain interesting information.

Q: Can you settle a debate I'm having with a friend? We live in Savannah, Georgia – mild winters. I am convinced that a hybrid or dual fuel heat pump is ideal for our climate. My friend says hybrid systems are not good products and says they are hard to repair, and they cost too much compared to straight gas furnace & A/C or all electric heat pump. He also insists that they are "overkill" and not beneficial to the bottom line. Can you settle this argument?

—Alan

A: I'm with you. Great concept. I'm on my second hybrid system. Started in 1995. I'd say we sell as many or more hybrid than we do furnace & cooling unit combos. Where we are, winters aren't too bad and electric rates are reasonable.

—John

Q: As a wholesaler I would like you to finish the following question: If you could run your current suppliers business for 60 days, what changes would you make? Do they offer enough train-

ing? Is their inventory up to snuff? Are there products that you would like to see them carry that they currently do not?

I'm asking because starting on Monday I am going to pose the same questions to my customers via a suggestion box and I would like to compare myself to suppliers throughout the country. There is no better way to grow my business than to help my customers grow.

—Chris

A: Having been a wholesaler and a tradesman, there are many areas that my local suppliers have forgotten.

A) Tradesmen pay your paycheck, so go the extra mile to take care of your customer. Yes, some of us are pains, or we do not explain things well, or we call you at closing time and want things immediately. But, we are asking

you for a reason. Learn to look past our personality traits and understand we are asking for a reason. When you find the way to look past our issues, you will become the go-to guy.

B) Do a better job of getting product information from the reps to the contractor. This is the biggest issue in the distribution line. There are great products that we learn about through trade magazines, or forums, or wherever else. The wholesaler has these products come across their desk every day. Instead of throwing it in the circular file, ask the tradesmen what they think. Often great products get overlooked because someone above the tradesman decides what we get to see.

—Bob



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Q&A with Glenn and Cal Mosack

Conbraco triumphs despite recessionary economy

BY MORRIS R. BESCHLOSS,
PVF and economic analyst
emeritus

Conbraco Industries Inc., headquartered in Matthews, N.C., has triumphed over the adversity of the ongoing recession with remarkable skill and courage.

This 80-plus-year-old family-owned PVF industry paragon has continued to grow and flourish at a time when lesser companies would



At the helm (from r to l): President Glenn Mosack, senior executive vice presidents Carole Mosack Lee and Cal Mosack.

have sought the benefits of a corporate buyout or a merger with a large conglomerate.

But the family team, comprised of president Glenn Mosack and senior executive vice presidents Cal Mosack and Carole Mosack Lee, decided to strengthen this manufacturing leader of commercial, residential and industrial ball valves.

What's particularly remarkable is that the buyback of the large share of company stock not held by the family core group came before the financial crisis of September 2008. In spite of this tidal wave of adversity, the Mosack family decided not only to maintain Conbraco as a family controlled enterprise, but moved boldly ahead in continuing their capital expansion and aggressive market development. Conbraco achieved capital expenditures of \$23 million in the past five years, with \$7.8 million spent in capital equipment in the volatile 2008 year alone.

In the past year, Conbraco added immeasurably to its executive strength by bringing into its fold a leading valve industry marketer, Tony Favilla, as vice president-sales and marketing. His credentials include a multi-year stint at Nibco, after which he headed up Crane Valve's commercial division, which included the revival of Stockham Valve.

As one of the largest independently held valve manufacturers, Conbraco has 1,200 employees, a cherished industry brand name in Apollo, an international presence, including Canada and Great Britain, more than 2,000 authorized stocking distributors and a finished product inventory of up to \$20 million. Conbraco deserves the highest respect as it has continued to expand its dominant industry position.

To help the PVF industry in general and our readers in particular understand this unprecedented achievement, we were privileged to receive the following answers in an exclusive interview with Glenn and Cal Mosack.

Beschloss: *I have long been an admirer of Conbraco's achievements. Not only because of your growth to well over \$100 million in revenue annually, but that you have been able to grow stronger internally, while consolidating the family's hold by buying back outstanding stock. This would have been a remarkable achievement in strong economic years, but most incredible in the past nine months. What is the secret to this unparalleled success?*

Mosacks: Morrie, we've actually surpassed the \$200-million milestone in annual revenue. We attribute our success to a complete focus on marketing and promoting our core Apollo products to specific markets, including industrial PVF, commercial and mechanical, waterworks, irrigation, fire protection, and power, to name a few.

We are blessed to have a dedicated and highly talented work force that truly cares about the viability and success of the company. We are fortunate to have a strong relationship with our lenders to help facilitate the transaction. Our stock buyback was accomplished in May 2006.

Beschloss: *While there are still many independent PHCP distributors, family-owned manufacturers in our industry are becoming few and far between. Based on your significant revenue stream, you certainly are at the top in size of independent valve manufacturers — and rival even those publicly held. Since you must carry a heavy debt to accomplish both your con-*

tinued internal growth, as well as paying off the stock buyback, steering the Conbraco ship through these shoals so successfully has mystified the industry. Could you clarify this accomplishment?

Mosacks: We owe our ability to continue to pay down debt to several factors. The single most important factor has been the tremendous support we've received from our customer base. We're indebted to the mechanical contractor, who specifies Apollo and asks for it by name. We're grateful to the industrial end user, who demands Apollo for numerous applications, including severe service and has a need for exotic alloys that we pour in our Conway foundry. We are also in this fortunate position due to strong and loyal support from our extensive distribution.

We were almost at a zero debt when we took on our new arrangement for the stock buyback. Since the deal was done in late April 2006, we have reduced that debt by 28%. Even in this tough environment, we have reduced our debt another 10% in 2009. Our lean manufacturing environment and commitment to continuous improvements allow us to



Valve industry marketing professional Tony Favilla, Conbraco vice president of sales and marketing.

quickly adjust our cost structure to whatever level of sales we are being blessed with. Late 2008 to the current date are a great example of this.

Beschloss: *The Apollo brand name has risen to the top of the heap among architects, engineers, mechanical contractors, OEMs, industrial maintenance engineers and project managers alike. With the rapidly changing turnover of many of these personnel positions, how have you kept your brand name so brightly burnished?*

Mosacks: We push the Apollo brand everyday. We focus heavily on

presenting our unique story of being a third-generation, family-owned and operated business. We wave the "Stars & Stripes" to all markets we serve. And most importantly, we value the relationships with our customer base deeply.

