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# ***Phc News***

**plumbing & hydronic contractor news**





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# Jay R. Smith Mfg. Co.<sup>®</sup> a better way

## THE BOSS TEE

### The Jay R. Smith Mfg. Co.<sup>®</sup> Cleanout and Test Tee, Fig. No. 4505

Test the DWV piping system easily and without an inflatable plug in the vertical stack.

The Boss Tee is designed to work double duty in the sanitary DWV piping system: during construction to hydrostatically test the piping system for leaks then after testing as a standard cleanout tee.

#### The Boss Tee Advantages

- **Safety** – contractor not required to work inside of stack with 5-15 PSI pressure just upstream of the plug.
- **Reduces the chance of mold** – due to water spilling inside the chase.
- **No inflatable plug in the vertical stack** – to insert or remove during testing.
- **Reliability** – better testing results because of reliable closure of the stack.
- **Time savings** – test up to three floors; the inspector can use the gauge to verify pressure in the line.
- **Large, spherical opening in the fitting** – allows for easy hand access for line testing, inspection, and cleaning.
- **Controlled testing environment** – provides contractor with effective means of filling and draining the piping system.
- **Cleanout tee remains in the stack after testing** – to be used for future maintenance and testing.



Let The Boss Tee  
Do The Work!



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Patent Pending

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## On the Cover

A crate overflows with boilers, signifying the newest in boiler technology and heating equipment. Section begins on page 89.

## Features

### 104 A German Odyssey

Editor John Mesenbrink travels throughout Germany courtesy of the good folks at Viega, where he tours the company's manufacturing and training centers in Grossheringen and Ennetst, takes in the ISH Show in Frankfurt, tours a few castles and, of course, drinks lots of great beer.

### 116 Learning solar hot water

Many industry professionals for the first time are turning to solar energy for hot-water production. Here's a primer on properly sizing solar collectors to most effectively capture the sun's boundless, free energy.



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# Phc News

plumbing & hydronic contractor news

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# Viega opens manufacturing center; celebrates 110 years of global success

MCPHERSON, KAN. — Nearly 1,000 industry partners, government officials and Viega personnel gathered on Tuesday, April 21, for the official grand opening of Viega's 439,000-square-foot manufacturing and distribution center. "Today, we unlock here in McPherson, another door to the future," said Viega co-owner Walter Viegner.

The event kicked off in grand style at 10:00 a.m. where Viega CEO, Dan Schmierer, welcomed guests. "This facility represents Viega's commitment to the plumbing and heating industry" said Schmierer. While the housing market is not favorable now, Viega is confident the housing market will soon recover. Joining CEO Dan Schmierer on stage were also Viega owners, Heinz-Bernd Viegner, Walter Viegner, and newly-elected McPherson Mayor Tom Brown. "We have three reasons to celebrate. Our 110-year global presence in Germany, our 10-years in North America and today's grand opening," said Viega co-owner Heinz-Bernd Viegner.

Viega GmbH & Co. KG (Viega), headquartered in Attendorn, Germany, has been providing plumbing and heating solutions to builders, contractors and wholesalers for 110



From l to r: The four man-ribbon cutting included Heinz-Bernd Viegner, owner, Viega; Tom Brown, McPherson mayor; Dan Schmierer, president of Viega North America; and Walter Viegner, owner, Viega.

years. Viega is a family-owned business, which employs 500 employees in North America and approximately 2,800 people worldwide. Approximately 210 of Viega's North American employees work at the new facility in McPherson.

Presentations concluded with a ribbon-cutting ceremony, plant tours and a Kansas BBQ lunch, complete with a cake spanning 3 feet by 5 feet, which resembled the enormous facili-

ty. The manufacturing and distribution center spans 11 acres, which equates to nearly 10 football fields under one roof.

Equipped with extrusion and injection molding machines, logistics and office space, the new facility, and the state-of-the art equipment it employs, will help streamline operations, improve efficiency and provide Viega employees the space to start developing new products. Soon, 22 states throughout the Midwest will receive all Viega products from this location.

When co-owner Heinz-Bernd Viegner was asked if he would have invested in this large of a facility if he had known the housing industry was about to collapse, Mr. Viegner quickly responded, "Yes. Viega has remained a family-owned company for 110 years. Long-term thinking and employee interests have always been more important than short-term financial figures. The money earned during the good times is to remain in the company and be used for future-oriented investments." When the housing market turns around, this new facility will enable Viega to easily meet the demands of the rebounding housing industry.



Viega's 439,000-square-foot manufacturing and distribution center in McPherson, Kansas will house state-of-the art equipment that will help streamline operations and improve efficiency in new product development.

## Ferguson associates earn Certified Purchasing Manager designation

NEWPORT NEWS, VA. — Ferguson Integrated Services, a division of Ferguson, announced that Cheryl Vicari and Barney Eureste have earned the designation Certified Purchasing Manager from the Institute for Supply Management. The Certified Purchasing Manager (C.P.M.) designation is the

most recognized designation for supply management professionals. Vicari and Eureste have been with Ferguson Integrated Services for four and five years, respectively, and join approximately 60 other Ferguson Integrated associates who have earned the C.P.M. designation.

Ferguson Integrated Services also announced that Phillip Gibbons and Tim Umberger have earned the designation. Gibbons has been with Ferguson Integrated Services for four years, and Umberger has been with Ferguson Integrated Services for 25 years.

## In brief

### Milwaukee® receives Grainger's 'Partners in Performance' Award

MILWAUKEE — At its annual supplier meeting in Schaumburg, Ill., Grainger awarded Milwaukee Electric Tool Corp. the 2008 Partners in Performance Award in the Large Supplier Category.

Less than 2% of all suppliers earn this esteemed award that recognizes recipients for exceptional performance throughout the year. With innovative tools and excellent service, Milwaukee was part of this elite group. Award winning suppliers are measured on a number of criteria including responsiveness, on-time shipping, cost control, management commitment and product quality.

### Harvel Introduces clear PVC piping; launches website

EASTON, PA. — Harvel® Plastics, Inc., announced the launch of EnviroKingUV™, a clear PVC piping that is suitable for exposure to sunlight. To complement the debut of this product, Harvel launched a new website, EnviroKingUV.com, which provides details on its physical properties, applications, specifications, and installation parameters.

### Danfoss Heating launches website

TORONTO — Danfoss Heating, a leading manufacturer of intelligent electric floor heating systems and outdoor systems for ice and snow melting, recently launched a new website, www.LXinstaller.com, that provides access to its LX installer program and a new forum designed exclusively for Danfoss floor heating installers.

### Frost & Sullivan recognizes A.O. Smith

ASHLAND CITY, TENN. — Frost & Sullivan has selected A. O. Smith Corp. as the recipient of the 2009 North American Water Heaters Product Innovation of the Year Award.

The Frost & Sullivan Award for Product Innovation of the Year is presented each year to the company that has demonstrated excellence in new products and technologies within its industry. A. O. Smith received the award for its new product developments, including the Cyclone® Xi and Vertex™ water heaters.







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## American Valve to sponsor 7th Annual HotStop NFL Alumni/Shriners Charity Golf Classic

GREENSBORO, N.C. — American Valve announced its sponsorship of the 7th Annual HotStop NFL Alumni/Shriners Charity Golf Classic on June 14, 2009 in Denver, N.C. The tournament benefits the Shriners Hospitals for Children and the NFL Alumni Caring for Kids Programs.

The tournament is in memory of Leah McCammon who was the victim of a tragic hot water burn accident. Several days before her first birthday, her grandmother left her in an empty bathtub for only a minute while she went to answer the phone. During that time, Leah attempted to pull herself up using the hot water faucet handle. The force of 140°F water knocked her down and caused third-degree burns over most of her body. She was air-lifted to Shriners Hospital for Children, which specializes in pediatric intensive burn care. She died several days later. The past six NFL Alumni/Shriners Charity Golf Tournaments have raised over two million dollars in Leah's honor.

The confirmed NFL Alumni Players for 2009 include Dave Butz, L.C. Greenwood, Joe Jacoby, Blaine Bishop, Jeff Bostic, Joey Browner, Kevin Butler, Neil Clabo, Isaac Curtis, Carroll Dale, Chuck Foreman, Mel Gray, Victor Green, Ken Huff, Steve Kiner, Barry Krauss, Roy Jefferson, Tony Jones, Louis Lipps, Greg Lloyd, Mark May, Stanley Morgan, Earl Morrall, Mark Moseley, Adrian Murrell, Chuck Ramsey, Gerald Riggs, George Rogers, Wesley Walls, Herman Weaver and Dough Williams. The roster also includes Hall of Famers Joe DeLamielleure, Carl Eller and Jack Youngblood.

HotStop shower heads, hand showers and tub spouts prevent tap water scalds in the shower and bath by shutting off the flow of water when it reaches an unsafe temperature. Tap water scalds are the second most common cause of severe burn injuries among people of all ages.

For more information about HotStop anti-scald products, please visit: [www.h2otstop.com](http://www.h2otstop.com).

## REHAU offers training 2009 Skill Builders seminars

LEESBURG, VA. — REHAU announced the 2009 schedule of Skill Builders training classes offered throughout the U.S. and Canada by REHAU Academy. The schedule includes traditional three-day comprehensive Skill Builders Complete training courses, as well as three types of Skill Builders Focus Sessions tailored to the specific needs of experienced radiant contractors and heating professionals. The latter comprises a half-day Radiant Installers Focus Session, a one-day Radiant Designers Focus Session and a Geothermal Systems Focus Session. Focus Sessions will be scheduled throughout the year, and specific dates can be found by visiting [www.na.rehau.com/academy](http://www.na.rehau.com/academy).

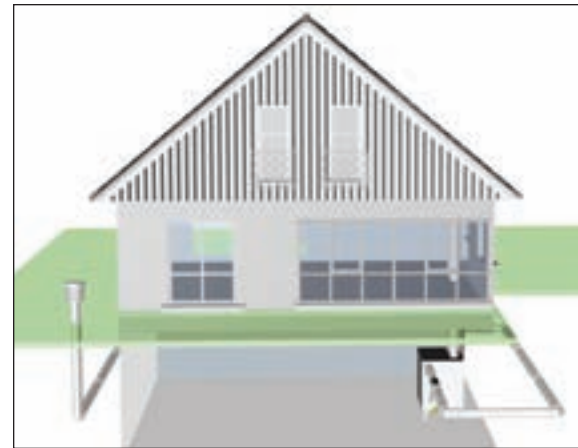
Facilitated by experienced REHAU professionals, Skill Builders Complete seminars will be held on the following dates and locations (asterisks indicate trainings held at REHAU locations):

- Skill Builders Complete:
- May 12-14 – Niagara Falls, Ont.
  - June 3-5 – Vancouver, B.C.
  - June 17-19 – Halifax, N.S.
  - July 8-10 – Denver
  - July 22-24 – Minneapolis
  - Aug. 19-21 – Leesburg, Va.
  - Sept. 23-25 – Niagara Falls, Ont.
  - Oct. 7-9 – Chicago\*
  - Oct. 28-30 – Saskatoon, SK
  - Nov. 18-20 – Leesburg, Va.\*

In other REHAU news, the company announced the launch of its new REHAU ECOAIR™ ground-air heat exchange system in North America — providing improved indoor air ventilation, enhanced

energy efficiency and increased comfort in alignment with the fresh air requirements of today's tighter building envelopes.

The REHAU ECOAIR system capitalizes on the relatively consistent 45°F to 54°F (7°C to 12°C) ground temperatures found 5 to 7 feet (1.5 to 2 meters) below the earth's surface where, previous to entering the indoor ventilation system, fresh air is pre-warmed with ground heat in winter, and pre-



cooled with cooler ground temperatures in summer. In addition to directly reducing the energy required to heat or cool incoming fresh air, the system provides a number of benefits to overall ventilation system optimization. These include lowering relative humidity during periods of cooling, and hindering condensation from freezing in heat recovery ventilators (HRV) during the heating season by raising the outside air temperature before it enters the HRV.

## BrassCraft offers 100% compliant lead-free plumbing solution

NOVI, MICH. — As a leader in developing innovative plumbing solutions, BrassCraft announced a full range of compliant products in response to new laws enacted in California and Vermont.

Beginning July 1, 2009, BrassCraft's compliant products will include brass stops, a vast array of solid brass fittings and Speedi Plumb® PLUS connectors ideal for most any job, including water heater applications. California and Vermont legislation, effective

January 1, 2010, will limit the lead content of pipes, pipe fittings or plumbing fittings/fixtures intended to convey or dispense water for human consumption through drinking or cooking.

In addition to being 100% compliant, BrassCraft offers brass compliant products. With manufacturing headquarters and facilities in the United States, BrassCraft has been a trusted brand in plumbing supplies for more than 60 years. With the introduction of these compliant products, BrassCraft continues to deliver on their commitment of providing innovative products for the ever-changing industry.



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## Inside the trade

### What we're hearing



#### R-410A and the HCFC phase out

MOUNT PROSPECT, ILL. — On January 1, 2010 manufacturers will no longer be able to sell equipment that contains HCFC R-22.

Systems that utilize R-410A employ thicker walled tubing, and compressors capable of withstanding the higher pressures of R-410A. R-410A systems require different installation and service procedures.

R-410A air conditioning systems require service personal to shift to different tools and equipment, safety standards and fundamentals when installing, changing out (retro-fitting) older split A/C systems, and repairing systems in the field.

HVAC service persons need to understand the safe handling, proper charging, operating characteristics, proper applications, and general use of R-410A refrigerant.

- R-410A should only be used in equipment specifically designed and constructed for higher pressure refrigerants.

- R-410A operates at considerably

higher pressures and requires the use of special tanks, gauges and recovery equipment.

- R-410A requires training of installation and service personnel in the proper and safe handling of R-410A.

- R-410A needs service personnel to understand why all refrigerant flow controls, valves and driers have changed and must be properly applied with newly designed & built compressors.

Many equipment manufacturers are well aware of the concerns and safety issues of working with R-410A and other HFC refrigerants and are requiring installation and service professionals who purchase their R-410A systems to be R-410A Certified.

In order to prepare for the challenges presented by R410A, many of the industries premier organizations teamed up to form the AC&R Safety Coalition. To learn more call about R-410A Certification and Training call 800/726-9696 or visit online at [www.escoinst.com](http://www.escoinst.com)

## Tool Tips

### with Hackman



#### Selecting a reciprocating saw blade

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

More teeth or less teeth, that is the question. The blade-life of a reciprocating saw blade can be significantly increased if the proper blade is used. It's will definitely be worth your while to make an extra trip to the hardware store rather than trying to use a wood cutting blade on a metal pipe.

The appropriate tooth per inch or TPI is determined primarily by what you are cutting. When cutting metal, a simple rule to follow is the thinner the material, the more TPI. The thicker the material, the less TPI. In general, you want to have at least two to three teeth in the piece you are cutting.

On a blade, the spacing between the teeth is called a gullet. The gullet is where the scrap material being cut

collects until it falls out when the teeth come out of the work piece. If you cut a piece of wide metal using a blade with teeth that are too fine, the gullets can fill up to capacity while the teeth are still cutting. The resulting friction generates heat build-up and tooth burn up. Also, if you cut metal that's thinner than the spacing between two of the teeth, it will cause the teeth to strip or break off.

Wood cutting on the other hand doesn't need the same tooth selection criteria as metal. There are several blades with larger size teeth that will cut wood quickly regardless of its size. Wood can also be cut with finer teeth, but the cutting time will be slower.

Blade length is also important; you want to select a blade that's at least 2"



to 3" longer than the maximum width of the material that is being cut. This is to allow for the length lost to the reciprocating machine. A blade that is way too long can also cause problems with whipping and slow the cut time down.

If you take the time to buy the right blade with the proper TPI, your blades will last longer, ultimately saving you time.

If you have any questions or comments for HACKMAN, email him at [hackman@lenoxtools.com](mailto:hackman@lenoxtools.com) or visit [www.lenoxtools.com](http://www.lenoxtools.com).

## Current prices

### Fuels



Gasoline			Diesel		
Area	¢/gal.	Change	Area	¢/gal.	Change
U.S. average	204.9	↑	U.S. average	220.1	↑
East Coast	203.5	↑	East Coast	224.1	↑
New England	205.4	↑	New England	239.5	↓
Central Atlantic	205.7	↑	Central Atlantic	237.4	↑
Lower Atlantic	201.3	↑	Lower Atlantic	217.1	↑
Midwest	199.0	↑	Midwest	214.2	↑
Gulf Coast	194.7	↑	Gulf Coast	217.1	↑
Rocky Mountain	207.1	↑	Rocky Mountain	227.0	↑
West Coast	227.6	↑	West Coast	231.5	↑
California	226.1	↑	California	232.0	↑

### Metals

\*Copper \$2.05/lb. ↑ | \*\*Aluminum \$0.64/lb. ↑

Prices valid as of 2/23/09. 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.