Even with personnel changes that occur with some regularity, it's paramount that we maintain a close relationship with whoever occupies positions that are critical to our brand preference.

Beschloss: *Could you refresh our readers regarding what aspect comprises Conbraco's major end-use industries, serviced by your massive team of authorized distributors?*

Mosacks: The industrial end user base, the E&Cs, A&Es, power are all serviced by our industrial PVF distributor. The mechanical contractor, plumbing contractor and industrial contractor are serviced by both the industrial PVF distributor and the commercial/plumbing wholesaler. We have a massive array of products that we manufacture that are sold through these specific channels. We offer everything from backflow prevention devices to special alloyed top end ball valves.

We're not overly dependent on any one market, which has served us well.

Beschloss: *With the unparalleled momentum Conbraco has achieved and with the magic of the Apollo name, are you planning to expand your product offerings to take advantage of your overwhelming market position?*

Mosacks: We maintain an active R&D group. We are always looking to add complimentary products to all of our core product offerings. We have committed \$2.5 million annually to development and introduction of new products, some of which are coming out as we write this. We are committed to accomplishing this through internal development or through an acquisition.

Beschloss: *Despite the judicious guidance through your complex financial problems, have you secured the durable credit lines necessary to see you through the still fragile financial restrictions facing American business?*

Mosacks: We actually just refinanced in November 2008 with a five-year arrangement with better terms and rates than our previous arrangement. Our current financing

is with Bank of America and RBC Centura. To use their words, "We like your growing financial metrics, your management team, your commitment to grow your business, and your commitment to continuous improvements."

Beschloss: Please give us your outlook for business in the PVF-oriented industry for the rest of 2009 and 2010.

Mosacks: We believe 2009 and 2010 are unprecedented difficult times that do give us opportunities to gain market share. We are the lone industrial ball valve manufacturer that designs, pours, assembles, tests and ships as a "real" U.S. manufacturing company. There's no one else that can make this statement. A major advantage for us is we have the ability to react quickly to non-planned demand for product.

We're not waiting on a slow boat from China or India or anywhere else for that matter. We control our entire industrial ball valve manufac-

turing process. There are a lot of very slow industrial markets that are spending very little on MRO requirements and have "shelved" capital projects for the near future.

However, there are industrial markets that are continuing to expand. We're maintaining our focus and commitment to the industrial PVF market place. We are also active in the international industrial PVF business. We believe there are pockets of opportunities in the global industrial base. We must be more creative and run our business smarter than we ever have in our 82-year history.

We also see significant growth opportunities in our OEM and contract manufacturing. Many folks are looking for U.S. foundries and metalworking capabilities, and we are well positioned from a cost structure to accomplish their goals.

Beschloss: You have proudly resisted going offshore as a cost-effective basis for even part of your product line. Are you encouraged by

the significant swing to buy American, especially when it comes to government-financed stimulus packages?

Mosacks: We are encouraged by the push in the stimulus package to have American-made content in the purchases. We are one of only a few who can accomplish this and with the amount allocated to infrastructure, we are positioned well to capture this business. We just wish, like all others, it would come faster than it appears it will happen.

Beschloss: With such a strong emphasis on multi-generational family ownership, are there future generational young men and women being primed to come into the business? **Mosacks:** We have eight children between the three of us and some are already in college, so time will tell if they show interest in becoming our fourth generation in the business. We certainly hope so!

Beschloss: I'm sure you are aware of the thousands of well-wishers

who have been concerned about Conbraco's and the Mosack family's good and welfare. Is there any message you would like to share with your customers, admirers and industry well-wishers who have seen in Conbraco the American success story personified?

Mosacks: We are incredibly appreciative and grateful for the support we've experienced, especially since the buyback. We could not have accomplished what we did without the dedication and support of our customer base, reps, suppliers and our world-class group of employees. We will never forget the overwhelming support, letters, e-mails and phone calls. We even received support from some competitors. With our ability to manufacture the best quality product available, ship 97% within 48 hours (10,000 "H" Skus), 95% fill rate, our continuous improvement dedication and our development of new products, we are excited about the future of Apollo! ■



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Variable speed circulation – the simple facts

BY JOHN VASTYAN

Renowned Taco trainer John Barba opened a recent webcast this way: "I'm John Barba, and today's topic is variable speed pumping. It's not a new concept and it's not very hard to do."

Well, I'm not John Barba, and that's why the topic of variable speed hydronic circulation has been



Harry Grattage, technician for Riley Plumbing, installs a variable speed circulator.

something of a mystery for me. But being the talented educator that he is, I've come to learn a lot more about the technology. I'm eager to share it with you.

John goes on to point out that 2004 was the year Britney Spears got married and broke his heart, twice. Also in 2004, America's domestic engineer, Martha Stewart, was sent up the river for crimes against humanity. And, 2004 was also the year that Taco introduced the world to a full line of residential variable speed circulators. That was

apply the technology, where you'd use it, and what the key benefits are.

The universal hydronics formula

The purpose of a variable speed circulator is to automatically adjust its speed based on heating load demands, or how many BTUs are needed in a structure. To understand how it does that, let's take a quick look at the universal hydronics for-

mula which states that GPM is equal to BTUH divided by delta-T, multiplied by 500.

Let's define the terms.

GPM is gallons per minute. That's the flow rate needed to deliver the required amount of BTUs.

BTUH or BTUs per hour, or the required amount of heat for a house, or zone, at any given point in time. We all know that outdoor temps or the number of people in a home will alter the BTU load.

Delta-T (ΔT) is the designed temperature drop across the piping circuit. In a baseboard zone, the design ΔT is usually best at 20 degrees, meaning the water might enter the baseboard zone at 180°F and return to the boiler 20 degrees cooler, at say, 160°F. In most residential radiant floor heating systems however, the design ΔT is usually about 10 degrees, meaning water would enter a radiant loop at 130°F and return at 120°F.

This 10-degree ΔT is important because it ensures an even, comfortable floor surface temperature throughout a room. A wider ΔT would likely create greater variation in floor surface temperatures; not a good thing.

The final element of this equation is 500. That's a shortcut that represents the weight of one gallon of water (8.33 pounds) multiplied by

60 minutes in an hour, again multiplied by a specific heat characteristic of the fluid, which is "1" for 100% water. After all, it takes one BTU to raise the temperature of one pound of water one degree Fahrenheit in one hour. $8.33 \times 60 \times 1 = 499.8 \dots$ so we'll just call it an even 500.

Sample project

"Let's say we have a house with a heat loss of 75,000 BTUH with an outdoor design temp of 0°F," said Barba. "We need three zones of fin-tube baseboard; each zone has a 25,000 BTU-per-hour heating level. Each zone will be designed to a 20-degree ΔT .

"Now, let's plug the numbers into our formula," he continued. "Remember that GPM equals BTUH divided by ΔT times 500. In this case, $GPM = 75,000 \div 20 \times 500$, or $[75,000/20 \times 500] = 10,000$. So, $75,000 \div 10,000$ gives us a flow rate for the job of 7.5 gallons per minute (remember 7.5 GPM for later). Each zone has a heating load of 25,000 BTUH. If we plug this information into our formula, we would divide the load, 25,000, by 20 times 500 $[25,000/20 \times 500]$ or 10,000, for a flow rate per zone of 2.5 gallons/minute."

Knowing this, said Barba, we can now size the pipe. Using the following guidelines, the proper pipe size

hydronics junkie. According to Riley, "this hydronic recipe calls for 1-inch pipe and 7.5 gallons per minute. At the header, I'd branch off into 3/4-inch lines for each baseboard zone, then doing the same thing, only backwards, for the return side of the system."

Next up, said Barba: estimate the head loss of the piping system so that circulator(s) can be selected. To do this, measure the longest zone from the discharge side of the circulator all the way around the system, through the boiler, and back to the suction side of the circ. Let's just say that for this application the longest run is going to be 150 feet of pipe, including the baseboard element.

"To estimate head loss, we're going to take the length of the longest run (150 feet) and multiply it by 1.5 to allow for the additional pressure drop through the fittings, the valves and all the other stuff that gets in the way," added Riley. "If we take that 150 and multiply it by 1.5, we're going to find that we have a total equivalent length of 225 feet. Next, we multiply that number by .04 (representing 4 feet of head loss per 100 feet of straight, properly-sized pipe, based on the maximum flow velocity of four FPS).

"Now if we 'math that out,'" said Barba, "225 multiplied by .04 equals nine feet of head loss. Remember, the circulator must be sized to provide 7.5 GPM while overcoming a head loss of nine feet."

To size the pump for the total flow rate needed for the job, we know the need is for 7.5 GPM at nine feet of head to deliver 75,000 BTUs. Size for the worst-case head loss zone. If the circ can overcome the head loss of the worst-case baseboard zone, it can certainly overcome the head loss of all the others.

System curve

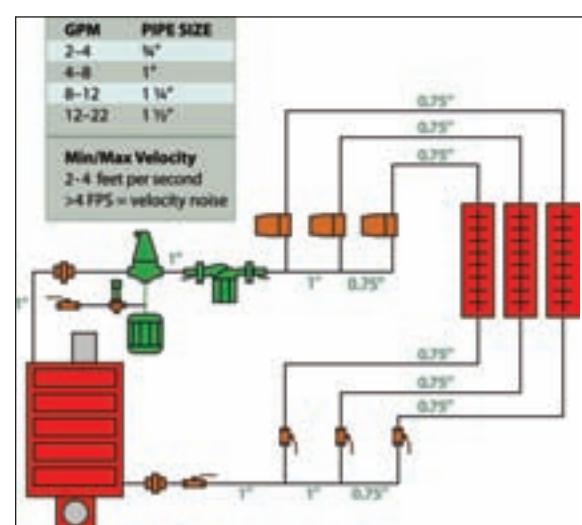
According to Barba, we already know how to locate two points on the system curve. At 7.5 GPM we have a head loss of nine feet

and, for clarity, at 0 GPM we have a head loss of 0 feet of head. "Using a formula, we can calculate other head-loss points at other flow rates, and then plot them on the pump performance curve graph against a pump performance curve. Once we do that, we can

(Turn to Variable... page 48.)

five years ago, but we're still grappling with this "new" technology.

Let's take a closer at the concept of variable-speed pumping. I've asked Barba and professional contractor Bill Riley (www.rileyplumb.com) to explain when it's best to



Pipe sizing guidelines are all based on minimum and maximum flow velocities, a minimum of two feet per second (FPS) and a maximum of four FPS. If we exceed the maximum of four FPS, flow velocity noise will occur.

for the boiler supply pipe and the boiler return pipe, the distribution header, and the zone piping can be determined.

"The piping arrangement would be next," added Bill Riley, president of Warwick, R.I.-based WJ Riley Plumbing and Heating, an admitted

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Circle 38 on Reader Reply Card

Variable speed circulation

(Continued from page 46.)

see that the actual operating point of the system will be where the system curve intersects a pump curve. Aha!, but the system requires 7.5 GPM only when all zones are calling, and only when it's zero degrees outside," added Barba with a wild variety of facial expressions and the waving of hands.

"The building will need fewer BTUs when the zone valves begin to close," continued Riley. "If just two

The perfect hydronic storm: dropping Delta-Ts

Another concern is pressure differential within the system. As zone valves close, the system curve intersects the pump curve at higher and higher pressure differentials. This greater pressure differential can cause higher flow velocities within the system, and that can quickly lead to velocity noise. It's the perfect hydronic storm: with a fixed-speed circulator, it's easy to have poor heat transfer and inefficient, noisy operation, all at once.

One way to deal with the noise would be to install a pressure differential bypass valve, like the Taco 3196, which prevents flow when all of the heating zones are calling. But as those zone valves close, increasing pressure differential within the system, the 3196 bypass valve opens to allow excess pressure and flow to pass through back to the suction (inlet) side of the circulator.

A better solution for noise would be to use a mid-flow, low head, flat-curve circulator like the Taco 007. With such a pump, system pressure rises minimally, nixing the need for a bypass valve. But — if the job has higher

head requirements than the 007 can deliver, we may need another solution: a variable speed pump.

With all of the zones calling, we know that $\Delta T = 75,000 \div 9 \div 500$. "So, we find that the actual system delta-T at this point may be closer to 16 degrees, not the 20 we designed for," said Barba. "Doesn't sound like much, right? But that also equates to about a 20 percent difference. With only two zones calling the delta-T drops to about 15 degrees (a 25% difference), and with only one zone calling, the delta-T drops again to 12 degrees . . . a whopping 40% difference."