## Training Center

### Uponor releases 2009 Webinar schedule, features radiant expert Robert Bean

APPLE VALLEY, MINN. — The dates for Uponor's 2009 radiant webinar schedule are now available and ready for registration at [www.uponor-usa.com/training](http://www.uponor-usa.com/training) and selecting Online Classes. These live webinars, hosted by Robert Bean, a registered engineering technologist in construction engineering technology and an expert in radiant heating and cooling, are delivered free to industry professionals interested in developing their education and careers in the radiant heating and cooling market.

Attendees can also earn Learning Units (LU) toward pro-

fessional development, as required by the American Institute of Architects/Continuing Education System (AIA/CES), as well as Professional Development Hours (PDH) as required by the American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE).

Architects can earn one (1) AIA LU by attending the Thermal Comfort, Radiant Heating and Cooling, Snow and Ice Melting, or Frost Prevention webinars. Check for Webinar schedule online.



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## Clockwork Home Services reports franchise growth

SARASOTA, FLA. — Clockwork Home Services (Clockwork) announced franchise growth for 2008 within its

portfolio of nationally branded home services companies. During the period from January through December

2008, Clockwork added 74 new plumbing, air conditioning & heating and electrical franchises. The company now serves 574 territories with franchises in the essential home services sectors.

In 2008, Benjamin Franklin Plumbing® added 21 new franchises

for a total of 249 territories served; One Hour Air Conditioning & Heating® added 28 for a total of 245; and Mister Sparky America's On-time Electrician® added 25 for a total of 80.

"Despite the economic downturn in 2008 and partly because of it, contractors continued to see the value in combining forces under a nationally franchised brand," said Tab Hunter, president of franchise operations for Clockwork Home Services, Inc. "The pace of growth for Clockwork's contracting franchises is a testament to the sound business model, outstanding franchisee support and consumer confidence in our brands."

Clockwork Home Services, Inc. is dedicated to improving the operations, efficiency, customer service and profitability of contractors in the home services industry in North America through affinity group membership and nationally branded fran-

**"Despite the economic downturn in 2008 and partly because of it, contractors continued to see the value in combining forces under a nationally franchised brand."**

chises. Some of its companies include Mister Sparky® Franchising, Benjamin Franklin Plumbing® Franchising, One Hour Air Conditioning & Heating® Franchising, BuyMax® and Plumbers' Success International®.

### Clockwork makes Top 100

Clockwork Home Services/Benjamin Franklin Plumbing was inadvertently omitted from *Phc News'* Top 100 Contractors Listing, which was published in the March 2009 issue.

The new ranking reflects the inclusion of Clockwork at #46. (See new listing, below)

For more information, visit [www.thankyou/benjaminfranklin.com/phc](http://www.thankyou/benjaminfranklin.com/phc).

Virtually all of John Guest **Speedfit®** push-fit fittings and pipe have **always** complied with both The Federal Safe Water Act and the upcoming AB1953 Lead Law. John Guest is dedicated to service, quality and engineered performance in the manufacture and distribution of our products. Our ongoing commitment to our customers (and yours) means our products comply.... even before they have to.

For a complete listing of our lead-free products contact us toll free at 1-800 94-JG USA or via email at [info@jgusa.com](mailto:info@jgusa.com).

**John Guest®**  
Website: [www.johnguest.com](http://www.johnguest.com)

2009 Top 100		the list
1	John W. Danforth Co.	Sarasota, FL
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## ECAST™

### ECAST™ Products from Chicago Faucets

ECAST, from Chicago Faucets, is the line of durable, high-quality brass faucets that are designed and manufactured with less than one quarter of one percent (0.25%) total lead content by weighted average. These products are intended for installation where state laws and local codes mandate lead content levels or where lead content is a concern. Visit [ecast.chicagofaucets.com](http://ecast.chicagofaucets.com) for more information.

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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 Commercial Catalog

Chicago Faucets full line of commercial products is featured in this full-color comprehensive catalog. Select from a variety of manual, electronic, food service and laboratory products, plus components and repair parts. With over 500 standard products, and the know-how to custom build faucets to exact needs, you can count on Chicago Faucets for any commercial or institutional installation including; medical facilities, schools, office buildings, restaurants and stadiums. Chicago Faucets... *Lasts as long as the building.*



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### Conservation & Sustainability

Chicago Faucets commitment to water conservation and sustainability is highlighted. The brochure focuses on Chicago Faucets' extensive product offering of components and fixtures designed to assist in maximizing water conservation. Selecting low-consumption, energy saving Chicago Faucet products as new or replacement fittings can help earn green building rating points toward a facility's **LEED certification.**

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# hi.

## The HyTronic™

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

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

For a free HyTronic Product Kit with demonstration CD, call 800/323-5060 or circle the number below on the reader service card.

The HyTronic from Chicago Faucets... reliable and friendly.



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### Sloan Valve Co. appoints regional sales manager

FRANKLIN PARK, ILL. — Sloan Valve Co. appointed David Woodworth as its Southeast regional sales manager.

Woodworth served for two years as sales and engineering specialist for Sloan's Programmed Water Technologies (PWT) product line before accepting his new position.



Woodworth

### Egan Co. announces new CEO

MINNEAPOLIS — Following a period of transitional leadership, Craig Sulentic has officially retired as Egan's CEO. Jim Malecha, president of Egan Company, now adds the CEO title to his daily responsibilities. He became the company's president when Sulentic announced his retirement last year.

### WILO announces appointments

MELROSE PARK, ILL. — WILO announced the promotion of Mark D'Agostino to the position of national sales manager. In his new role, he will oversee the sales management and selling efforts of the WILO residential and commercial building services products throughout the U.S.



D'Agostino

WILO also welcomes John Fantauzzi as Northwest district sales manager. John joins WILO with an extensive hydronics background, having been in the industry for more than 25 years in various capacities including contractor, manufac-



Fantauzzi

turer, sales and technical manager. John most recently has been sales and technical manager for a hydronic manufacturer building pre-piped mechanical systems and was technical director for the Radiant Panel Association.

### Mestek names engineering manager

WESTFIELD, MASS. — Mestek, Inc. announced that Andrew Dirats has joined the company as engineering manager for Mestek's HVAC and hydronic products groups. Dirats is a mechanical engineer and seasoned entrepreneur with 18 years experience as a principal in a privately held aerospace materials testing business. He has tenured in all areas of business management from planning to execution and has managed sales, marketing, technical and production teams.



Dirats

### David Kohler elected president of Kohler Co.

KOHLER, WIS. — At its annual meeting, the Kohler Co. Board of Directors elected David Kohler president and chief operating officer of Kohler Co. He will be responsible for leading the Company's Kitchen & Bath Group, Global Power Group, Interiors Group and Technical Services, reporting to Herbert V. Kohler, Jr., the Company's chairman and chief executive officer.



Kohler

The Kohler Co. Board of Directors elected Jim Westdorp to the role of group president — Kitchen & Bath succeeding David Kohler. Prior to his election, Westdorp served in the role of president — Global Faucets and Kitchen & Bath Europe. In his new role, Westdorp is charged with providing leadership at both the operational and strategic levels for the worldwide kitchen and bath business, driving growth of profitability.



Westdorp

Replacing Jim Westdorp, Jeff Mueller will move from the managing director of Kohler Mira showers in the United Kingdom where it has become the market share leader, to a broader responsibility for Global Faucets, headquartered in Wisconsin.



Mueller

### Stiebel Eltron announces regional sales manager appointments

WEST HATFIELD, MASS. — Doug Belden was named Western regional sales manager for Stiebel Eltron. Belden was formerly with Ferguson Enterprises and has over 15 years experience in the plumbing/HVAC mechanical arena.



Belden

Glenn Issac is the Eastern regional sales



Issac

manager for Stiebel Eltron. He was formerly with Bosch as national account manager and Eastern regional sales manager, and has over 20 years of tankless water heater experience.

# Time for a change?

**In today's tough economy, saving money is the key to maintaining stability. NewAge Soil Pipe offers QUALITY AND SUPPORT for your SUCCESS.**

**Couplings**

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Fine/Line 30

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Just point out to builders and homeowners that your installation of Slant/Fin baseboard makes any home or building a *lot* greener. It delivers useful heat far more efficiently than forced air systems, electric heating or heat pumps.

That means saving precious fuel, reducing carbon emissions and increasing comfort at lower costs. In today's selling arena, it's good business to add the appeal of health, protecting the environment and conserving energy.

Slant/Fin "30" baseboard heating adds real value for builders and homeowners. It's a strong ally for the contractor who wants to earn more jobs based on quality *and caring*.

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The next generation of hydronic heating

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USGBC focuses  
on practices that  
increase a building's  
efficiency to harvest  
and use water,  
energy and  
materials.

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# Clearflow® dielectric waterway fittings...



## Trust the proven performance of the original

You can't afford piping system failures caused by galvanic cell corrosion at the joints. Clearflow dielectric fittings prevent this type of corrosion by separating dissimilar metals in the waterway, such as copper and steel, eliminating the local galvanic cell. Our proven Clearflow fittings combine a high temperature, thermoplastic copolymer liner with an electroplated, A53 schedule 40 steel casing to provide years of dependable service.

- Prevent joint corrosion by separating dissimilar metals in the waterway
- Metal-to-metal joint design maintains external electrical continuity
- Recommended for use in hydronic systems
- IAPMO/UPC and SBCCI PST & ESI listed
- Readily available in a wide range of sizes & connections

To protect your piping system from galvanic local cell corrosion, choose the fitting the industry has counted on for more than 20 years... Clearflow dielectric waterway fittings. You can't afford not to.



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## Beschloss achieves TMB emeritus status

NORTHBROOK, ILL. — Acknowledged PVF industry icon, Morris Beschloss, has been elevated to chief economist and PVF industry expert analyst of TMB Publishing Company, according to the publisher's owner, Tom Brown. TMB publishes *The Wholesaler*, *Phc News* and *Plumbing Engineer*.

In his new capacity, Beschloss will be writing an expanded version of his acclaimed monthly column, and make available to TMB's readership his global economic analysis and how it impacts the PHCP industry specifically.

In addition to his twice-daily economic blog, featured in Gannett Publishing's *Desert Sun*, Beschloss will be involved in industry forums in conjunction with TMB's informational activities.

Beschloss enjoyed a long, distinguished career in the valve industry, starting with Hammond Valve Corporation, of which he became president at age 32. Eventually at the behest of parent company, Condec, he built Hammond, along with acquisitions Lunkenheimer, OIC, Ft. Pitt Steel and Conval International into one of the nation's leading valve enterprises, with sales of \$120 million annually.

He subsequently became the youngest chairman and president of the Valve Manufacturers Assoc.;

attained a reputation for lectures; chronicles of economic events; and eventually as a trade magazine columnist.

Subsequent to his corporate career, Beschloss has served as a consultant and counselor to some of the PVF industry's outstanding

companies. After a seven-year stint with the former ASA News, Beschloss joined TMB Publishing, where he has written prolifically. His column and periodic editorials have been widely acclaimed. He was also responsible for founding the PVF Hall of Fame in 2002.

TMB owner, Tom Brown, lauded Morris Beschloss' illustrious career as one of the finest examples of industry contributions ever achieved. "I am proud that he chose our publishing company to manifest his brilliant understanding of our industry, the world economy and the many manufacturers, distributors, contractors, and others that make it tick."

See Beschloss' latest column on page 35.



Beschloss

## Peerless Boilers offers tax credit-eligible products

PEERLESS BOILERS, a manufacturer of gas and oil-fired boilers is proud to offer high-efficiency products that are eligible for a federal tax credit.

With the recent passage of The American Recovery and Reinvestment Act of 2009, considerable changes have been made to federal tax credits for the purchase and installation of energy efficient products, including heating equipment. Consumers are now eligible to receive

a 30% tax credit — up to \$1,500 — for the purchase and installation of gas or oil-fired boilers that have a 90% or greater efficiency.

Peerless Boilers offers several gas and oil-fired boiler models that have an efficiency rating (AFUE) of 90% or more, including the PureFire® gas condensing boiler line and the Pinnacle Oil boiler line. Visit [www.PeerlessBoilers.com](http://www.PeerlessBoilers.com) for complete information.

## Position your company for upturn at PHCC's CONNECT 2009

NEW ORLEANS — Anticipation and preparation are critical to a business's success — especially during tough economic times. The PHCC convention, CONNECT 2009, Oct. 21-23 in New Orleans, will focus on both of these areas to help participants confidently position their companies for an economic upturn in 2010.

For the first time since 2001, PHCC is not partnering with other groups and is offering a program specifically geared for the p-h-c contractor.

Featured speakers include Stuart Varney, business and financial journalist for FOX News, who will talk about

"21st Century America: A New Day in Politics, Culture, and Business;" and Richard Trethewey of "This Old House," who will discuss "The Future of Comfort and Efficiency."

There also will be seminars on topics like green plumbing, pre-fabrication, residential fire sprinklers, understanding overhead and year-end tax planning. An industry panel will help contractors learn what to expect from the manufacturers as they weather the current economic climate and prepare for the upturn. For more information, visit [www.phccweb.org/convention](http://www.phccweb.org/convention).



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## No Drain Lines? No Problem!

The new Ascent™ from Liberty Pumps gives you the freedom to put a bathroom where you want it!

- No need to break floors or concrete
- Powerful macerator efficiently handles waste
- Pumps up to 15' vertically and/or 150' away from a soil stack
- 115 volt operation
- Attractive white system with matching white pipe connectors
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- Designed to accept additional fixtures
- Optional extension pipe allows for mounting behind wall

For bathroom additions in basements, garages or other areas where gravity drain lines are not practical.



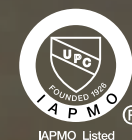
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## RIDGID launches 'Reputation Roadshow'

ELYRIA, OHIO — In May, RIDGID® kicks off its Reputation Roadshow. The events feature new RIDGID tools and technologies in 20 cities throughout the U.S., Canada and Latin America.

Each show stop provides tradesmen a chance to experience the latest RIDGID innovations, giving them the opportunity to demo the new tools and offering sneak peeks at upcoming tools in the RIDGID product line. Lunch is served at every show and a model from the well-known RIDGID calendar is present to sign autographs. To round it off, the events offer timed competitions and a daily prize drawing.

"The RIDGID Reputation Roadshow 2009 continues our commitment to trade professionals," said Wyatt Kilmartin, director, RIDGID



branding. "This year it is more important than ever for us to be out talking to our customers and helping improve their businesses by introducing new RIDGID tools that can drive efficiencies and increase their profits. We are very excited to get back on the road in 2009."

This year the Roadshow will be stopping in Las Vegas (May 6), Albuquerque, N.M. and Rio de Janeiro, Brazil (May 14), Bakersfield, Calif. (May 20), Baltimore (May 21), San Diego (May 27), Toluca, Mexico (May 28), Nashville, Tenn. (June 4), Denver (June 10), Regina, Canada (June 11), Atlanta (June 17), Charlotte, N.C. (June 25), Monterrey, Mexico (July 1), St. Paul, Minn. (July 13), Philadelphia (July 16), Edison, N.J. (July 22), Buffalo, N.Y. (July 27), Pewaukee, Wis. (Aug. 4), Cleveland (Aug. 20), and Cincinnati (Aug. 26). For more information on the Reputation Roadshow, visit the website at [www.RIDGID.com/roadshow](http://www.RIDGID.com/roadshow).

## NSF certifies first PVC0 pipe to AWWA C909 in North America

ANN ARBOR, MICH. — NSF International announced that IPEX Incorporated, a leader in thermoplastic piping systems, is the first molecularly oriented polyvinyl chloride (PVC0) pressure pipe manufacturer to receive certification to ASTM F1483 and AWWA C909 standards for pressure pipes. NSF is currently the only organization that tests and certifies PVC0 pipe to these standards.

PVC0 can be used in water mains, sewer force mains, process piping and irrigation applications. NSF/ANSI Standard 14: Plastics Piping System Components and Related Materials requires that PVC0 pipe meet AWWA C909: PVC0 Pressure Pipe, 4-inch through 24-inch (100 mm through 600 mm), for Water Distribution and ASTM F1483: Standard Specification for Oriented Poly (Vinyl Chloride), PVC0, Pressure Pipe.

NSF's testing capabilities for ASTM F1483 and AWWA C909 standards enables NSF to package testing services and save manufacturers of pressure pipes additional cost and time.

According to John Houle of IPEX, "Bionax PVC0 is an extremely tough, high-strength pipe material that is perfectly suited for buried applications. IPEX also claims that Bionax PVC0 has dramatically increased impact strength, increased fatigue resistance, and has larger inside diameters allowing increased flow."