"All of this can happen, even when it's zero degrees outside," asserted Riley. "What if it's, say, 35 degrees outside and the heating load at that temperature is only 38,000 BTUs with all zones calling? As you can see, the potential for smaller and smaller delta-T's, over 60% differences to design, can quickly lead to inefficient boiler short-cycling and plenty of velocity noise."

Barba's waving his arms again to emphasize his point: "Solve the dilemma of dropping Delta-Ts by using a fixed ΔT , variable-speed circ," he said.

Looking back at the universal hydronics formula, we know that if we fix the ΔT at 20, and divided the total load of 75,000 by 20 times 500 or 10,000, we find that the flow rate has to be 7.5 GPM. With two zones calling, a load of 50,000 BTUs, and a fixed 20-degree ΔT , we find that the

flow rate has to be 5 GPM. And with one zone calling, the flow rate has to be 2.5 GPM. Clearly, with a fixed ΔT , flow will vary automatically to the zones, it has to. You'll never have to worry again about over-sizing a circ.

So, rather than searching for the point where the system curve intersects the pump curve, we know that the pump curve will self-adjust every moment and every day of the heating season.

In a variable speed circulator, the ΔT control is built in. They're simple to install and easy to program. There're no surprises during installation. The only difference is the need to wire the sensors on the supply and return.

Variable speed circs, by design, are also easy to set up. You simply dial-in the pump to meet the ΔT you want. Just remember that the ΔT is directly related to flow rate. It's part of the universal hydronics formula: $GPM = BTUH \div (\Delta T \times 500)$.

Another pump control concept on the streets is Delta-P (ΔP), or pressure differential. But where is P in the universal hydronics formula? What we're trying to do here is to satisfy the heat loss of the structure in the most efficient way. The best way to do that is to allow the circulator to adjust its speed to deliver the required BTUs. By maintaining a consistent ΔT (10 for radiant, 20 for baseboard, higher for panel radiator systems, etc.), we can vary the flow as needed to ensure optimal performance and heat transfer. And, the ΔP is always on, always drawing power, 24/7/365.

One final thing about ΔT : it doesn't flat-line. A ΔP circ is not only always on, always drawing power, 24/7/365 but it will always maintain a constant delta-P in the system regardless of what the system actually requires. If the programmed-in ΔP isn't accurate, actual system flow rates may be much higher than required, and that will mean a smaller ΔT than designed leading to much less efficient system operation. A ΔT pump, on the other hand, will always run at the lowest possible speed, maximizing system performance and efficiency.

Now, that's a hydronic recipe Barba says is better than Martha Stewart's best, and a thing of even greater beauty than Britney Spears. ■



Making the final connection to the variable speed circ.

zones are calling, we drop to 50,000 BTUs. If only one zone calls, we're down to a need for only 25,000 BTUs — meaning progressively higher flow than we want or need."

Through experience, many of you know this soon translates to boiler short-cycling, possible even in the dead of winter — and this will substantially impact overall system efficiency.

the system, the 3196 bypass valve opens to allow excess pressure and flow to pass through back to the suction (inlet) side of the circulator.

A better solution for noise would be to use a mid-flow, low head, flat-curve circulator like the Taco 007. With such a pump, system pressure rises minimally, nixing the need for a bypass valve. But — if the job has higher

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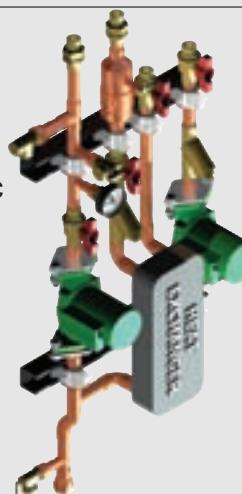
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Patent Pending Components



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Circle 39 on Reader Reply Card

John Vastyán is president of Manheim, Pa.-based Common Ground, Uncommon Communications, LLC. He specializes in communications for the hydronics, radiant heat, geothermal, plumbing and mechanical and HVAC industries.

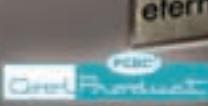
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See more at www.hybridstories.com

Circle 40 on Reader Reply Card



VERSABLOCK – designed by contractors for contractors

It's all very simple, really — plumbers with great ideas seeing their innovation come to fruition. Ken Smart and Terry (T.K.) Tidwell were instrumental in launching the VERSABLOCK pipe pier system, Free-

dom Inc. (www.versablock.com), an innovative, inexpensive, and versatile installation solution for gas piping, HVAC, solar heating, and electrical conduit applications.

Both active plumbers, Ken and Terry get their ideas on the job site, always thinking of ideas for new products to save other contractors labor and material costs.

With 30 years of mechanical, plumbing and contracting experience, these guys have run miles and miles of gas pipe, condensate, etc., on roofs and flat floor applications. After struggling with single pipe blocks, expensive foam blocks that deteriorate, and especially blocks of wood, they decided to make something better. The VERSABLOCK is a perfect exam-



The VERSABLOCK pipe pier is an innovative, inexpensive, and versatile installation solution for gas piping, HVAC, solar heating, and electrical conduit applications.

Looking at their newest version of the VERSABLOCK (from l to r), owner Ken Smart, Bruce LaVassar, president of Adaptive Technologies, Inc. (ATI), Ryan Cowgill chief engineer, ATI, and owner T. K. Tidwell, discuss the new capability to accept Strut clamps without Unistrut for securing gas pipe onto the VERSABLOCK.

New From General

Gen-Eye POD™

Lightweight, Economical Inspection System

The Gen-Eye POD™ camera system combines camera, reel, and monitor into an all-in-one package. You just grab it and go.

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Circle 41 on Reader Reply Card

ple; unlike wooden blocks that cause rips and cuts in membrane roofs, the unique footprint of the VERSABLOCK support system disperses the weight evenly with no sharp edges to harm the roof — installed to roof manufacturer's specs.

A single pipe can simply be placed in the support groove, or single or multiple pipes can be secured by using two hole straps, or with strut mounting components. Strut mounted pipe roller systems eliminate support movement completely. The VERSABLOCK can be used with strut in various configurations to support heavy loads.

VERSABLOCK has been engineered with specially designed screw bosses to provide superior holding power for both strut and two-hole strap applications using common drywall screws. The six inch height allows for easy installation of valves and regulators without disassembly. By using a 90-degree angle bracket, installation of condensate drainage pipe is easily achieved.

The VERSABLOCK meets all codes nationwide, and they are stackable so you can carry and store easy. They are light, yet strong, and are durable on the roof. It also allows pipe to be fastened tightly if required, or loosely but securely to allow for thermal expansion if desired.

Since starting Freedom Inc. seven years ago, the company has received two U.S. patents and have patents pending on two other plumbing products. Their guiding principles are to make construction a little eas-

ier, provide dependable products for less money and to make them as versatile to use as possible.

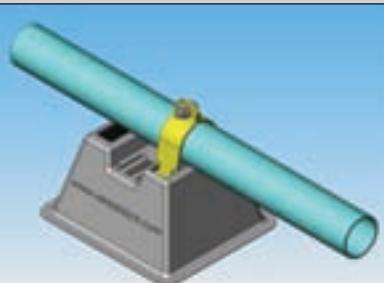
"Freedom Inc. was started with our original VERSABLOCK. Since then, the VERSABLOCK has undergone several design changes. We designed the shorter, smaller, E-Block for electrical conduit. It's also a great condensate support. Subsequently, we designed the Versa-roller and Versa-saddle to make a complete system," said Ken Smart.

ATI of Nampa, Idaho, ati@atiplastics.net, has been instrumental in part and mold design and development of all Freedom Inc. products. They are not just molders but great business and design partners that help make Freedoms products better and more cost effective. They have a great deal of plumbing products that they make for large and small suppliers.

E Block

The efficient, versatile conduit support system for electrical contractors.

- Specially designed slots accept



strut clamps from 1/2" EMT to 2" IPS;

- Strut can be added to individual E Blocks for larger conduit or can be "bridged" for gang runs;
- Quick, simple installation and minimal cost increase your profit margins; and
- Unique pyramidal design allows "nesting" for ease of transportation, and provides exceptional stability.

The Versablock can be used in many configurations on flat floor or flat roof installations. A clamp groove allows the use of clamps without strut, or strut can be attached, allowing several pipes to be supported with a single block.

The pyramidal design is very strong and stable, lightweight, and allows the VERSABLOCK to nest together tightly for storage and transportation. It has a 100 lbs. weight rating, and is constructed of U.V. resistant ABS. Versatile and inexpensive, it is easy to use and quick to install. By rotating one block 90° atop another, a 2" height increase is

achieved, allowing pipe to remain level on uneven roofs.

Freedom Inc. has been very successful in getting its product coast to coast. Architects and engineers are increasingly specifying VERSABLOCKS, and installers who have used VERSABLOCKS keep requesting them. Terry says if you have worked on a large commercial building in the last four years there is a good chance

you used VERSABLOCKS. They have established their quality with hundreds of plumbers and fitters around the country. Their products can be purchased through most major suppliers and many local suppliers as well.

The American-made VERSABLOCK is ideal for plumbers and pipe fitters, electricians, HVACR installers, architects roofers, building maintenance

technicians, federal, state and military installations. Anyone who installs gas, plumbing, condensate, hydronic or conduit piping will benefit from using the VERSABLOCK system. The VERSABLOCK is inexpensive, lightweight, easy to transport, user friendly, extremely versatile, and the finished product is a professional-looking installation. For more info, www.versablock.com. ■



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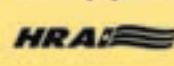
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Circle 42 on Reader Reply Card



Electronic lavatory faucet

The E-Tronic™ 40 faucet has many of the features of the popular HyTronic™ line, providing another electronic option for commercial lavatory applications. The faucet has hermetically sealed above-deck electronics for easy maintenance and long-term reliability, with a choice of a CRP2 battery or an AC adaptor. An efficient dual beam infrared sensor has multiple modes and ranges that can be adjusted manually or remotely from a palm-enabled device. Makes monitoring battery levels and trouble shooting accurate and convenient. Chicago Faucets.

Circle 101 on Reader Reply Card



Engineered no-hub fitting restraint

No-hub fitting restraint application, the HOLDRITE #117 Series is ideal for no-hub DWV joints in excessive pressure situations at 90 degrees or less. 3-minute product installation meets CISPI

301 requirements, reduces the overall installation cost by eliminating the need for riser clamps and cut all-thread rods. Available for pipe sizes 2" to 8". Hubbard Enterprises/HOLDRITE.

Circle 102 on Reader Reply Card

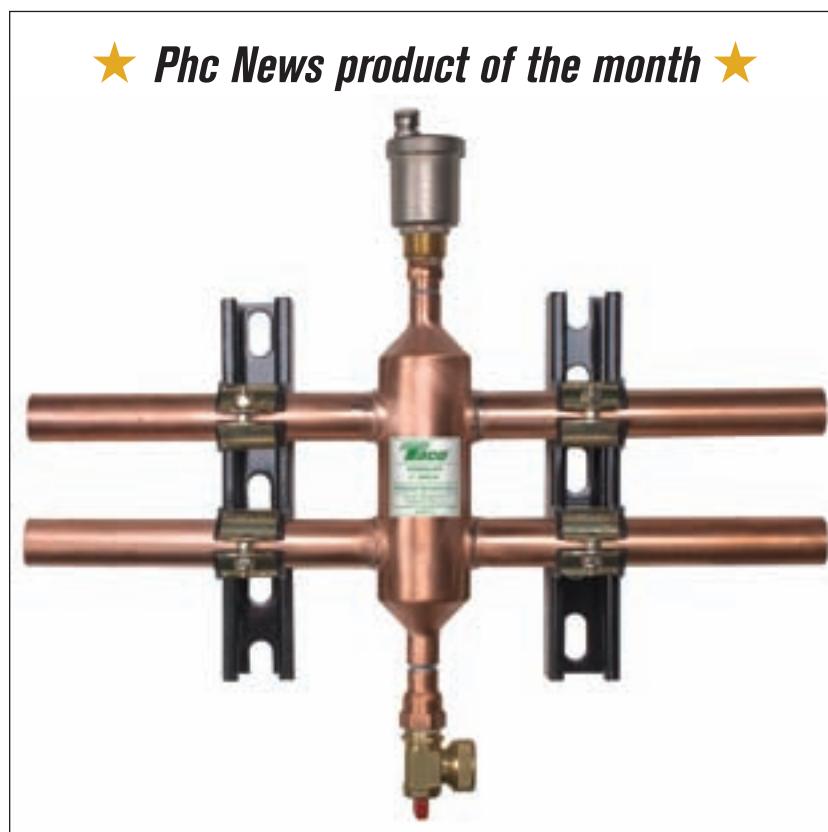
Water line installation solutions

The EZ Quick family installs new appliances to existing water supply



lines, consists of three quick-connect valve sizes for ice machines, refrigerators, humidifiers, under-cabinet water filters and evaporative coolers. Certified to NSF/ANSI 61. Available in complete kits or in individual valves. Dormont Mfg.