IPEX will bear the NSF-pw mark, as well as the ASTM F1483 and AWWA C909 marks on its pipes. More info at <http://www.ipexinc.com>.

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**Make one of the hardest parts of your job the easiest.**

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- Lifts up to 350 pounds
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**Patented  
Self-Cleaning  
Probe**

Minimizes scale build-up and extends recommended cleaning interval to 5 years.

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Metal-to-metal seal ensures a leak-free installation.

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Easily and quickly installs in any hydronic system.

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Installation**

Universal wiring harness fits any gas boiler. "Plug & Play" harnesses available for most residential boilers.

**NEW  
Push-to-Test Button**

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To learn more, contact your local McDonnell & Miller Representative or visit [www.mcdonnellmiller.com](http://www.mcdonnellmiller.com)



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## THE WALL

**D**an 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:** I'm wondering: Does a 72" pipe wrench exist? If so, where could I buy one. Searching online has come up with nothing. I think it would be a great decoration/conversation piece, as well as a functional tool for some unseen project.

— Mike the Plumber

**A:** I still have my Dad's old heavy cast RIDGID 72 hanging in the tool room beside an old compound leverage and a chain wrench that must be at least 8 or 9 feet long. It has a thread on the round handle where you can attach 2" pipe to extend the handle if necessary. We used to use that for tightening overhead sprinkler mains — back in the day! I don't know if I could even lift it any more!

— Boiler Guy

**A:** 72"? What's wrong with you? I just use a 10' piece of 2" black pipe on the end of my 24" pipe wrench!

— Adam

**A:** They used to have a 72" RIDGID on the wall over at the plumbing supply. You might check with a drilling company if you want a big one for conversation. My cousin had some big RIDGIDS on the well drilling rig. But I think they were bigger than 72". He used a winch to lift them.

— World Plumber

**A:** I just walked by the 4 footer in the shop today and thought of this thread. I can't ever remember seeing it being used. Never lost one by theft anyway. I also remember watching two of my mentors years ago snap a large pipe wrench in half while using a cheater. That always made me think of using alternative methods.

— Mike C.

**A:** Had a small drill out we were doing work, and the rig wasn't set up for the drill collars we were using, so our system to break them loose was a 60" RIDGID chained to the leg of the rig tower — under the floor — and a 48" RIDGID with a shackle through the eye and a rope run around the operator's station to the cathead and a spinning rope pulley powered off of the draw-works. The operator was pulling on the rope with a couple of loops around the cathead when the rope looped under itself and could no longer just ride on the spinning metal; now it had no release. The 48" broke right at the casting for the gesting nut,

whipped around the rig and broke this man's ankle. So when you get hurt using a cheater instead of the right wrench, just know who's to blame and it ain't RIDGID.

— Mike Miller

**A:** THAT was exactly the point I was trying to express, Mike, when a few of our esteemed brethren jumped all over me. Everyone uses a cheater every now & again, but you could definitely get jammed up and that is no joke. A cheater for a quick repair — OK, but for a project with more than one or two joints, buy a damn proper man-sized wrench. When that dude broke his ankle, I was glad I wasn't involved in that one.

— Bob Young

**Q:** Should an expansion tank be installed with a tankless water heater?

— Jim

**A:** There is no tank maintaining a constant temp, but with the constant expansion and contraction, some kind of relief is necessary. Many of the electric tankless manufacturers don't require a relief valve. THAT IS NUTS!! That's like not having brakes! I don't care what "THEY" say, we put [an expansion tank] on. Any device capable of producing energy NEEDS a safety feature if it goes whacky.

— Mad Dog

**A:** For space heat, yes. DHW, no.

— Singh

**A:** You need an expansion tank for both. Don't believe me? Plug up your relief valve, by-pass the safety and watch the unit blow itself off the wall. Let's not be callous here.

— NHmaster

**A:** The water expands as it heats, and on a tank you are raising the temp of water trapped in the tank because the water continues to heat after the tap is closed. But on a tankless, the heating stops as the tap is closed (or it's supposed to) so you do not need an expansion tank on a tankless. You do need a relief valve so that if the heating does not stop and the water expands it can expand through the relief valve letting you know that the unit is malfunctioning.

— JK

**Q:** When using a conversion gas burner with a barometric, is a draft diverter necessary? Can you substitute a diverter & delete the barometric?

— Bob Young

**A:** A diverter or double acting barometric, but not both.

— Robert O'Brien

**Q:** I have been contracted to replace two Lochinvar pool heaters — 1.5 million each for a total load of 3.0 million. My experience with this public pool is that the two boilers are used only at start-up and during cooler cloudy days. My thoughts were to install one Lochinvar 1.5 million with solar panels to do the majority of the work. There is plenty of southern exposure roofing above the mechanical room. Anybody have any input or suggestions?

— JRH

**A:** I really like that idea. Just be careful that you can provide a heat-up rate for the pool after the initial fill that will be acceptable to the owner. I assume this is a 50m pool, so you probably have upward of 250,000 gallons there. If you have to raise the temp 35°F and you have a Lochinvar CPN1440, it would take approx 2.5 to 3 days to heat up the pool. That doesn't seem out of line to me, and the solar collectors can probably carry the bulk of the heat load all summer as long as they keep the pool covered when not in use. I think it's a great idea. Roth has a nice pool collector design, in my opinion.

— Andrew Hagen

**Q:** This is a survey for the solar thermal gurus and not so gurus on The Wall. When you design/install a solar thermal space heating system, how do you put multiple storage tanks: 1.) series, or 2.) parallel?

— Michael

**A:** I have found that using the reverse return piping method to be the most effective. This allows for equal usage of each tank, eliminates tedious piping related with parallel systems and is just plain easier and more effective.

— Eric

**A:** In the summer, I run my  $\Delta T$  controller off the smaller tank to get hotter water throughout the day. For six months during the heating season I run the delta tee controller off the larger tank and keep the radiant heat on to harvest the maximum amount of low temperature Btus. Whenever the temps in the larger tank get above 80° the radiant pump comes on. It is a lot easier to harvest solar energy at 80° than waiting around for 130°

water. I don't have to dump any heat ever; I preheat my domestic hot water with the larger tank and top it off with the smaller 200 gallon tank, allowing me to get through long periods of cloudy weather. The radiant will shut off when temps in the big tank drop to 75°. At night, it might go down to 65° or so, and the next morning you only have to wait until your collectors get to 70° before you start collecting energy. Collecting the low temperature Btus in the winter months makes this system probably twice as efficient.

— Bob Gagnon

**Q:** We manage a few rentals. In 2001, we had four new glass-lined indirects installed in a four-family dwelling with four new boilers. Today, we had the third one fail. The first two leaked and the one today must have a pin-hole leak between the internal coil and the domestic water. It's increasing water pressure in the boiler, enough to blow the T & P. In another building, we have two stainless ones. They are 17 years old and been cleaned once. Has anyone seen a glass-lined tank last more than 10 years? What is the average lifespan of fiberglass indirects? Can you make the case for me to replace the failed one with a fiberglass one?

— Allen

**A:** Glass lined tanks are not like buying a Pyrex coffee pot. They are not all glass, due to the production method. Once you make the tank and run the glass gun up into it, and then run the tank through the industrial furnace, you get a process called "burn back," which basically is the flue gases racing through the tank openings at a very high velocity, burning the glass back from the tank penetrations. Once your anode rod is gone — and how would you know — the water attacks the next tastiest thing, which is the tank itself. Check and maintain/replace the anode rod [almost no one does]; you should see what you are dealing with. As well, I think any decision on a long-term spec should start with a thorough water analysis. If you are on city water, the information is readily available. If it is a well, you should get one done yourself.

— Jack

**A:** You could have electrolysis. I would make sure that your piping is bonded properly to your electrical system — all pipes. Have an electrician make sure your panel is properly grounded.

— Tim Smith

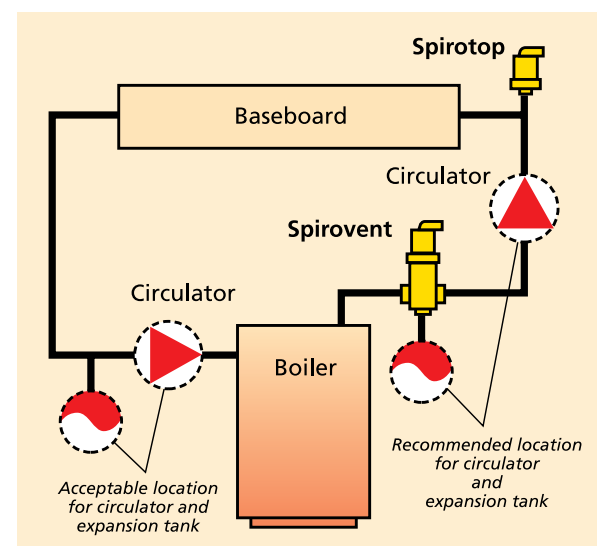


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BY DAN HOLOHAN,  
contributing writer

## Celebrate the people in your life

# Mothers

**My mother has only today, but she is safe and warm, and never hungry. And I am here to remember all the rest for her.**

**“D**id I have a husband?” my mother, Lena Holohan, asked. She was looking around the room, and, I suppose, wondering where she was. She just came out and said it, and I felt an empty space open inside me.

“You did have a husband,” I said. “He was a good man.” I went and got the photos of their wedding and showed them to her. She looked at them for a good long time. “He’s very handsome,” she said. I nodded and smiled. “Who is he?” she asked. So I told her about him and the others in the photos, her brothers and sisters. She shook her head and smiled. “I don’t know these people.”

“I’ll remember for you,” I said.

I published my first book in 1991 and Marianne and I hired my father and mother to ship them to our customers, mainly because my father was retired and needed something to do. He was driving my mother crazy. So each morning, they would go to breakfast, sit in the same booth, and order the same food. Then, they would drive to the public-storage warehouse, where we kept the books. They’d bring the books back to their kitchen table and my father would pack them, as my mother applied the shipping labels. She would call me on the phone and say, “There’s a book going to Chicago!” or “There’s a book going all the way to California!” It was how she traveled, and she was forever excited about it all.

In those days, I would ask my mother a question and my father would usually answer for her. I didn’t think much of it at the time because that was my father’s way. He was a good Irish talker, but he was covering for her.

He was packing books at their kitchen table on my birthday in 1997 when his first and only heart attack arrived. We buried him later that week.

A while later, my mother wanted to know if she could still work for us, and I told her that it would be so helpful if she could look over our mailing list and see if there were any duplicates. “Just circle the names you see more than once,” I said, “and there’s no rush at all. Just take your time. And think about all the places where these people live. It will be fun, and we’ll pay you. Just circle the duplicates.”

Two weeks later, she called to tell me she was finished. I went to see her and she handed me the stack of papers, as if it were a proud term paper. “All done!” I looked at the first page and saw that she had circled every name on the list. She had done the same on the second page. I flipped through the stack. Every single name was circled.

“Did I do it right?” she asked.

“You did a great job, Mom!” I said, hugging her to me.

“I took my time with it!” she said. “I was careful.”

“I know,” I said. “Thank you so much.”

My mother was becoming a child again, and that was the day that I realized that cruel truth.

A few years ago, I wrote a magazine story about the White family of Taco. I wrote about how they chose to build onto their factory in crowded Cranston, Rhode Island, rather than move the manufacturing work out of this country. It was a story about a family that cared about other families. I called it, *An American Love Story*, and much of what I wrote had to do with Happy White, a mother.

I had gone to Taco’s grand opening in Cranston, RI, and Happy had spoken briefly to the people who worked for her family for so many years, and to the many industry friends who were there that day. Her son, Johnny, helped her onto the stage, and in a tiny voice that sounded like wind chimes, Happy White told us all that she loved us.

She said it twice and it tugs at my heart when I remember that moment. It gives me the chills. You can’t fake love like that. She meant it. It was a moment that was solely about people, and the humanity that a business can show to the world if it chooses to do so. It was a mother’s love.

I drove home that day and wrote the story in my head along the way. It was the easiest story I have ever written. This wonderful mother they called “Happy” had written it for me. I was just telling it.

Afterward, Johnny White told me that his Mom liked the story a lot, and that she kept a copy of the magazine next to her chair at home. He said that she had painted a watercolor for me, and wondered if I would come for tea. So Marianne and I drove to Rhode Island one early spring day to have tea with Happy.

She was so frail and she had a tough time hearing and seeing, but her voice was like tiny wind chimes, and her mind ranged back over the years. We sat in a sunroom and there were flowers blooming outside the windows. I asked her about her life and she told me about when she was young and strong, and how she had helped her father, who was a famous muralist, paint a mural at the 1939 Worlds Fair in New York City. “He caused quite a stir,” she giggled. “The union was in an uproar because he was painting, but he wasn’t in the painter’s union.”

“So what did he do?” I asked.

“He joined the union!” she said in that tiny voice and she smiled back through the years at the memory, and I thought of my own mother, who now has no past and no future; she has only today. And this made me listen all the harder to Happy’s stories because each moment is fragile and fleeting, and mothers are precious.

Happy gave me a small watercolor of a tomato, a peach, and a lemon that day. It was her way of thanking me for the story I had written about her family. She signed it, “Happy.” I knew that she could barely see, and that she had painted this watercolor from memory, and that again made me think of my mother. I’m looking at that watercolor now as I tell you about that day. It’s lovely.

We talked for more than an hour, and sipped tea and the light flowed into the room through the tall trees, new in bloom, and shifted the shadows. I’d ask a question and Happy would tell a story in that tiny voice of hers, and when she was done, the quiet would settle in again, like a soft quilt on sweet, precious memory.

After a while, I could see she was tiring, so we stood and I asked her if I could kiss her goodbye, and she said, “Oh yes, please do.” So I kissed her lightly on the cheek and held her hands, and Happy smiled at me. “Thank you for the story,” she said. “Thank you for the painting,” I said. And Marianne, Johnny, and I left.

Yesterday, on another day in early spring, I drove to Rhode Island to say goodbye to Happy White. Hundreds of others did the same, and I waited in line for an hour and a half to give my condolences to Happy’s family. As I waited, I had a good long time to consider how this wonderful mother had lived her life, and I thought about how many other mothers were able to raise their families because of what Happy’s family has done, and continues to do. I remembered, and I smiled.

Later today, I’m going to visit my mother in the nursing home. She no longer knows who I am, but she smiles at me. My mother has only today, but she is safe and warm, and never hungry. And I am here to remember all the rest for her.

Call your mother.



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BOB "hot rod" ROHR,  
contributing writer

Solar absorption cooling has been researched for 20-plus years now. It has been proven to be workable, but economics thus far have prohibited large-scale acceptance and use.

## Sun-powered A/C

# 'Cool it, sunshine'

What a great way to put solar energy to work, keeping people and places cool. Think about when we need cooling the most. Generally the hottest, sunniest days present the highest cooling loads to our buildings. What a great match-up for solar energy: leverage the energy for heating in the winter months, and cooling during the summer. The buzz is in the air and products are showing up on the market to accomplish this on commercial and residential levels.

But thinking about it, we actually do solar cooling on a very large scale now. Most of our largest solar power generation sites are located in the sunniest and warmest locations. Solar power plants, Nevada #1 & #2, supply the Las Vegas area with electrical power via CPS (concentrated power solar.) A new thermal solar power plant is coming on-line in Arizona. Nellis Air Force base in Nevada has one of the largest PV arrays in North America. Individual businesses are adding large solar arrays to help power lighting and cooling loads. So in an indirect way, solar cooling already is in place. In fact some of our solar power generation stations have been running non-stop since the 1980s.

New technology is being implemented to store the super heated fluids from CPS. One way to do this is to park the thermal energy in brine solution or a salt bed. This would allow the thermal energy to be used in the evening hours. Six-hour storage is already on-line, seven-hour is on-line in Europe and 12-hour storage is in the design stages for North America generation stations. Wind-powered energy is coming on-line at a strong rate in the United States, too. Large wind farms are up and running in the sunbelt states. Canada, with about the same land mass as the United States, is looking into wind energy to provide power to their 32 million people and export excess wind energy to American consumers.

Solar roofing and facades could supply on-site energy to power small cooling loads. Check out this "solar tree" from Italy. It powers a ground source heat pump housed inside the structure. (see picture, above right.)

If this technology excites you, consider subscribing to *Sun & Wind Energy* magazine. Check it out at [www.sunwindenergy.com](http://www.sunwindenergy.com). It is now a monthly subscription and they keep a finger on the pulse of these technologies worldwide.

Solar heating and cooling was installed in 2006 at Cochise College in Arizona. Parabolic trough collectors, 6,800 square feet of them, collect and store the thermal energy at 260° - 280°F in a 7500-gallon tank. Abengoa Solar, a Spanish company, built and installed the system. The system heats and cools the building winter and summer. Energy Concepts provided a 60-ton ammonia cycle absorption chiller.

Abengoa Solar will build the world's largest solar power system near Gila Bend Arizona, able to supply 70,000 homes. ([www.abengoasolar.es/en/our\\_projects/usa/arizona/index.html](http://www.abengoasolar.es/en/our_projects/usa/arizona/index.html))

Other schools are looking at solar as a means to provide energy. Los Angeles Community College is planning to have all nine campuses off the grid and produce its own power. More and more building owners are looking at alternate energy.

Cooling homes with equipment powered by solar thermal panels is getting a lot of attention. Three technologies are being developed. Many of us are familiar with absorption cooling. Absorption chillers use a thermal



compressor instead of a mechanical one. This is the technology used in RV refrigerators, for example. Small LP bottles typically power refrigerators on the RV. Large-scale absorption has been around for many years. Cities like New York — with district steam — actually run large commercial cooling projects with their district steam infrastructure.

Thermafrost of Canada is working on a small two kW cooling unit, based on an ammonia salt solution.

Adsorption chillers (AdCh) are also being studied. Adsorption uses water as the cooling medium, and silica gel, in some cases, as the adsorbent. Germany and Japan seem to be taking the lead on developing these products. On the residential side, InvenSor of Germany has adsorption cooling units in the 5- 50kW range currently available. These are said to work with a fluid temperature in the range of 113°F, well within the reach of solar thermal flat panels. ([www.invensor.com](http://www.invensor.com))

Climate Well of Sweden has 150 or so cooling units installed on single-family residences in Spain. They are expected to double their installations this year.

Open sorption is yet another technology being developed. This method cools the air, not fluid. One advantage of DEC (desiccant and evaporation) is the low 120°- 210°F driving temperature requirements. [www.ecn.nl](http://www.ecn.nl) has some good reading on this principle of cooling.

The Australian research institute CSIRO also is looking at DEC and expects to have a system for single-family homes to provide heating, cooling and SDHW.

On the home front, SolarGenix has two parabolic trough systems providing cooling to homes in North and South Carolina. ([www.solargenix.com](http://www.solargenix.com))

You may recall the Servel gas- and kerosene-powered refrigerators, dating back to 1923. Incorporated in Indiana their slogan, "Serving Electric," was shortened to Servel. For more than 30 years, Servel designed and built refrigerators. At the 1939 World's Fair, it displayed the "All Year." This was a residential gas air conditioner. In 1941, the two millionth Servel refrigerator was produced. During WWII, Servel built wings for the P-47 Thunderbolt. In the mid-60s, Servel introduced an air-cooled ammonia/gas fired chiller that could be used for AC or process cooling. The Robur Group of Italy took over the Servel gas air conditioning division in 1991. Robur Corporation was born in the United States with the purchase of the product line and manufacturing facility. In 1999, Robur introduced Servel chillers with a 30% performance increase due to their GAX absorption technology. Watch for this company to be a player in solar-

(Turn to Hot Rod, Page 34.)



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BY PAUL ROHRS,  
contributing writer

## Comedy is where you find it

# The lighter side of hydronics

Question: What is the name of the component on older atmospheric boilers that controls the pump and thermostat, as well as sensing water temperature?

Welcome to Boiler Jeopardy! Our contestants today are Paul Rohrs from Biggerstaff Radiant Solutions in Lincoln, Neb., and Rocky Pavey of Rocky's Heating Service in Fairbanks, AK. This is a head-to-head competition between two heating professionals. Contestants, remember: you must phrase your answer in the form of a question.

**Host:** Our topics today are "Old Boiler Installs," "Boiler Electronics," "Boiler Protection," "Modulating Condensing Boilers," and rounding out the topics, "My Heating System."

**Host:** Let's get started with the first Jeopardy round. Paul, you were selected to be first so you make the first selection.

**Paul:** I'll take "Old Boiler Installs" for \$100.00 Alex. (Man I know I can do this. Breathe, Paul breathe....)

**Host:** Question — This type of white insulating substance is considered a hazardous material and should only be removed by a licensed and certified abatement company.

**Paul:** (Yeah I've got this, Ringing in First) Alex, what is asbestos?

**Host:** Correct for \$100.00 Paul, well done.

**Paul:** (Internal monologue voice) — (I'm guessing it would be inappropriate to ask the audience for high-fives, In your face, Rocky.)

**Host:** Paul, it's your selection

**Paul:** I'll take Boiler Electronics for \$100.00

**Host:** A micro-amp signal is generated by this component to prove flame prior to the gas valve modulating to the target temp firing rate?

Rocky: (buzzing in first) "What is a rectification probe?"

**Paul:** (Way to go Rock, I should have known that.)

**Host:** Well done Rocky, it's your selection.

**Rocky:** I'll take "Boiler Protection" for \$100.00.

**Host:** With atmospheric boilers, unless the minimum inlet temperature is achieved, this process will kill your boiler prematurely.

**Rocky:** (buzzing in first) Alex, what is "Sustained Flue Gas Condensation."

**Paul:** (Coldest state AND he knows the answer, I better sharpen up here. I wonder if I should tell everyone that Rocky is originally from Oklahoma, but is a closet Cornhusker fan.)

**Host:** Let's move on, Rocky it's your selection.

**Rocky:** I'll take "Your Heating System" for \$400.00.

**Host:** Question, I have this many zones of baseboard heat in my house?

**Paul:** (How am I supposed to know that? — What is this "Mind Reading Jeopardy"?)

Rocky: buzzing in first, "Four zones."

**Host:** That is correct Rocky, you did a great job on my install, how are the wife and kids?

**Paul:** Heyyyyyy, wait a minute here...

**Host:** Time is running short and it's time to move on to Double Jeopardy.

Rocky is in the lead with \$600.00 and Paul trails with only \$100.00

Rocky, it's your selection.

**Rocky:** I'll take "Modulating Condensing Boilers" for \$200.00 please

**Host:** Question, This item, made of a refractory material, should be inspected at each annual service?.

**Paul:** What is a target wall?

**Host:** Correct for \$200.00, choose again.

**Paul:** (Okay, time for some hardball) — I'll take "Boiler Protection" for \$400.00 please.

**Host:** Question: This type of valve is often used with

atmospheric boilers to ensure minimum inlet temperatures are met.

**Paul:** What is a thermic valve?

**Host:** Correct for \$400.00, Paul, it's your selection.

**Paul:** I will take "Boiler Electronics" for \$400.00 please.

**Host:** Question: This is another name for a weather-responsive-based system that comes as a standard feature on most modulating condensing boilers.

**Rocky:** What is Outdoor-Reset?

**Host:** Great job Rocky, Can you take me for another ride on your jetboat this summer?

**Rocky:** Sure, anytime you want.

**Paul:** (Should we just give him the title now, or keep playing?)

**Host:** Rocky, it's your selection

**Rocky:** I will take "Your Heating System" for \$1000.00 please.

**Host:** Question, I prefer this temperature in zone number one in my home?

**Paul:** (Maybe I can get a nap while "popsicle" over there answers this.)

**Rocky:** You prefer your garage zone at 60F; would you like me to come by sometime to adjust it, or maybe at Thanksgiving next year when we are all together again.

**Host:** Correct, come by anytime, I think you still have a key, don't you?

**Host:** Rocky is in the lead with \$2000.00, and Paul is following with \$300.00. Rocky, it's your selection, and time is running out.

**Rocky:** I'll take "Old Boiler Installs" for \$400.00.

**Host:** Question: This item is considered a pilot safety switch?

**Paul:** What is a Baso-Switch?

**Host:** Correct Paul for \$400.00; it's your selection.

**Paul:** I will take "Boiler Electronics" for \$1000.00, please.

**Host:** Question: What is the name of the component on older atmospheric boilers that controls the pump and thermostat, as well as sensing water temperature?

**Paul:** What is an aquastat?

**Host:** Correct, Paul it's your selection and it looks as if this might be our Final Jeopardy question. Contestants, you can risk up to the amount shown on your screen.

**Paul:** (Okay Paul, you've got \$1700.00 and Rocky has \$2000.00, one more correct answer wins the whole thing. Focus, focus...

**Host:** Here is your Final Jeopardy question:

This is not a heating-related question but is relative to each of your home states; listen closely, Alaska features more than 6,600 miles of this, (the largest in the U.S.) while Nebraska features 0?

**Paul:** (I am so on this. Can't stop me now Frosty. All these years of geography are finally paying off — the answer is coastline. Yeah baby, it's the winners circle for me.)

**Paul:** It's coastline!

**Paul:** (Yes, Yes, Yes, I did it, Final Jeopardy is mine, mine. Do you hear me?!)

**Host:** Paul that is the correct answer...but you forgot to phrase it in the form of a question. So, Rocky is our winner!

**Rocky:** Take that Corn-boy!

**Paul:** Whaa', Huh? ...Oh...can I go now? I think I'm going to be sick. The shame. The shame of it all.

Cue cheesy Jeopardy music as studio fades to black. ■

Paul Rohrs welcomes your comments. Contact Paul at paul@biggerstaffradiantsolutions.com.





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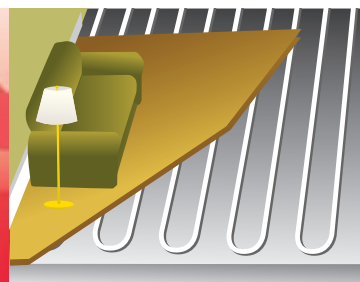
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BY BRISTOL STICKNEY,  
contributing writer

Certification is now required for the solar equipment to qualify for the solar tax credits in the United States. It seems that the SRCC is becoming the national clearinghouse for solar heating equipment certification.

## Bristol's six principles of good solar hydronic design

# Solar hot water systems and the SRCC

In my last article I introduced the SRCC, the Solar Rating and Certification Corporation, which serves as our national solar heating test facility. It was founded in 1980 as a non-profit organization whose primary purpose is development and implementation of certification programs and national rating standards for solar energy equipment. They administer a certification, rating and labeling program for solar collectors and a similar program for complete solar water heating systems. In my last article, I endeavored to explain the Solar Collector efficiency ratings provided by the SRCC, and now I would like to talk more about the Solar Hot Water System certifications. *Figure 1* shows a diagram of the steps a system must go through to earn a certification and rating using the SRCC OG-300 methods.

This information is provided here because rating and labeling has become more important to installers and owners in recent years. Certification is now required for the solar equipment to qualify for the solar tax credits in the United States. It seems that the SRCC is becoming the national clearinghouse for solar heating equipment certification. The labels themselves may be used to make an energy performance comparison, since they show a standard performance rating similar to those found on appliances and cars. But like the other ratings, they are determined under certain controlled conditions for comparison purposes, and may not reflect actual performance when installed. So, remember that these test results represent controlled comparisons, not necessarily installed performance or any guarantee of performance.

The SRCC ratings are freely available on the SRCC website at <http://www.solar-rating.org/>. This includes a complete list of all the test results for all the collector manufacturers available on the U.S. market, as well as an ever-increasing list of solar hot water system ratings. New products entering the U.S. market must submit to SRCC testing

or they will not qualify for most solar subsidy programs. The SRCC website does a good job of explaining themselves and their programs, which is beyond the scope of what we can cover here.

There is a lot of information on solar water heater system ratings included in the following PDF documents;

1. *Directory of SRCC Certified Solar Water Heating System Ratings*: A 369 page publication listing the test results for hot water systems submitted for certification.

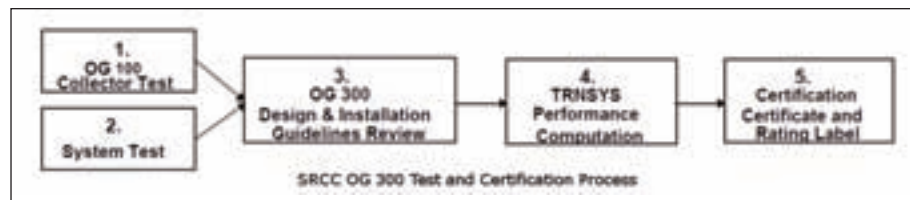


Figure 1: This OG-300 test flowchart shows the steps a system must go through to earn a certification and rating.

2. *Summary of SRCC Certified Solar Collector and Water Heating System Ratings*: A 50 page publication listing the performance ratings for solar collectors and solar hot water systems.

3. *Estimated Annual Performance of OG-300 Certified Solar Water Heating Systems*: Many 30- to 50-page documents, one for each major U.S. city, over 50 cities provided.

### Solar hot water system types

The solar hot water tests, known as the OG-300 standard, are provided for solar domestic hot water systems. According to the SRCC Directory, all the solar water heating systems tested by the SRCC fall into one of these four categories:

1. Forced circulation or "active systems" are those that use a pump to circulate the water or other fluid from the collector where it is heated by the sun to the storage tank where it is kept until you need it.

2. Integral collector storage (ICS) systems, or "batch" water heaters, combine the collector and the storage tank into one. That is, the sun shines into the collector and strikes the storage tank directly, heating the water.

3. Thermosyphon systems have a separate storage tank, located above the collector. Liquid (which could be water or an antifreeze solution) warmed in the collector rises naturally to the storage tank where it is kept until needed.

4. Self-pumping systems are those that use a phase change (liquid-vapor) or other passive means to cause the fluid in the collector to circulate and transport heat from the collector to the storage.

The ICS, thermosyphon and self-pumping systems are often called "passive" solar systems because they do not use mechanical energy to move the heated water. All four types of solar water heaters work well when installed correctly, and it is interesting to compare the parasitic energy required by the different systems.

### The test procedure

Before a System can be tested, its collectors must have been certified by the OG100 Solar Collector test described (SRCC becoming ...Page 34.)

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

1. RELIABILITY
2. EFFECTIVENESS
3. COMPATIBILITY
4. ELEGANCE
5. SERVICEABILITY
6. EFFICIENCY

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



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**NAOHSM**  
Hershey, PA, May 19-20, Booth 436  
**NEFI**  
Boston, MA, June 9-10, Booth 378

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BY ELLEN ROHR,  
contributing writer

At age 65, Colonel Sanders started knocking on doors, selling his recipe for fried chicken and created a franchising empire. Mary Kay was squeezed against the glass ceiling at age 45. She decided to quit her sales job after 25 years and start her own business.

## Inspiration in unusual places

# The 'Good News' factor

Could you be the only person on the planet who has not yet seen the YouTube clip of Susan Boyle auditioning for the TV competition, "Britain's Got Talent"? If so, go to [www.youtube.com](http://www.youtube.com) and search for Susan Boyle.

Susan is the youngest of nine kids. She had learning challenges as a kid and was bullied for that and her awkward looks. She honed her skills at church, and doing karaoke at the local pub. At the time of the audition, she worked as a church volunteer and was looking for a paying job. When asked why she finally came forward, she said, "I did it for my mother because she always believed in me!" Her encouraging mother died two years ago, leaving Susan alone and depressed. Still, Susan went through the paces — whatever it is that one must do to end up on the audition stage of "Britain's Got Talent." And she brought the house down.

I asked if you had seen the video because if anyone on the planet has not seen it yet, it is probably you. I meet and work with lots of contractors. I make it a point to ask about movies and books and great TV and theatre and sporting events. We have access to so much information that it is understandable that you get overwhelmed. However, what are you doing all day that is all that important? Why isn't there time for a ball game with your kid or a transporting hour of reading?

And so many have abandoned what they really, really want out of life. They point to the economy or their responsibilities and they say, "I have to do this; I have no choice." As Susan sang, the last line of her song, "My life has killed the dream I dreamed."

*"Sell your cleverness. Purchase bewilderment."* ~Rumi

What's great about the YouTube clip is the reaction of the judges and the audience. Even Simon Cowell shelves his cynicism and replaces it with a meter-wide grin. You feel the shift in consciousness. To use a British term, we are all gobsmacked. You can't stop smiling. You get goose bumps and maybe feel your eyes well up. It feels fantastic.

By the time someone forwarded the clip to me, over 41,000,000 people across the globe had already viewed it, within a few days of the show airing on British television. I've watched it about a dozen times because it feels so good to experience that shift, that moment, when you know her whole life led to that unexpected performance. You are witnessing talent and timing and the pure magic of synchronicity. The feeling is important. That energy and vibration positively impacts the world. Hope and joy and laughter trump fear and anger. We need more good news and feel good moments!

If you've seen interviews with Susan, you will be underwhelmed at her star power. She is shy and answers questions with as few words as possible. She seems so like your charming cousin, who entertains at family functions but has never had the gumption or the opportunity to do something with her talent.