Circle 103 on Reader Reply Card



Hydro separator: primary-secondary solution

Hydraulic separator line offers one of the most effective means of accomplishing primary-secondary piping for residential and commercial hydronic systems, typically, those with multiple zones. By creating a low pressure zone, the units enable the connected primary and secondary loops to be hydraulically independent of each other. The flow in one circuit does not create flow in another. Newest in the line-up is the residential-sized "Hydro Sep™," a unit with seamless copper body, an automatic air vent to discharge air within the circuits, and a drain valve for removing system sediment accumulated in the bottom of the unit. The Hydro-Sep can be connected to 1" and 1 1/4" lines, permitting a maximum flow of 11 to 15 GPM and insuring proper flow through a boiler as it eliminates the potential for boiler flash. Taco.

Circle 100 on Reader Reply Card



PUREFIRE® boilers

Two new sizes in the PUREFIRE® gas-fired condensing boiler line include the PF-210 residential unit that delivers 97.3% efficiency and is ENERGY STAR® approved. The commercial-sized PF-399 offers efficiency of 95.5%; all six PUREFIRE sizes have ASME and ETL certifications for both the U.S. and Canada. Boilers are direct vent, sealed combustion available for natural or LP gas. A condensate system with built-in neutralizer component and float switch protection is a top feature of the boiler. Peerless Boilers.

Circle 104 on Reader Reply Card

Variable speed pump controller

Technologic® 502 variable speed pump controller utilizes the latest generation hardware platform with a advanced pumping software for a smarter, more efficient pump system for HVAC and pressure booster applications.

Integrated controller and adjustable frequency drive increase ease of set-up and menu navigation, lengthen equipment life and lower operating costs: control up to four parallel pumps; four analog inputs for a combination of zone sensors, flow sensors and suction sensors. Customized algorithms handle the entire range of pumping applications: secondary, tertiary, hot water, chilled water and pressure boosting. Bell & Gossett.

Circle 105 on Reader Reply Card



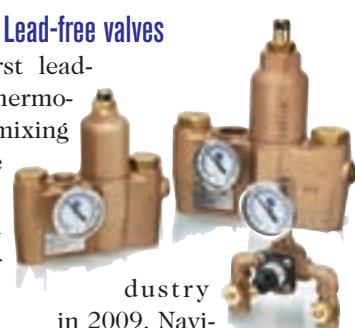
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R-flex flexible, pre-insulated piping system consists of single or dual PEX carrier pipe surrounded by a thick layer of cross-linked PEX foam insulation, protected by a thick, double-wall corrugated outer shell. Maintains tighter bends for easier handling, faster installations. Offers low water vapor absorption, enhanced R-value, and excellent resistance to extreme temperatures. Longer coil lengths for fewer connections in the field, decreased risk of leaks. No special tools required to install R-flex. Watts Radiant.

Circle 106 on Reader Reply Card

Lead-free valves

The first lead-free thermostatic mixing valve available in the industry



in 2009, Navigator® lead-free valves have recently earned IAPMO certification. The valves fully comply with current lead-free legislation; safer for drinking or cooking water and better for the environment. The valves work and look the same way as they did previously to regulate water temperature within a set point and prevent water temperature extremes. Bradley Corp.

Circle 107 on Reader Reply Card

Heat pump water heaters

The Accelera® 300 reduces hot water costs up to 80% by putting excess heat from the heat pump into an 80-gallon tank of water. Greatly reduces energy consumption compared to a conventional electric tank type water heater. Its compressor and fan consume only 1kWh of electricity to generate the heat equivalent of 3 – 5kWh. Stiebel Eltron.



Circle 108 on Reader Reply Card

Sometimes a hands on demonstration is all you need.

The heat exchanger in a Bobcat modulating condensing boiler uses one inch wide waterways, making it much less susceptible to mineral buildup. A popular heat exchanger used by many competitive heating companies has water passages only .20 of an inch wide. In addition, theirs requires regular cleaning or it could void the warranty. One more nice thing about the Bobcat is, that it is designed and built right here in America by Slant/Fin, a company with 60 years of experience in the heating business.

What are you waiting for? Get your hands on a Bobcat.



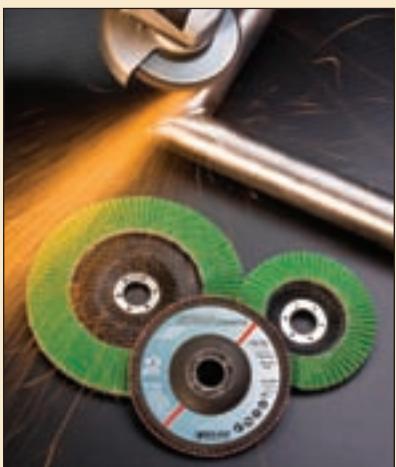
- High Efficiency—93% AFUE
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- 2 Models, 4:1 Modulation
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- Built-in digital control board with outdoor reset included

Circle 43 on Reader Reply Card

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SIGMA ceramic flap discs feature ceramic abrasive grains bonded to a proprietary treated material that is layered and stacked in a way that provides aggressive and controlled stock removal with minimal pressure. Self-sharpening and durable, these standard density Type 29 discs are ideally suited for use on stainless steel, mild steel, and exotic metals.

Rex-Cut Products, Inc.

Circle 110 on Reader Reply Card

Core bits

Coring through brick and block is more efficient than ever for electricians and plumbers thanks to the addition of a starting aid in HDMB



core bits. Core drills are already recognized for their excellent performance, and the HDMB core bits make them even more productive. Used for dry coring of brick, concrete block and softer, abrasive base materials, HDMB core bits are available in diameters ranging from one to six inches, all with a 10-inch working length. They're slotted for maximum cooling to keep working under the toughest conditions. **Hilti**.

Circle 111 on Reader Reply Card

Handheld pressing tool

The M20+ and the P20+ professional-grade pressing machines bring increased productivity, time savings and ease of job execution to the skilled tradesman. VIRAX M20+ is a compact pistol grip pressing machine the size of a cordless drill. See www.phcnews.com for a chance to win a M20+ pressing tool! **Stanley VIRAX**.