Yet when Simon asked her what her ambitions were she answered without hesitation that she wanted to be a professional singer, with a career like Elaine Paige. (Elaine Paige is known as the First Lady of British Musical Theatre.)

Up until the moment that followed, how Susan was going to create a career like that was not apparent. It was downright impossible, if you were to consider it rationally.

Susan is too old, too dowdy, too remote to become a world-class singing sensation. And no one else believed. Her career could well eclipse Elaine Page's career. She had the goal and she took steps in that direction. She made her way to the stage of "Britain's Got Talent," not knowing what would come of it.

So, how about you? Why not now? At age 65, Colonel Sanders started knocking on doors, selling his recipe for fried chicken (11 herbs and spices) and created a franchising empire. Mary Kay was squeezed against the glass ceiling at age 45. She decided to quit her sales job after 25 years and start her own business. A week before the planned opening, her husband died suddenly and unexpectedly. She and her son pressed on through the fear to multi-billion dollar sales of Mary Kay cosmetics. For every disappointment in life, there is an opportunity to transform it.

Consider a big shift. Consider doing what you really want to do. Consider putting yourself out there even if you might fail or others may judge you and bully you. Take the next few minutes and make a list of your Goals. Goals are things you want to have. What do you really, *really*, *REAL-ly* want to have?

### Your Goals for this year....

List and prioritize this year's Goals. Goals with "A" Priority are reflected on the Top Project list.

- A: Create a \$1,000,000 solar division.
- A: Get on the cover of *Phc News* magazine.
- A: Create a "Go Green" radio show on Sirius/XM radio.
- A: ?
- A: ?
- B: ?
- B: ?
- B: ?

### Goals for any time...

- Create the world's largest solar installation business.
- Sail around the world.
- Compete in the solar decathlon.
- ?
- ?

Then, take action! Refer to your Goals. Then, take a swing. What could be done to move in the direction of your Goals. If you don't know, try something. This is where the Top Project list comes in. The Projects are things to do that will move you in the direction of what you want. You can even delegate some of the Projects. Yep. It's that easy. It should feel great! And if you have never written your Goals down, I encourage you to do it NOW. If you have, you know that this is one way to get what you want. Simple and powerful. Most folks don't dare acknowledge their dreams. I encourage you to be one who does.

*"Our truest life is when we are in our dreams, awake."*

~Henry David Thoreau

You can positively and powerfully impact the planet. Do things that feel good. Stop and acknowledge someone engaged in an act of kindness or forgiveness. Notice when someone shifts the energy in the room by laying aside ego and blame. Set your sight on the point on the horizon that calls to you and sail in that general direction no matter what fears manifest or naysayers step in your way. You

(Turn to Ellen Rohr, Page 38.)





# Tell Us Your Preference and We'll Give You \$5 Bucks!

Dear Plumbing Contractor:

We're looking for your preferences! Fill out and FAX this page to **877-358-8089**, and we'll send you either a \$5.00 Starbucks Card, or \$5.00 cash. **You MUST be a licensed plumbing contractor to participate**, and you can only fill out a sheet once. Accountability Information Management, Inc. is a market research company based in Palatine, Illinois. **Thanks in advance for your help!** (If you prefer, you can go to [www.a-i-m.com/phcnews](http://www.a-i-m.com/phcnews) to fill out this survey).

a i m

## PLUMBING CONTRACTOR PREFERENCE

**PART 1.** For the following **Plumbing Products**, please read the category, and then fill in the blanks by **writing in the name of the brand that first comes to your mind**, in the order that they come to you. If only one comes to your mind as a preference, just fill in that one. If you are not involved with the type of product, check the "Not Involved" box. If you have no single BRAND preference, check the appropriate box.

### Kitchen Faucets

COMMERCIAL

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

☐ Not involved ☐ No preference

RESIDENTIAL

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

☐ Not involved ☐ No preference

### Kitchen Sinks

COMMERCIAL

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

☐ Not involved ☐ No preference

RESIDENTIAL

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

☐ Not involved ☐ No preference

### Bathroom Faucets

COMMERCIAL

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

☐ Not involved ☐ No preference

RESIDENTIAL

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

☐ Not involved ☐ No preference

### Bathroom Sinks

COMMERCIAL

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

☐ Not involved ☐ No preference

RESIDENTIAL

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

☐ Not involved ☐ No preference

### Toilets

COMMERCIAL

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

☐ Not involved ☐ No preference

RESIDENTIAL

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

☐ Not involved ☐ No preference

### Showerheads (Showers)

COMMERCIAL

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

☐ Not involved ☐ No preference

RESIDENTIAL

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

☐ Not involved ☐ No preference

### Bathroom Accessories

COMMERCIAL

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

☐ Not involved ☐ No preference

RESIDENTIAL

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

☐ Not involved ☐ No preference

**PART 2.** For the following **questions**, please answer each one by checking the appropriate boxes, or filling in the required information. If you want the \$5, be sure to fill in your information, and check the appropriate box. THANK YOU!

1. What best describes the type of company you work for?

☐ Plumbing Contractor ☐ Mechanical Contractor ☐ General Contractor

☐ Other \_\_\_\_\_

2. How many contractors work in your company? \_\_\_\_\_

3. What is the estimated constructed value of projects your company is involved with annually? \$ \_\_\_\_\_ per year

4. Please assign a percentage for the type of projects your company handles (should total 100%).

Residential (single family) \_\_\_\_\_% Commercial \_\_\_\_\_%

Residential (multi-family) \_\_\_\_\_% Industrial \_\_\_\_\_%

Total 100%

5. How much is new construction versus MRO (maintenance)?

New Construction/rehab \_\_\_\_\_% MRO \_\_\_\_\_%

Total 100%

6. What is your level of involvement in the selection/specification of the products in this survey? (check all the boxes that apply to you)

☐ Estimate ☐ Recommend ☐ Purchase

☐ Specify ☐ Install ☐ None ☐ Other \_\_\_\_\_

7. Please tell us specifically why you prefer your TOP brand of products?

\_\_\_\_\_  
\_\_\_\_\_

8. Please list the TOP three sources you use to gather product information. Please be specific (e.g., if you say "magazines" tell us which one(s), or if you say Internet, tell us which websites)

TOP SOURCE \_\_\_\_\_

#2 \_\_\_\_\_

#3 \_\_\_\_\_

Send me my \$5 ☐ in cash, or ☐ a Starbucks Card.

I am a licensed plumber in the state of \_\_\_\_\_, and my

license number is: \_\_\_\_\_

Name \_\_\_\_\_

Title \_\_\_\_\_

Company \_\_\_\_\_

Address \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

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

**When you quote at or below cost selling prices you are not only harming yourself by creating more work, stress and frustration, you are also hurting your family, your employees, your creditors, your clientele, your competitors, and our noble industry.**

## ***Don't sell short***

# Excellence costs more than mediocrity

**A**ny time a conversation ensues among contractors regarding the industry's prices, the contractors involved in the discussion always moan and groan about those other contractors with ridiculous prices who destroy the industry. Some say others charge too much. Others say some charge too little. They never seem to point out their own contribution to mindless industry pricing. Their ego blinds them to the prospect that they may be part of the problem.

All prices should be based on the legitimate costs each contractor incurs serving the public and the proper profit margin which will allow each contractor to attain his/her goals. If a price is too high for the value of the service rendered in the eyes of the public, then that contractor should consider adjusting his/her business strategy, not necessarily his/her prices. For those whose prices are too low, the consumers' perception of the value of that contractor's services will soon be lowered by the bitterness of a poor job done and/or warranty after the fact.

The benchmark for the break-even cost of each contractor must be arrived at through logical mathematical and fundamental business methods. Guessing does not count. When you guess, your prices will probably be wrong 99% of the time. The only reason I didn't say 100% of the time is because even a blind squirrel sometimes stumbles upon a nut or acorn.

Wrong selling prices, flawed pricing methods and defective business practices cause all the self-inflicted problems you may face as a contractor. All business problems stem from an inability to correctly identify and calculate your real costs of operating your contracting business and the proportion of those costs as they pertain to any given task.

Not knowing how to choose a proper profit margin to apply to your real cost of operation further obstructs you from developing proper profitable selling prices that will allow you to attain your goals.

### **Deserving respect**

As long as you deliver excellence to society, you deserve respect and reward for taking the responsibility and risk, which comes with serving society. But, since most of you don't really know your true cost of your business operation, it's difficult for you to prove to yourself whether your prices are at, below or above your cost.

If you calculate your budget, but don't include all your tangible and intangible costs, or use wrong numbers, you will begin to fool yourself into thinking that your costs are all-inclusive when they are not. In that instance, those missing or wrong numbers will render wrong results. If so, you will be more than likely selling your services below your proportionate cost of operation. Your prices will probably be not high enough to recover your costs, let alone earn the reward you deserve to attain your goals.

When you quote at or below cost selling prices, you are not only harming yourself by creating more work, stress and frustration, you are also hurting your family, your employees, your creditors, your clientele, your competitors and our noble industry.

Therein lies one of the reasons you may not be happy with the return on your monetary and sweat equity investments in your business. Flawed management theories and methods that cause your problems also kill the proverbial goose that lays the golden egg.

To earn your reward, you must first understand that you deliver value to society, and that there are only four possibilities regarding a return on your monetary and sweat

equity investments in your business: (1. You can fail. (2. You can just survive. (3. You can be comfortable. Or, (4. you can be content.

Failure and survival defeat the purpose of why you entered the business world. Being comfortable may not be enough, especially in these hard economic times. "Content" is defined as satisfied, not displeased, to be at peace with oneself.

Are you content with the return you are getting back from your monetary and sweat equity investments in your business?

You went into business in search of success, not failure or survival. Failure and survival occur when you don't give your business the opportunity to succeed. Without the opportunity you can never succeed. But opportunity alone doesn't guarantee your success.

The current economic climate makes it obvious to anyone with a modicum of intelligence that success is harder to achieve today than when the good times roll. I'm sure when you went into business you did so with the intent of delivering excellence to your clientele, while earning the reward you deserve for the delivery of that excellence. But in these hard economic times, offering your services at the wrong prices increases your problems, because when there is less work, your cost per task actually goes up. The practice of lowering your prices to levels below your true cost will only serve to make your life more miserable.

### **Examples of wrong number and wrong results**

To survive in my geographic area, a qualified technician needs a minimum \$50,000.00 annual salary. I know; I live there. When you take that salary into consideration and add salary-based expenses like FICA matching funds, insurances such as unemployment, disability, workers compensation, liability, health and a few bucks for an IRA, the salary cost per technician hour to the contractor is minimally \$42.34 if the contractor sells all available tech time in a 40 hour/52 week (no overtime) work year. That's without overhead expenses, which are probably an approximate minimum \$75.00 per tech hour. That means the minimum labor overhead cost is \$117.34 per tech hour.

While perusing some coupons I received in the mail, I noticed some really stupid offers from contractors. Some even bordered upon deceptive and fraudulent advertising.

**Coupon 1:** A duct cleaning company offered a "whole-house duct cleaning special." For just \$44.95, it included unlimited vents, one return, one main and one access panel. It did state that "additional mains, returns and access panels will incur additional charge."

I've been tracking the average travel time in this area for 32 years. The average time for a technician to take the call, plot the route and drive to the consumer is 30 minutes. At \$117.34 per tech hour minimum labor/overhead cost, if that task with travel time took an hour, that contractor spends \$117.34 to collect \$44.95. To add insult to his/her own self-inflicted injury, he/she offers a 10% senior citizens discount so he/she could lose more money. If it takes more than an hour, he/she loses even more money.

I'm sure he/she is figuring to get other work while there. But even if he/she gets more work, he/she has to make up for the loss created with his/her silly offer before beginning to break even. Added-on extras only serve to make the offer appear to be a bit shady.

**Coupon 2:** Another contracting genius offers "Complete New Bathroom at \$6,900.00," including: complete demo-  
(Turn to Never settle...Page 38.)



### **AutoCut™ Copper Tubing Cutter**

A great tool to have when you don't have the swing room to use a conventional tubing cutter. You can cut copper tubing with less than one inch of clearance.



- Just snap it on the tube, close the gate and turn – no knobs to twist.
- Cutter wheel is spring loaded to provide constant cutting pressure – so you won't accidentally crimp the tubing.
- AutoCut has long lasting hardened steel cutting wheels.
- Ratchet turning handle available for extra turning power in tight spaces.
- Available in 1/2", 3/4" and 1" sizes.

Call 800-245-6200 or visit  
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### **Gen-Ear LE™ Water Leak Location System.**

The economical, simplified Gen-Ear LE pinpoints water leaks in residential and commercial water lines. It saves you a lot of guesswork and unnecessary digging. And that saves you a lot of money.



- Compact amplifier provides noise free amplification with built-in preset audio filters, so you don't have to guess what settings to use.
- High performance head-phones with noise cancellation features block out interference from surrounding ambient noise.
- Hard to find leaks get a boost with the Sound Amplification Manifold to hear leaks by using air to pressurize the water line.

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### **Jet-Set™ Clears Grease Clogs Fast.**

The J-1450 electric water jet, a compact and portable drain cleaning machine, uses high pressure water to clear drain lines clogged with grease, sand and ice.



- Clears 1-1/2" to 4" lines of grease, sand and ice.
- 1-1/2 hp motor drives 1500 psi, 1.7 gpm pump.
- Vibrapulse® helps the hose around tight bends.
- Slide-out handle makes it easier to roll to the job.
- Easily removable hose reel to make machine more compact.

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### **Power-Vee™ Works Great in Tight Spots!**



When working under sinks or in other awkward places, the Power-Vee is like having a third hand. Just squeeze the feed lever and three offset rollers in the automatic feed grip the cable and drive it into the line.

- Handles 1/4" through 3/8" cables without any need for adjustment.
- Feeds and retrieves 3/8" cables at 16 feet per minute.
- Quick-change cable cartridges make cable changing clean and easy.
- Flexicore® wire rope center cables have unequalled strength and the right amount of flexibility.

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### **Metro-Rooter™ Root Cutting Power at a Great Price.**

The Metro-Rooter is a tough root cutting machine in a compact, light-weight package, at a price that's easy on tight budgets.



- Heavy-duty powder coated steel drum holds 100 ft. of 1/2" cable for inside lines, 75 ft. of 5/8" cable for roots, or 50' of 3/4" cable for tough jobs.
- Power cable feed is a real labor saver. It enables you to vary feeding speed in and out of the line and give you better control when working through tough stoppages.
- Self aligning Flexitube™ distributor tube reduces cable tangling.
- Heavy-duty reinforced frame and drum support shaft takes rough handling in the field.

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or visit [www.drainbrain.com](http://www.drainbrain.com).

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Full-Line Catalog**

**"The Ram is so good  
I don't want my competition  
to know about it."**

*Anonymous Plumber,  
Florida*



**Kinetic Water Ram™  
The best kept secret in the industry.**

If you've ever tried to wrestle a snake through a drum trap or a series of tight bends to reach a stoppage, you'll be amazed how quick and easy it is to do the job with a Kinetic Water Ram.

**"The Water Ram is easy, convenient and handles 90% of my drain jobs."**

*Jim Wolfers, Jim's Refrigeration & Appliance Repair, Virginia*

The Ram uses a burst of compressed air that drives a shock wave (kinetic energy) through the water to break up the stoppage. You get instant impact with no build-up of pressure in the plumbing system.

**"We get more jobs done faster with Kinetic Water Ram. It's clean and efficient. And it brings us business."**

*Alain Breton, Pro-Tech Drains, Quebec*

This compact lightweight tool handles clogged sinks, slow draining tubs, toilets, and more in lines up to 4" in diameter. Just pump it up, insert it into the drain and snap the trigger. It's that quick!

**"It takes longer to write up the bill than to unclog a drain with that tool."**

*Dale Smith, D. Smith Plumbing Services, Mississippi*

**Want to know more?**

Visit [www.waterram.com](http://www.waterram.com) to see the Kinetic Water Ram in action and read success stories of contractors who have become heroes! Or call the Drain Brains® at 800-245-6200 or 412-771-6300.

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# SRCC becoming solar hot water certifier

(Continued from page 28.)

in the last article. The collectors can then be included in a packaged solar hot water system, which is set up and operated under the following test conditions:

The solar water heater is exposed to moderate solar radiation, and six times during the day, hot water is drawn from the hot water tank. By the end of the day a total of 41,045 BTUS has been drawn from the tank, amounting to around 64.3 gallons of hot water. During the test, the aqua-

**...Use these test results only as the guidelines that they provide. When comparing solar equipment, the srcc could be your first stop for some easy comparisons, but it probably should not be your last stop.**

stat controlling the auxiliary heat (electric or gas) is set to maintain 135°F. Separate test results are provided for electric versus gas auxiliary heat since these represent different "systems".

## The test results

The test results for the solar water heating system are distilled down to a rating that the SRCC calls the Solar Energy Factor (SEF). It is defined as follows:

$$SEF = Q_{DEL} / (Q_{AUX} + Q_{PAR})$$

Where:

Q = The mathematical symbol commonly used to represent Energy.

$Q_{DEL}$  = Daily amount of energy delivered to the hot water load using the SRCC rating conditions, this value is 43,302 kJ/day. To convert to kWh, divide this value by 3,600.

$Q_{AUX}$  = Daily amount of energy used by the auxiliary water heater or backup element, with the solar system operating (kJ/day). To convert to kWh, divide this value by 3,600.

$Q_{PAR}$  = Parasitic energy: Daily amounts of AC electrical energy used to power pumps, controllers, shutters, trackers, or any other item needed to operate the SDHW system (kJ/day). To convert to kWh, divide this value by 3,600.

The SEF is similar to the "Coefficient of Performance" (COP) used to compare refrigeration heat pumps. The useful energy delivered is compared to the conventional energy consumed, and the result is a ratio that is typically greater than 1. So, for example a SEF of 3 tells you that 3 times more energy was delivered than was consumed by the heating equipment.

## System comparisons

The SRCC publications include some descriptions of how to use the data to make other useful comparisons such as the Solar Fraction (SF), Energy Factor (EF), Solar Saving (QSOLAR), Electric Backup (Kwhr) and Gas Backup (therms).

SRCC uses a computer model called TRNSYS to estimate the thermal performance ratings of solar water heating systems under specified conditions. A separate computer model for each system is developed from test data on some of the system components,

have prohibited large-scale acceptance and use. I feel the new administration will do a lot to drive this technology to the mainstream over the next few years.

There is a huge advantage to being able to leverage solar thermal arrays for a year around load. The economics pencil out so much better when a consistent load is available. Maybe it's time to breakout the old Servel refrigerators and power them with solar. These are interesting times for the solar cooling technologies. HVAC and hydronic contractors (roofers? electricians?) would be well served to stay abreast of solar cooling technology. This is the growth industry, my friend. ■

## Hot Rod

(Continued from page 24.)

powered chillers and cooling equipment. (So we Americans are no strangers to this technology.)

Solar Panels Plus and a handful of other companies had some solar cooling equipment on display at ASHRAE/AHR this year in Chicago. Nice!

Solar cooling is still a bit more expensive than current methods. I think we will see this price drop as more manufacturers work to develop the equipment. Solar absorption cooling has been researched for 20 plus years now. It has been proven to be workable, but economics thus far



Figure 2: Each certified solar water heating system will have a sticker on it.

manufacturer's literature on the others, and theoretical calculations. These ratings are based on conditions similar to the ones defined by the U.S. Department of Energy for testing conventional water heaters. The City by City Annual Performance Estimates are based on these computer models and are presented in terms of Energy Savings for each system compared to a conventional 50 gallon water heater (electric or gas). Keep in mind that these ratings are only estimates based

have a collector certification sticker from the OG 100 test, as shown in Figure 3.

## Limitations

The OG 300 test seems to have been designed to compare all solar water heater systems of any size to a 50-gallon conventional water heater. This is useful for typical residential comparisons when that size hot water tank is appropriately sized. For larger water heater systems and for hydronic

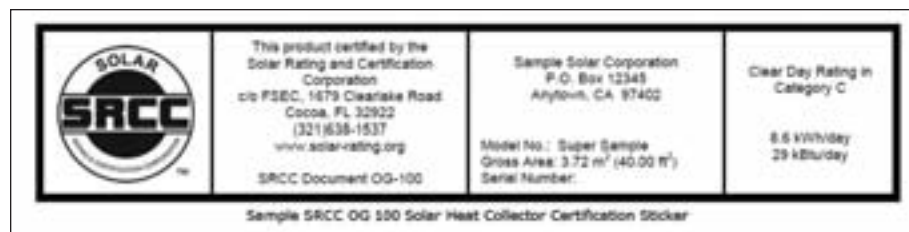


Figure 3: Each solar collector also will have a collector certification sticker from the OG 100 test.

on an assumed set of operating conditions and that your actual performance will vary depending your hot water usage pattern and actual weather conditions.

## The certification process

Certification is based upon the determination by SRCC that the system successfully meets its minimum criteria in the following categories:

1. Design
2. Reliability and durability
3. Safety
4. Operation and servicing
5. Installation
6. Operation and maintenance manuals.

This is the part of the certification where the packaged system is inspected rather than tested, and there are dozens of items on the inspection checklist which can be seen on page 13 of the OG 300 Directory. Once the system is tested and passes inspection, it can then receive its certification, and each certified solar water heating system will have a sticker on it as shown in Figure 2. Each solar collector also will

space heating systems, these ratings and comparisons are not relevant.

There are other debatable issues regarding the SRCC procedures, such as the way that the surface area for vacuum tube collectors is (mis)calculated, whether the hot water usage profile is realistic, and whether the temperatures during the test are representative of your actual installations. So, use these test results only as the guidelines that they provide. When comparing solar equipment, the SRCC could be your first stop for some easy comparisons, but it probably should not be your last stop. Other sources should also be consulted to get the complete picture, including details available from the manufacturers and suppliers, as well as the experience of other designers and installers. ■

Bristol Stickney, partner and technical director at Cedar Mountain Solar Systems in Santa Fe, N.M., has been designing, manufacturing, engineering, repairing and installing solar hydronic heating systems for more than 30 years.



# PVF sector adjusts to depressed market levels

With the prices of crude oil and natural gas hunkering down at depressed levels, the PVF sub-sectors depending on the expansion of these core businesses are obviously in hiatus at this stage of the international recession. However, offsetting this downturn is the red-hot development of power generation development that is vainly attempting to catch up with the increasing demand and the waning supply.

This has become of growing concern as the utilization of coal and the expansion of nuclear power stations have been increasingly curtailed.

However, the development of power generating infrastructure depends on a massive amount of this industry's pipe, valve and fittings, which contin-

maintenance and repair activities.

On the good news side of the ledger is the reawakening of global trade. This has resulted in an upward bump on exports in the first quarter 2009. Two-thirds of the trillion dollar plus U.S. exports are comprised by industrial products, much of which are PVF oriented.

My outlook at this point is that the PVF sector will continue to do fairly well, as the general world economy gropes to find its footing during the remainder of 2009. With oil, natural gas, and the shipment of coal to China and India, expect PVF manufacturers, distributors, contractors and others involved in the sector to regain momentum as the year 2010 beckons.

## 2009 economic year begins to unfold as second quarter progresses

As we progress ever deeper into the heart of the second quarter economic activities, it's becoming increasingly more apparent that 2009 will be a year of stabilization at best.

From a gross domestic product of goods and services point of view, 2009 will be a year of contraction, probably at two to three percent.

Although fourth quarter 2008 came in at a severe 6.3% downward slide, this year's first quarter won't do much better. Weighing heavily on America's economic viability is the disintegration of the automotive industry, sharply declining from 17 million sales of cars and light trucks in 2007, 13.2 million in 2008, and a miserable 9.3 million at the 2009 first quarter rate.

Sales of new and existing homes have inched higher, buffered by record low-fixed rate mortgages, and a tax credit for first time home buyers. Purchasing managers for industrial firms reported slightly better results for the past three months, but are still deeply imbedded in recessionary levels.

The good news is that sales from inventories are actually exceeding production results, providing a long-term stimulus for eventual pickup in industrial activity.

Credit markets also improved perceptibly, showing up in the closing gap between investment grade and high risk speculative bonds.

However, retail sales shrinkage for the year is expected to be at least one percent, while the trade deficits should come in at a multi-year low of \$450 billion, generating just 3.2% of gross

domestic product for the year 2009.

The Consumer Price Index, reported in April, was down 0.1%. Year to year, this was the first negative CPI trend since 1955.

Industrial production, as we predicted, came down 1.5%, with capacity utilization now running under 70%.

## Oil conundrum becomes increasingly puzzling

The oil tug-of-war between supply and demand, and the increasingly diverse viewpoints of energy pundits, seem to have observers like myself scratching our heads. Since the 2008 mid-July price of oil at \$147 per barrel dropped to \$36 early in January (barely six months), the oil sector seems to have taken on an air of irrationality.

The latest prediction by the Paris-based International Energy Agency, which provides best estimates to the world's developed nations, is calling for a 2009 reduction to 83.4 million barrels per day from last year's 85.8 millions bpd. This is grist for the mill of bears who believe that oil prices will be mired in a \$40 to \$50 range per barrel for the rest of the year.

What this overlooks is the comeback of China and India, which have a combined 2.5 billion population potential evolving into the automotive age, while America's 305 million inhabitants could likely have reached the peak of their usage this year.

On the supply side are two major factors:

1) The drastic production cutbacks by OPEC so far this year, which have been 75% effective — and could be further constrained.

2) The record oilfield shutdown of drilling rigs in the Gulf of Mexico, the Bakken Belt in the Northern U.S., and the holdup of new projects in Canada's Alberta Province's oil sands region. The unraveling of Mexico's giant Cantarell oilfield is also a contributing factor, as are two of the five major Saudi Arabian production sites.

One thing is sure. Even if oil usage slows in the years ahead, the cost/profit breakeven will climb substantially. This is due to the prohibitive cost of deep sea, offshore extraction and the increasingly complex technology to convert Canada's expanding oil sand potential into viable crude oil. The increasing hostility to greenhouse gases and carbon dioxide effluence (high in the tar sands conversion process) could also become an inhibiting factor for



BY MORRIS BESCHLOSS,  
PVF and economic analyst emeritus

American importers, propagandized against accepting these oil products.

How this, and a slowly recovering economy combine to play out all these factors should provide a clearer price picture as the year progresses.

## Is commercial real estate the next shoe to drop?

Like rumbling thunder portending a major storm, the danger of a commercial real estate deleveraging becomes more significant by the day.

Whether we're talking about office buildings, shopping malls and specialty stores, hotels and motels, public storage, or even car dealerships, America's current retail infrastructure is significantly overbuilt in accommodating the level of commercial activity currently taking place, or to be expected in the foreseeable future.

As the air continues to leak out of the consumer spending bubble, it's becoming increasingly apparent that the vast amount of commercial real estate, accumulated over the past two decades to accommodate the unquenchable appetite of the American consumer, has led to unsustainable overbuilding. What qualified as maintenance just two years ago is now rank surplus, when measured against the drastically changing nature of consumer activity.

This will have left many projects in process hanging in mid-air, as commercial developers' bank loans are being called, and new funds are increasingly unavailable. This turn of events is drastically impacting plans for commercial new construction, with the exception of healthcare or elder care new facilities.

Unfortunately, this turn of events may not be limited to the temporary exigencies of the ongoing recession, but will likely be impacted by the more permanently restrictive nature of consumer attitudes, as the U.S. economy works its way out of the ongoing economic downturn.

To stay up to date with my twice daily blogging, be sure to log on to my hyperlink at [www.theworldreport.org](http://www.theworldreport.org) and then click on "Morrie's page," announced in the middle of the World Report website. Your recommendation for my blog, as well as the individual columns will be much appreciated. ■

## On the good news side of the ledger is the reawakening of global trade.

ues to underpin the business of most sector manufacturers as well as distributors, fabricators, turnkey constructors, and engineers.

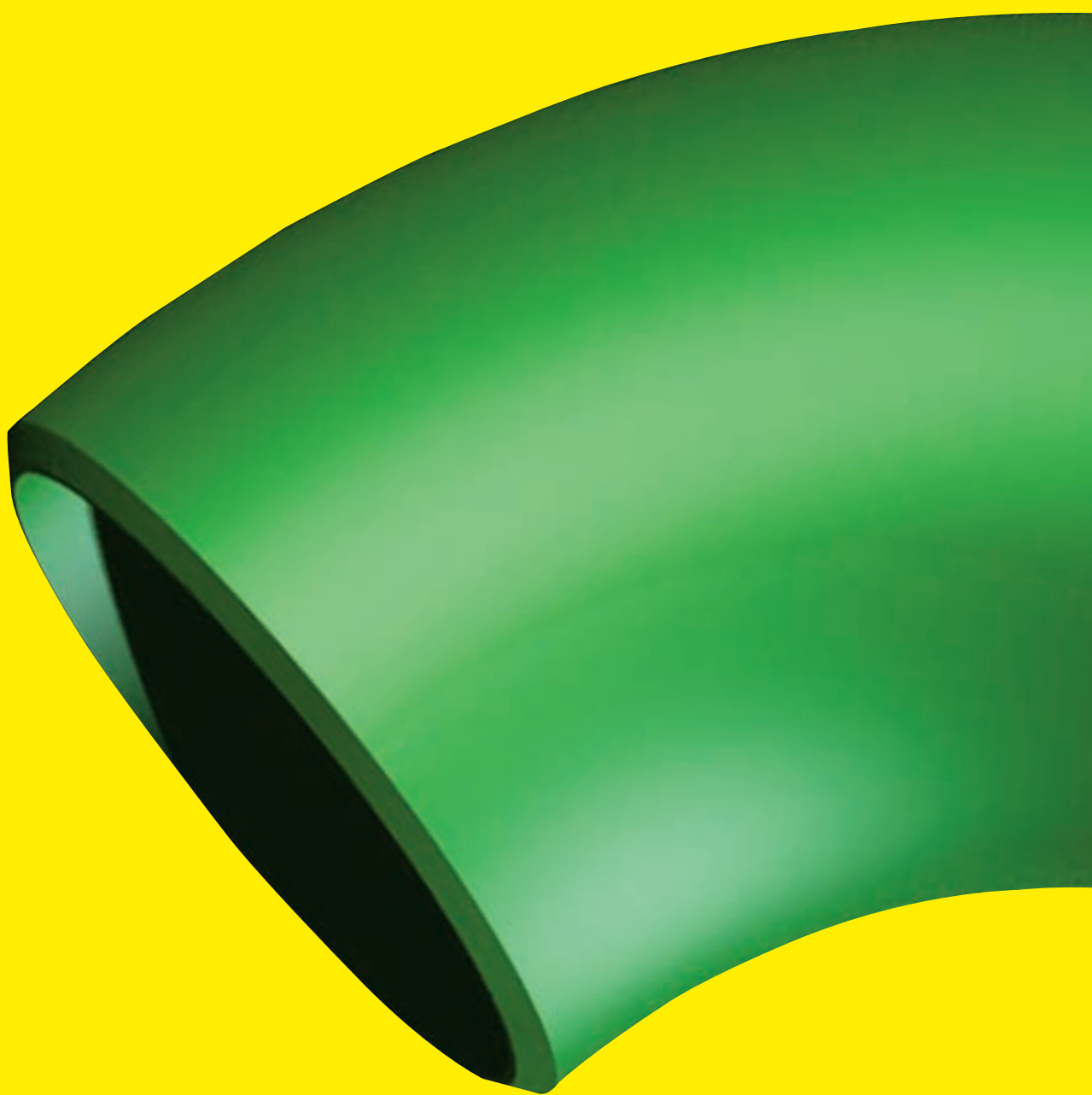
Natural gas is increasingly replacing the use of both coal and the diminishing use of oil in power generation. That is a major reason that pipe in the transmission of natural gas is still exceeding the production of that fossil fuel, which has accumulated one of the greatest gluts, and lowest prices in years.

PVF manufacturers and turnkey constructors who have consummated available projects in the past few months, are benefitting by the resultant expanding margin of material costs that have plummeted dramatically since the first of the year. This will at least temporarily benefit manufacturers — and eventually distributors in their reorders.

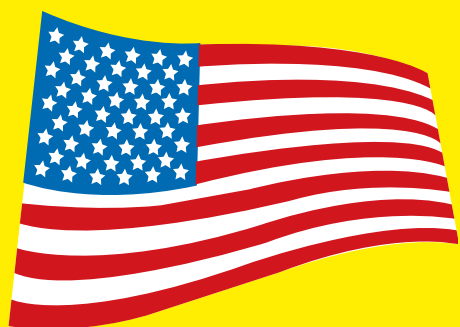
Most concerning to the large group of PVF distributors and contractors who focus on commercial development and maintenance are the serious credit problems facing major developers controlling much of the new office buildings, hotels, motels, shopping centers, and multi-story apartment buildings. Although the recently conceived Treasury Department's TALF program, and support from the Federal Reserve Board holds promise for future credit easing, commercial project activity has practically come to a halt. Business in this arena has effectively been reduced to



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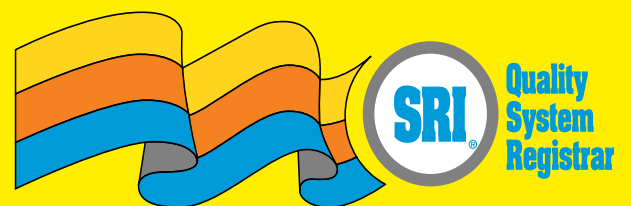


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## Never settle for 'good enough'

(Continued from page 32.)

lition; new sheetrock; new steel tub; new toilet; new sub floor; new vanity & sink; ceramic tile floor; tile shower walls; sink & shower faucet; and disposal & dumpster fees. This coupon did claim in small print that upgrades were available & larger bathrooms may be subject to extra charges.