Circle 112 on Reader Reply Card

**Drain inspection system**

The SeeSnake® microDrain™ inspection system allows for quick inspection in places previously difficult to inspect, providing accessibility, efficiency and reduced job time. The SeeSnake microDrain inspection system features a 30-foot flexible cable and a small 22-millimeter diameter camera head that allows for more accessibility and efficiency in inspection jobs. The flexibility of the cable and tight turn radius of the camera head allows for access through many toilet traps and small P traps without the need to disassemble or dismantle plumbing fixtures. The durable and rugged microDrain inspection system is lightweight and easy to carry making it more accessible for everyday use and an easier fit on every truck. The unit is 19" high and 4 1/2" wide. **RIDGID**.

Circle 109 on Reader Reply Card

**Excavators**

New M-Series skid-steer and compact track loaders feature the most significant design changes undertaken by the company. This new design enables the operator to accomplish more work through performance and durability enhancements that provide more power and keep the loader working longer, while increasing operator comfort through improved visibility and a more spacious and comfortable cab. **Bobcat®**.

Circle 113 on Reader Reply Card

Ratchet tube bender

"CrossBow" ratchet tube bender creates precision bends to 90° on soft copper and aluminum. Low friction



mandrels and rotating side bending blocks produce smooth, accurate bending in restricted spaces, with minimum distortion. Repeated alternate angled bends can be produced. **UniWeld Products, Inc.**

Circle 114 on Reader Reply Card

**Equipment replacement keys**

WEATHER GUARD® replacement keys can be ordered online in just a few steps. The user chooses what equipment the key belongs to: van or truck. Then the user selects the correct type of lock from the choices shown on the page; enters the key code; and indicates the number of sets needed. Finally, the user purchases the sets online. The user-friendly site provides additional assurance to the user that the right key is being ordered by providing matching pictures of key and locks. **Knaack LLC**.

Circle 115 on Reader Reply Card

Pneumatic rivet nut tool

The Marson-brand SST, a versatile, low cost, Spin/Spin pneumatic rivet nut production tool.

Complete with a quick-change nosepiece assembly and standard socket head cap screw mandrel, the SST offers convenient replacement and changeover. Ease of operation is provided by the SST's superior ergonomic design combined with its lightweight body. Additionally, the SST operates without stroke adjustment. **Aleoa Fastening Systems**.

Circle 116 on Reader Reply Card

Tool bag

The Model LT-XL is made of ultra-rugged, PVC impregnated, denier



body fabric and has a thick, injection-molded polypropylene base. Keeps 30-40 tools plus a laptop and 30 feet of network cable within reach. **Veto Pro Pac**.

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Circle 44 on Reader Reply Card

Supply New England honors Slant/Fin, Emerson Swan

ATTLEBORO, MASS. — Supply New England has awarded its annual

manufacturer and rep agency awards to Slant/Fin and Emerson-



Slant/Fin's Adam Dubin accepts the Manufacturer of the Year Award from David Corcoran, president of Supply New England.



Bob Oppel of Emerson-Swan accepts the Manufacturers' Rep. Agency Award from David Corcoran, president of Supply New England.

Metraflex introduces BIM drawings for piping products

CHICAGO — Engineers and piping system designers can now access CAD drawings that meet BIM standards at the Metraflex website, www.metraflex.com.

Available in 2D and 3D, Metraflex product BIM drawings can be down-

loaded and imported in a variety of software formats, meeting BIM standards set in place for construction projects in a variety of sectors including government projects, schools, commercial buildings.

A significant asset in the effort to contain costs, Building Information Modeling offers the ability to decrease errors by allowing the use of conflict detection. Design and construction team members can see immediately when parts of the building come into conflict, and through detailed computer visualization of each part in relation to the total building solve issues early in the design/build process.



Swan, respectively. Both are previous winners of the awards, which are voted on by Supply New England's employees at its 15 locations. The awards were presented recently to both companies at Supply New England's Attleboro, Mass. headquarters.

"These two firms, each in their own way, have done an outstanding job of supporting our branch personnel and management team in these difficult times," commented David Corcoran, president of Supply New England. "It's no surprise that they are repeat winners."

Slant/Fin, based in Greenvale, N.Y., manufactures a wide range of oil, gas and electric-fired commercial and residential boilers, residential and commercial baseboard products, and radiant tubing, fittings and controls. They won the Manufacturer of the Year Award from Supply New England in 2008.

Emerson-Swan, Inc. is one of the largest manufacturer rep. agencies in the U.S., and sells its products throughout New England, Upstate New York, Pennsylvania, West Virginia and Ohio. The company represents over 30 manufacturers in the plumbing, heating and HVAC industry. Supply New England honored them with its Manufacturer Rep. Agency Award in 2006.

Supply New England, headquartered in Attleboro, Mass., operates 15 supply house locations in Mass., R.I. and Conn. and seven retail kitchen & bath galleries. For more information visit online at www.supplynewengland.com.

NIBCO® launches lead-free micro site

ELKHART, IND. — With a January 1, 2010, deadline for lead-free compliance in California and Vermont quickly approaching, NIBCO INC. launched a new website www.NIBCOleadfree.com, to help keep customers informed of important lead-free product updates. NIBCO's "Lead Free Resource Center" is a



source for those in the plumbing industry who do business in California and/or Vermont. Both states will begin requiring all plumbing products that convey or deliver water for human consumption to be lead-free beginning January 1, 2010. Visitors can download NIBCO's Lead Free Reference Guide, glance through an ever-expanding list of FAQs and stay abreast of the latest product info.

Tremco firestop sealants added to FGG/BM/CZ™ System Compatible Program

CLEVELAND — The Lubrizol Corp.'s Tremco TREMstop IA+, Fyre-Sil and Fyre-Sil SL firestop sealants are chemically compatible with Flow-Guard Gold®, BlazeMaster® and Corzan® CPVC piping systems and have been added to the FGG/BM/CZ™ System Compatible Program.

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Work hard, endorse harder

BY JOHN MESENBRINK,
editor

I have to admit I was never one for self-promotion.

Sure, confidence is one thing, but cockiness is another. But as I get older and wiser, I realize it's inevitable. And, in today's economic environment, it is imperative to sell yourself on a daily basis.