I don't know if you ever have contracted to remodel this type of described job in totality. I have. It takes between 100 and 120 tech hours.

Using the same aforementioned minimum \$117.34 labor overhead cost and only 80 hours, this company minimally spends \$9,387.20 on labor and overhead. The material described and disposal and dumpster fees have to minimally cost \$1000.00. That means spending \$10,387.20 to collect \$6,900.00. And that's if it only took 80 hours to complete.

Instead of going through the hassle of operating his/her business, advertising this ridiculous offer, performing the service and standing behind the workmanship, this extraordinary lackluster contractor without a clue should just send any consumer who wished to avail themselves of his/her \$6,900.00 offer a check for \$3,487.20. He/she would have accomplished the same result without having to do the work. Silly irrational selling prices are stupid!

**Coupon 3:** This is yet another ingenious plot to prove how foolish contractors can be. This mastermind of the absurd offered to install a 50-gallon gas water heater replacement for \$795.00 and a 40-gallon gas water heater replacement for \$695.00.

My contracting business has replaced many 40- and 50-gallon gas water heaters during the last 32 years. I've tracked the average time to perform this service. Some might be done faster than the average time. Others make take much longer. But, on average, that task takes at least four hours, plus the initial travel time. The technician spends time introducing him/herself to the consumer. Then, he/she has to check out the situation. Next, it's back to the consumer to explain what must be done and the price to do it. If the consumer agrees, a contract (usually an invoice with prices, terms and conditions) must be completed. The tech has to set up the work area; drain the existing water heater; pick up the new water heater; install the new water heater; fill the new water heater; light the new heater; and wait for the temperature to reach limit to assure that the highest temperature will not scald. While waiting for the temperature rise, the tech can clean up the work area and get paid for the service.

No matter how you slice and dice it, at least four tech hours are spent. If you add 30 minutes for the initial travel time, that contractor has just spent 4½ hours to install that water heater. At a minimum labor/overhead cost of \$117.34, this brainiac has just spent \$528.03 without any material. The minimum cost of the water heater is between \$300.00 and \$500.00. The immediate piping and fittings for the water and gas hookup; some venting material; and solder, acetylene, flux, grit cloth,

sealant would probably add another \$50.00 to \$120.00 to the material cost.

That means the cost to this mastermind of the contracting world ranges between a low of \$878.03 and a high of \$1,148.03. With \$695.00 or \$795.00 brought in to his/her company, this mathematical genius minimally loses between \$183.03 and \$353.03 every time he/she performs one of these advertised specials. Isn't he/she brilliant? And, if something goes wrong with the job he/she will be in even deeper trouble.

### Don't fool yourself

Don't make these types of mistakes. They are foolish, non-productive, and costly. Before quoting prices, make certain that you know your true costs and use a proper profit margin that will give you the opportunity to attain your goals. Apply that data to any job before quoting a price to perform that service.

In order for you to deliver excellence to your clientele you must acknowledge your true costs and sell your services above those costs. If you don't, your excellence will soon turn into mediocrity because you won't have the money to pay for the cost of a top quality job and the cost to stand behind your work.

If you're not sure of how to go about figuring your costs and choosing a proper profit margin to attain your goals, give me a call at 845/639-5050. I'd be glad to show you how to do the right thing so you don't drag yourself and our magnificent industry down like the poor ignorant desperate souls who made those ridiculous offers.

As always, I wish to you the best of health and good fortune. ■

## Ellen Rohr

(Continued from page 30.)

may not achieve your Goals. Like Susan, the world may conspire to help you have even more.

*"Modern society is too quick to judge people on their appearances. There is not much you can do about it; it is the way they think; it is the way they are. But maybe this could teach them a lesson, or set an example."*

~Susan Boyle, The Washington Post

Let's hang on to this! Let's create more of this. I added to my Goals list for 2009....

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Richard P. DiToma is a business consultant and contractor with 36 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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## Radiant – The hottest topic in cooling

It's amazing when you sit back and take a look at how radiant systems have evolved in North America over the past three decades. Radiant floors started with a humble beginning in small garages and bathrooms. Now the technology has grown into mainstream specifications for residential, commercial and industrial projects.



Radiant cooling systems work like radiant heat in reverse, circulating chilled water or water-glycol fluid through tubing embedded in the structure.

al projects.

The latest step in the evolutionary process is radiant cooling. Radiant cooling started to show up on the radar screen in Europe in the early to mid-1990s. By early 2000, North American engineers were becoming interested and slowly beginning to use radiant cooling in their designs as well. Today, radiant cooling is the hottest topic of discussion among commercial design engineers.

### • What is radiant cooling?

Radiant cooling systems circulate chilled (commonly 55°F to 58°F) water or glycol-aqueous fluid through tubing embedded in the floors and walls or through panels positioned on the walls or ceilings. This chilled fluid draws the excess heat from the structure and sends it to a chiller

or ground-source system for exchange. Its operation is similar to radiant heat, only in reverse.

### • Can radiant cooling supply all the cooling needs of a building?

Radiant cooling systems are not designed to be standalone systems. Rather, they work in conjunction with an HVAC system. One of the advantages of using radiant cooling is the efficiencies it provides by allowing the designer to downsize the HVAC system.

Cooling loads consist of three components: sensible, latent and solar. The radiant cooling system can only affect the sensible and solar portions of the cooling load; the HVAC system must address the latent portion.

### • How is the humidity in the building controlled? Isn't there a problem with condensation on the cooled surfaces?

The humidity in a building is controlled through the HVAC system. Humidity is in the latent portion of



BY GARY FRIES,  
contributing writer

the cooling load. It is commonly referred to as the wet bulb load or gain. Radiant cooling systems cannot address the latent load.

The ventilation system addresses not only the latent load, but also the balance of the sensible load (if any exists). It also controls the level of humidity within the air system and meets the requirements of the Indoor Air Quality (IAQ) standards for fresh air.

Relative humidity (Rh) and temperature determine the dew point within (Turn to Think radiant... page 46.)



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\* For this renewable energy initiative, System 2000/Energy Kinetics was named "2008 New Jersey Clean Energy Small Business Leader of the Year."

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## Thinking radiant for cooling

(Continued from page 42.)

the space. In most cases, an Rh of 45% is sufficient to prevent condensation on the cooling surface. In a radiant cooling system, the controls for the radiant system should monitor the dew point in the building and adjust fluid temperatures to avoid condensation issues.

- **What kind of floor coverings can be used with radiant cooling?**

Highly conductive solid surfaces like tile, concrete or slate are recommended for use with radiant cooling systems. Using thick carpet and pad, or similar soft-rug-type surfaces is not recommended.

- **Can radiant cooling be used only in concrete installations?**

There are two primary construction types for radiant cooling systems: high-mass and low-mass. Both are hydronic-based and circulate chilled fluid to draw the excess heat from the

structure.

High-mass constructions incorporate embedded tubing within the concrete floor or wall of the structure. This method is common in hybrid systems that both cool and heat a structure. It is also an excellent application for passive control strategies.

The low-mass technique uses surface-mounted ceiling or wall panels that react fairly quickly to temperature change, with little or no residual energy left in the panel. These panels are ideal for retrofit applications because low-mass systems must be used with active control strategies to gain maximum benefit.

- **What are passive and active control strategies?**

With a passive strategy, the mass in the structure is cooled during the evening and night, usually taking advantage of off-peak energy. The mass is then allowed to slowly absorb



High-mass radiant cooling uses tubing embedded in the concrete floor and/or walls and is common in hybrid systems that both cool and heat a structure.

energy throughout the next day until it is cooled once again that following night.

With an active strategy, the panels are in active play when there is a call for cooling in the structure.

- **How much energy can I anticipate the radiant cooling system to support?**

The maximum capacity of a radiant floor cooling system is approximately 14 Btu per hour per square foot when using a design set-point temperature of 78°F. In floor areas with absorption of short-wave radiation (i.e., solar, lights, etc.), the cooling capacity can be as high as approximately 25 to 32 Btu/h/ft<sup>2</sup>. The capacity can vary depending on the floor construction employed and the system fluid temperatures used at the time.

Gary Fries is the associate product manager of Commercial Heating and Cooling for Uponor. He holds over two decades of experience in the design and installation of radiant systems, and is a professional member of the American Society of Heating, Refrigerating and Air-conditioning Engineers (ASHRAE). He can be reached at Gary.Fries@uponor-usa.com.



Maximum capacity of a radiant floor cooling system is about 14 Btu per hour per square foot when using a design set-point temperature of 78°F.

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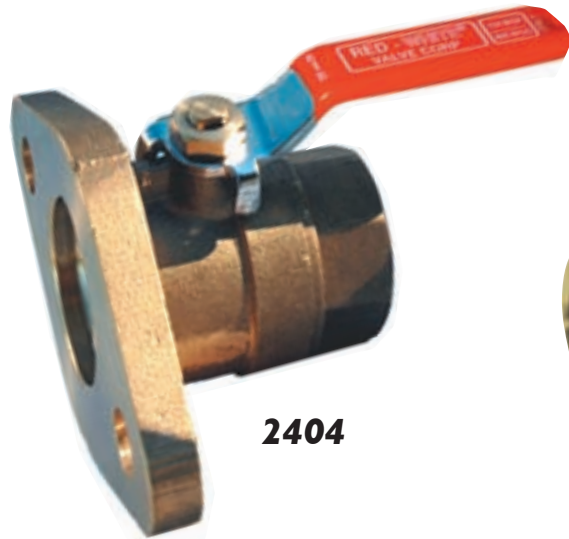
# Products for the Plumbing, Co



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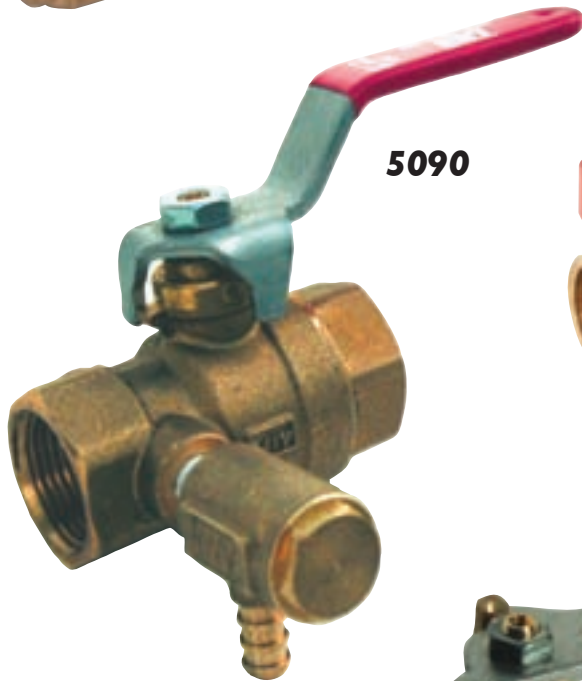
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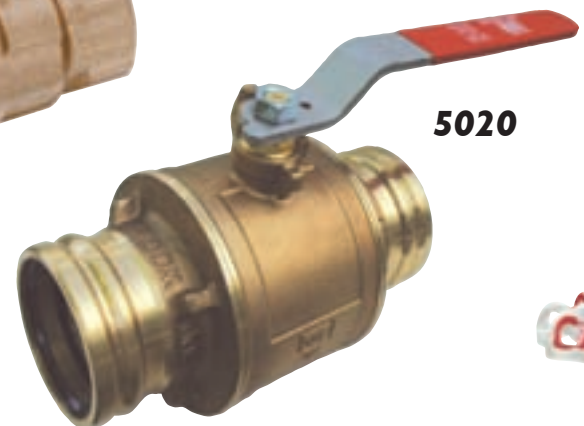
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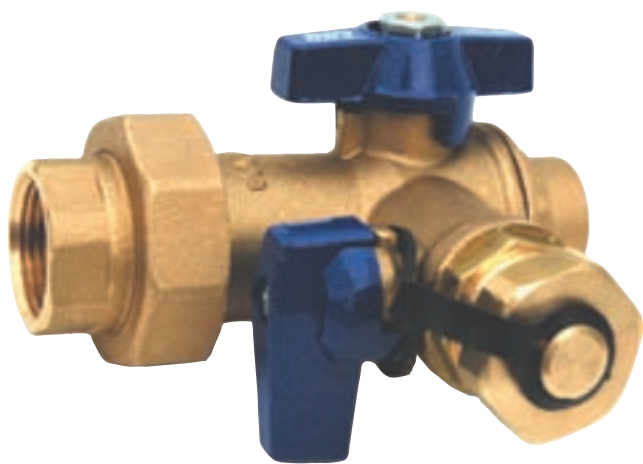
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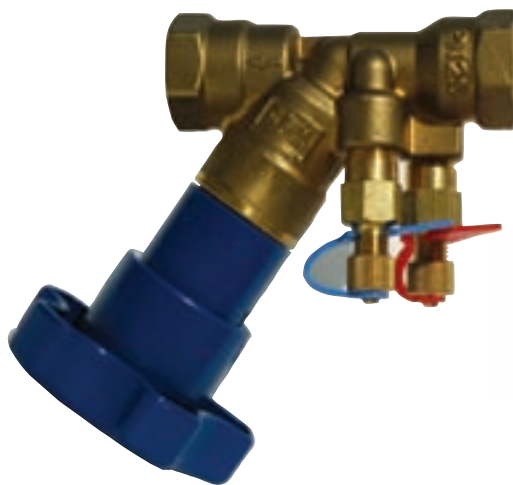
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# Commercial and HVAC Markets



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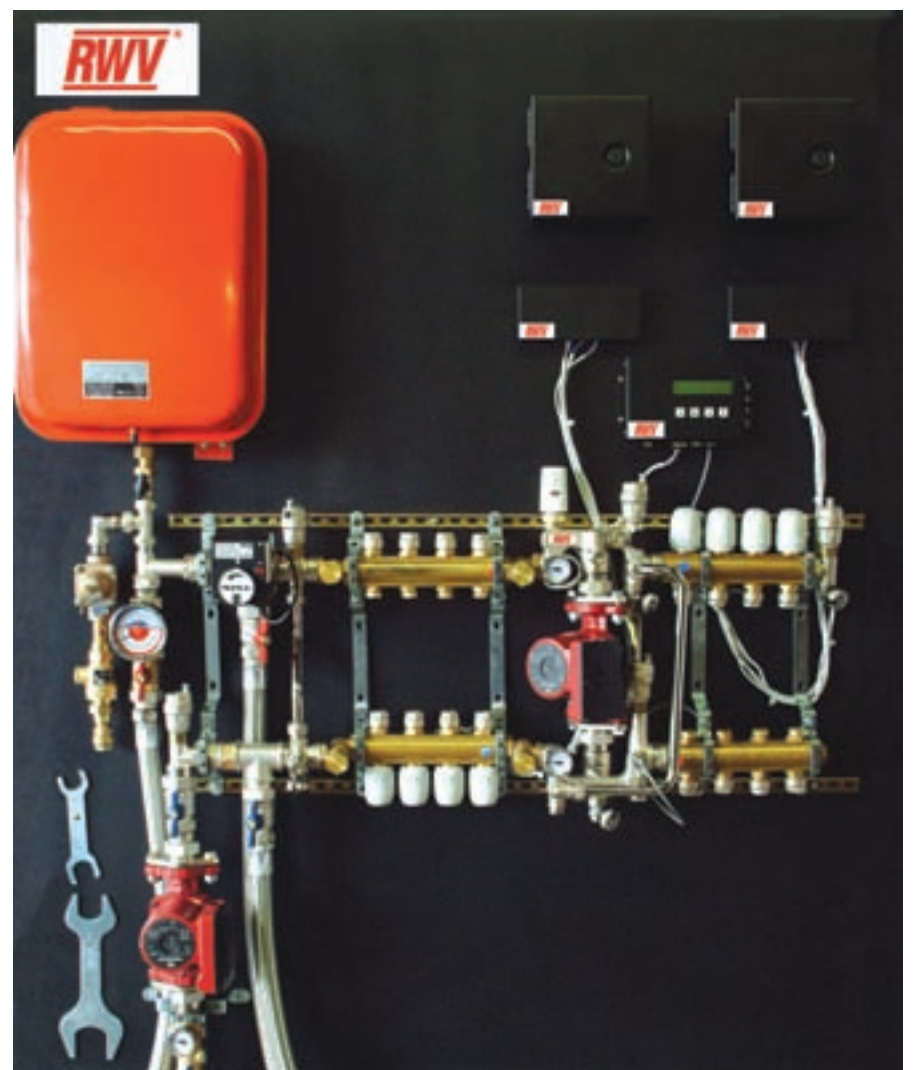
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# Customers save with Econoburn boilers

The Econoburn wood gasification boiler, made by Alternative Fuel Boilers LLC, uses technology that captures and utilizes energy that most other wood-burning boilers waste and is gaining high marks from consumers.