Let's take social networking. At first I was a bit skeptical. I mean, I believe there is an aspect of it that lends itself to status. Bobby has 75 friends on Facebook®, Timmy has 25 connections on LinkedIn®. Who cares, right? Also, I'm not sure that I need to know what someone else is doing 24-hours a day from a Tweet! It all seemed a bit self-smarmy to me, but to be honest, I have warmed up to the potential benefits of social networking. I can self-promote, connect and keep in contact with other like professionals, keep others updated on my professional and personal career, and I can even be contacted by some blast-from-the-past, high school unknowns. Okay, maybe not the latter, but it does happen.

Starting my career in editing/publishing, I moved in Portland, Ore., for a brief stint in the Northwest. As I combed the classifieds, I tried to find jobs that matched my experience. A-HA! I found it — an entry-level communications job for a major shoe manufacturer. I sent my resume and eagerly awaited their response. And I waited, and waited... Nothing. No callback, no letter of denial,

nada. I was pretty distraught. I remember thinking, "How can this company endorse an 14-year-old soccer player for millions?" How could they sign a 14-year-old with the athletic potential, yet little experience, and me, not even a sniff?! As I look back at it now, it was all about company image and the endorsements that potentially would drive their shoe business. Sure, this company had its "slam dunk" endorsements, but then again, it had some that made them tremble with hesitation and trepidation. Aligning the company with endorsees who exhibit questionable "off-the-field" behavior does not exactly embolden the company image with the public. The company pays billions in endorsement deals, and some have worked. But when you endorse somebody, you endorse their talent, their life and their character.

How does this relate to you? It's time to endorse yourself a little harder; endorse your business, endorse your local wholesaler and endorse the products in which you firmly believe. Don your employees with professional attire, for they are a representation of you and your company. Deck out your entire fleet to become an attractive billboard for your business. And, in this volatile economic climate, get a leg up on the competition any means possible, and social networking might be the answer. Profess to your customers which manufacturer's products you swear by. Endorse hard your character, work ethic and professionalism on a daily basis!

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Letter to the Editor

June 2009 — Are we willing the harness the sun?

I just wanted to say the new magazine format looks great. I must say, even though I'm not a plumbing professional, I find myself reading a lot of the editorial content. I thought the piece Jim Schaible wrote on the potential for solar was right on the money. Because I work in the solar industry, Jim was pretty much preaching to the choir; but it just amazes me how many Americans overlook the potential for this untapped resource — especially plumbers. Plumbing and solar water heating are like two peas in a pod. It's pretty easy for a plumber to offer his customers solar water heating as an add-on. I just wish more plumbers knew how simple it was to install. Anyway, keep up the great work!

— Michael Stough,
marketing coordinator, Heliodyne

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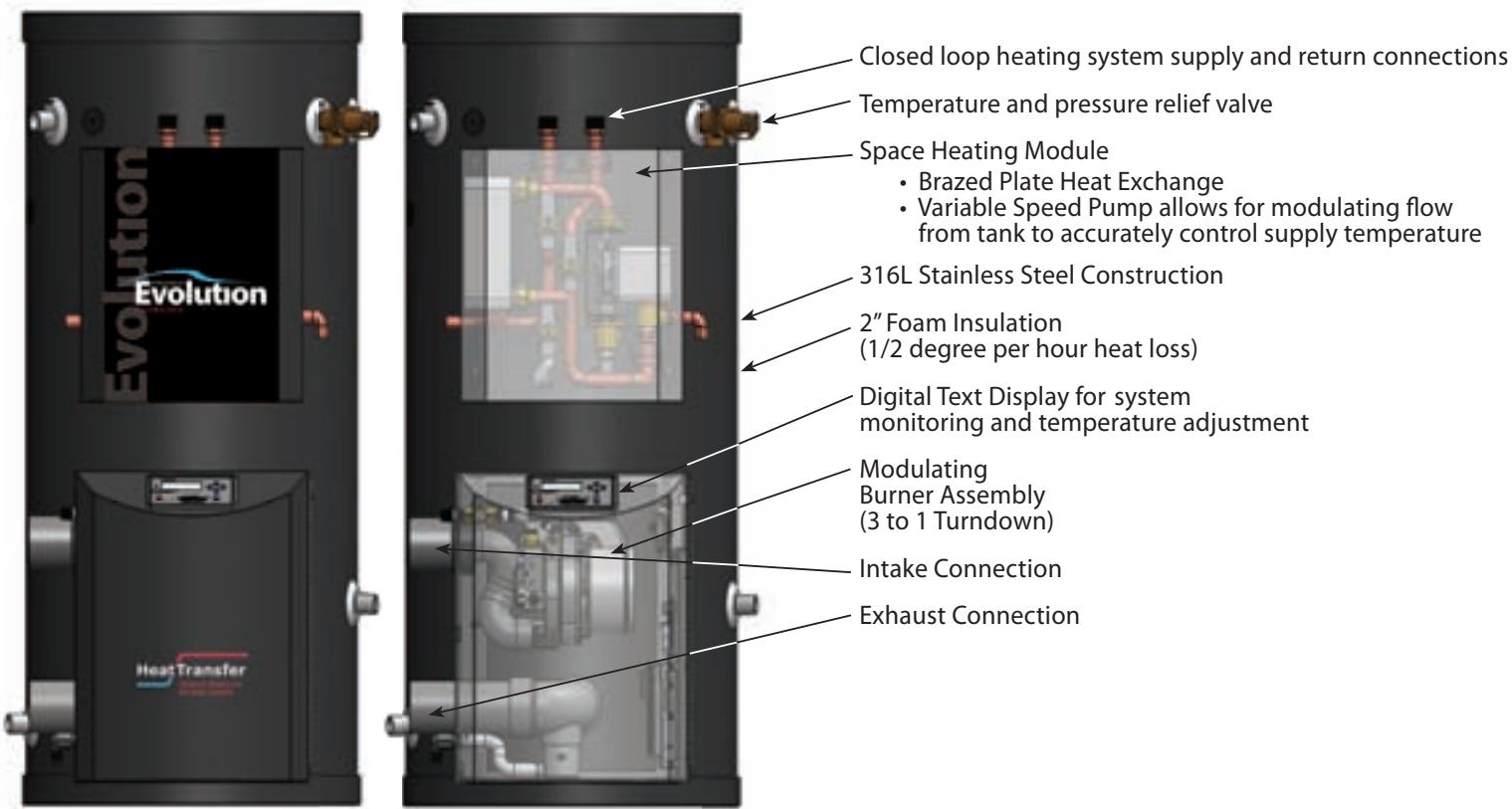
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