Stan Groman of Sandy Creek, N.Y., installed a 200,000 Btu Econoburn in series with his existing oil burner that gets used when his family goes away on vacation. Otherwise, he said, he simply loads the wood gasification boiler once a day in the spring and fall, and twice during the winter “when it gets bitter cold and windy.”

Groman said, “Having kept records of fuel oil purchases for the two years prior to installing (our Econoburn), we averaged 1,600 gallons a year, which at \$3.40 a gallon amounts to \$5,440 a year.” He expects the boiler to pay for itself in a little more than a year. “I’m really happy with the performance and keep saying to myself, ‘We have free heat.’”

Dan Daub is an assistant superintendent at The Kahkwa Club in Erie, Pa., and installed a 100,000 Btu boiler in his home. He said it is “fantastic, well built and reliable.”

Daub has 28 years of facilities management experience and said he was well pleased with the level of service offered by Alternative.

“All mechanical products have issues,” Daub noted. “The difference is in the factory support, and (Econoburn’s manufacturer’s) is top-notch. I have never seen such an immediate response like the one I got the first time I called the tech line. My Econoburn will last for many years to come.”

through an all-encompassing safety certification process to meet the stringent standards of both UL and CSA,” he said. “This is important for homeowners in both the U.S. and Canada, and assures them our boilers offer high quality and safety as well as complying with typical insurance company requirements”.

The safety testing consisted of several tests of the Econoburn’s operation in real-world applications to verify safe operation in all extremes. The Warnock-Hershey certification process was completed by an independent, third-party laboratory in Middleton, Wisc.

Odell said, “The test I was most impressed with was the ‘over-heat’ test in which the boiler is subjected to a simulated power outage while in full operation. The boiler performed as engineered and as designed, reliably and safely.”

## Gasification technology

The Econoburn’s gasification technology captures, extracts and transfers energy that typical outdoor wood burners simply send up the flue as waste gases. As a result, almost all the gases are burned, little residual soot or creosote goes up the flue, and the extra energy is transferred to the boiler’s heat exchanger. The units reach energy efficiency levels of 87%.

Odell noted the totally “Made in America” boiler offers wood burning technology that has been in use in Europe since the 1950s, but has only recently started taking hold in North America.

“Rising fuel costs and increased environmental concerns have prompted demand for higher energy, lower emission alternative fuel heating appliances,” he explained.

“What we are offering is a state-of-the-art boiler with a carbon neutral environmental footprint that meets EPA air emission standards.” Econoburn residential boilers range in size from 100,000 to 300,000 Btus and are compatible with radiant floor, forced air or traditional hot water boiler heating systems. Accessories to heat leisure products such as swimming pools and hot tubs are also available. The Econoburn can be installed as the primary boiler or

easily integrated with existing heating appliances for automatic backup use.

ASME-certified boilers for use in commercial applications are available in sizes of up to 1 million Btus.

Customer support provides pre-purchase consultations on appropriate boiler sizing, system integration, accessory applications and other specialized design requirements at the company’s website, [www.alternativefuelboilers.com](http://www.alternativefuelboilers.com), or through its toll-free telephone number: 866/818-5162. ■

Alternative Fuel Boilers corporate parent, Dunkirk Metal Products, Inc., is an ISO 9001-2000 certified company with 60 years of commitment to manufacturing excellence.



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Econoburn’s gasification technology recovers energy that most outdoor wood burners vent as waste gases. With gasification most gases are burned with little residual soot or creosote, and the extra energy is transferred to the boiler’s heat exchanger for energy efficiency levels as great as 87%.

Groman added an innovative touch to his Econoburn installation. He located it in a boathouse adjacent to his Lake Ontario home so he doesn’t have to go outside to feed an exterior boiler.

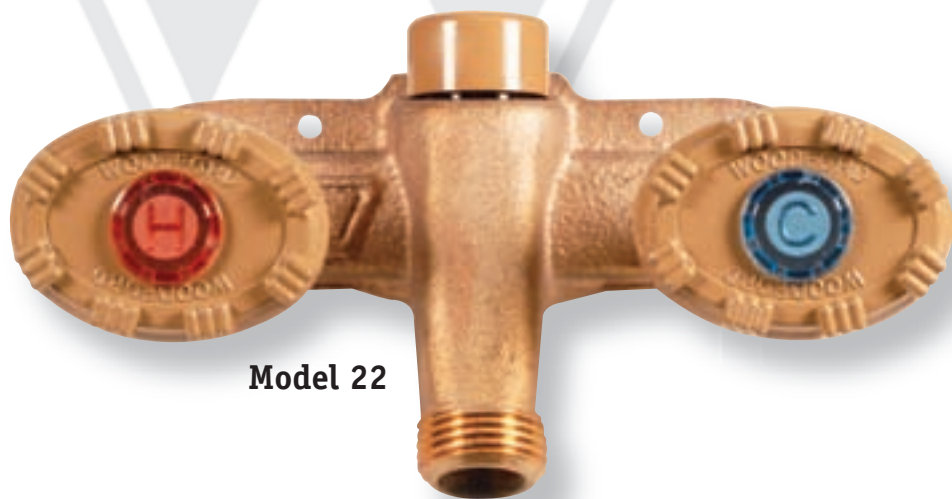
## Safety certified

Alternative Fuel Boilers recently earned the right to mark the Econoburn with the Warnock-Hershey International safety mark for the U.S. and Canadian markets.

The Warnock-Hershey certification meets both Underwriters Laboratories and Canadian Standards Association safety requirements for solid-fuel boilers according to company vice president of marketing Mark Odell.

“Our Econoburn boilers have been put





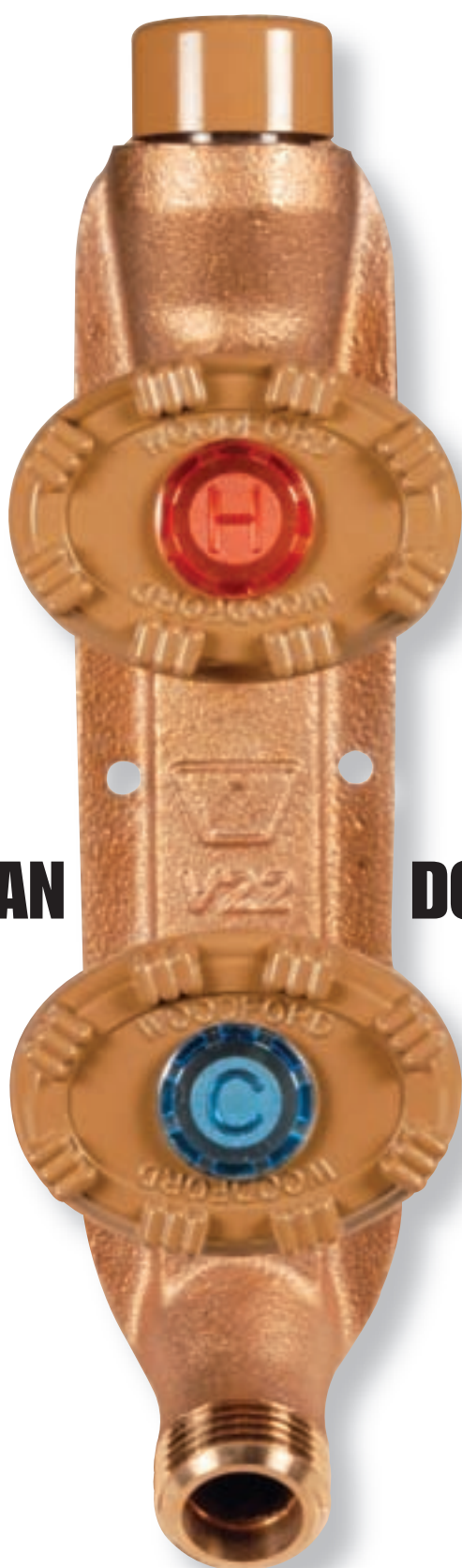
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## Let's get physical!

**Physical water treatment – or non-chemical water treatment – has been around for decades, and yet everything old seems new again**

BY DANIEL BRANDON

Nearly all boiler systems require water treatment to address the issues of corrosion and scale. Historically this has been the domain of chemical treatments.

Permanent magnetic technology is

A series of reversing polarity, permanent magnetic fields — installing this unique in-line conditioner on a boiler system — the unit alters the natural characteristics of the hard water minerals, making it difficult for them to bond together and form hard brittle scale. Instead, these minerals remain in a suspended state throughout the heat transfer process and will flow on through the system. Water-using equipment, like boilers, will operate with dramatically improved efficiency. Also, maintenance or periodic equipment replacement becomes almost non-existent.

One of the added benefits of this conditioner is that the treated water will gradually reduce the existing lime/scale deposits by dissolving the accumulation, allowing it to settle out to the low point of the system and can be purged during blow down.

Using multi-reversing polarity permanent magnetics to physically treat the water, these water conditioners have some compelling sales points.

1. As a GreenSpec-listed product, it can contribute toward LEED credits on green building projects for its ability to optimize energy performance and reduce pollution (or waste) from operations.
2. With a 10-year warranty and an expected service life of more than 30 years, the product has significant longevity.
3. Because it is a non-chemical solution, it is truly “eco-friendly,” and there are no OSHA or HAZMAT reporting requirements as part of this treatment.
4. Average payback of 18 months is an alternative to chemical treatment solutions.
5. Extends the operating life of the boiler while significantly reducing maintenance costs.
6. Increases the efficiency of the

boiler by preventing and removing scale build-up, thereby reducing energy costs. (See chart)

The range of applications for this technology extends from comfort heating and domestic hot water through process and industrial boiler systems. Scott Sanderson of Superior Manufacturing said, “In the 44 plus years we’ve been in this business, the No. 1 application for our conditioners is for boiler applications.”

### Installation & sizing

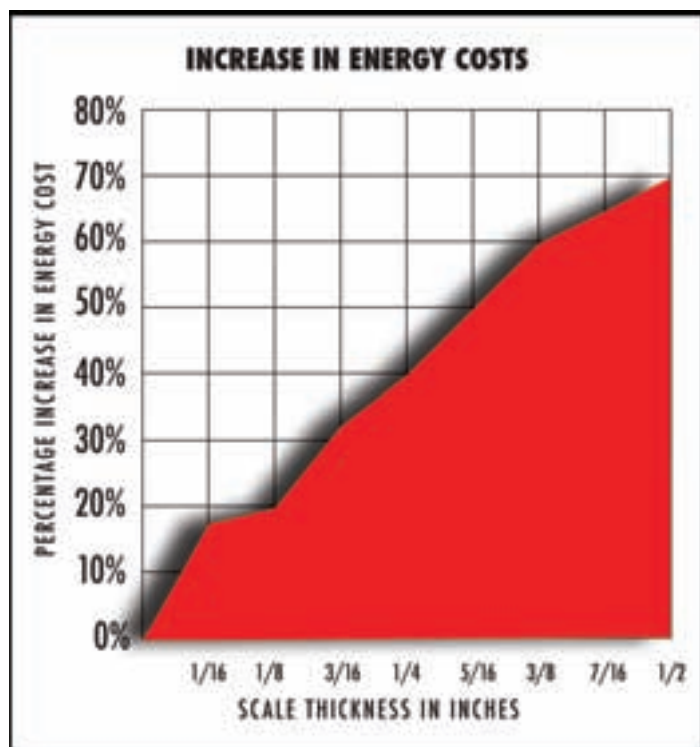
Sizing the correct unit for a given system is a matter of choosing a unit according to the maximum flow rate of the system. “With flow rates of as low as one GPM to as high as 50,000 GPM, it’s pretty likely that we’ve got a conditioner that will fit most any size application,” said Sanderson. In fact, these conditioners have more than 400 different water treatment applications that have seen success.

Installation of these conditioners is very straightforward in most applications. In the case of low pressure or hot water systems, the unit is installed on the recirculating loop between the storage tank and the boiler inlet/outlet. With straight-through-process steam boilers, the unit is installed between the pump and the boiler inlet. In all cases, there is no need for electrical connections, drainage lines for backwash/regeneration or any use of chemicals.

Maintenance of the conditioner is a very simple matter of removing the conditioner/unit and cleaning the core with a high-pressure air or water hose and then replacing the unit. In systems that are 250 GPM or smaller, this maintenance can be done by one person and often takes one or two man-hours.

These conditioners have been in service since 1964 and include a broad range of residential, commercial and industrial applications. Given the track record, the cost benefit proposition, and the growing interest in sustainable water treatment solutions, physical water treatment alternatives are clearly worth considering. ■

Daniel Brandon is president of Pure, Inc. He can be reached at 866/966-9735.



Using multi-reversing polarity permanent magnetics to physically treat water increases boiler efficiency by preventing and removing scale build-up.

gaining traction in the boiler treatment market, as customers are growing more interested in finding “greener” and more sustainable practices throughout their organizations.

Water conservation, chemical (pollution) reduction and efficiency optimization are key benefits to physical water treatment and are criteria that can qualify customers for valuable LEED credits when they embrace sustainable water treatment solutions.

As a master distributor for the Superior Water Conditioner in California, interest in non-chemical water treatment solutions has grown substantially. Sure there continues to be skeptics — and the competition can be fierce — but solutions are highly effective, truly sustainable, and with hundreds of thousands of installations around the world, Superior has a proven track record. The reality is that we like skeptics, because if they are engaged, then they end being our greatest advocates.

## Product Application

A prestigious Century City hotel in Los Angeles initiated an inquiry into how to address the issues of hard water scale and corrosion. The 540-room hotel has been using self-regenerating water softeners for a significant amount of time, and yet continues to see equipment failures and shortened service life in its water-using equipment due to hard water scale accumulation, and associated corrosion.

The existing water softening system requires approximately 2,250 gallons of water per day for regeneration, plus over \$1000.00 per month in chemical replenishment, and nearly \$1,000.00 more per month in labor and sewage costs.

Additionally, SB 2270, will eventually make all self-regenerating water softeners illegal in the State of California.

Recognizing that traditional chemical softening is neither effective nor sustainable, alternatives to chemical softening were explored.

In particular, the hotel has experienced significant equipment issues that are directly related to hard water scale. These issues included valve failures, premature failure of water pumps, as well as decreased efficiency of boiler heat transfer.

Pure, Inc. provides a line of eco-friendly inline water conditioners that “physically” treat the water for the effective control of scale. These units require no scheduled maintenance, chemicals, electricity or drain line, come with a 10-year warranty, and are 100% made in the United States.

By choosing a Pure, Inc. water treatment solution, the hotel will benefit from lower costs, increased efficiency, longer equipment life and dramatic reduction in environmental impact.





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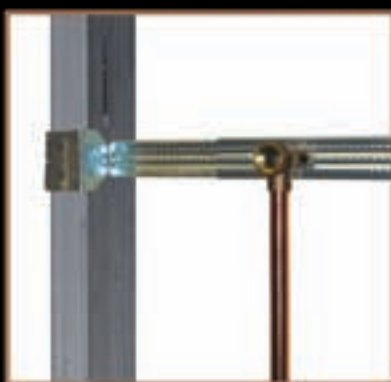
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# How my customers inspire me

**"I can't let my customer talk me out of business," my customers said. "This shows me the profit I have to make every time if I'm going to get a real vacation and my kid is gonna go to college!"**

I'm a plumber that taught myself to program computers. Really! In 1987, what started as a hobby creating a program for my own plumbing business, became my passion. I was plumbing jobs and running a crew by day, and programming by night. My program got to be pretty good at managing the stuff that I really needed to handle: receivables, billing on contract, and pricing out lists of materials. A old high-school buddy of mine ran a computer game software company. When he saw what I was working on, he said "Tim, this is too good to keep to yourself. Why don't you sell it to other plumbers?"

My software hit the market in August of 1993 and *man* did I ever get an education! When I talked to customers, they told me how they used the software and how they thought it could be improved. Luckily, I listened! What follows is the story of just a few of the changes that I feel made a positive impact for all my users.

## Profit percentage markup for survival

Soon after my software was released, I started hearing from my sharpest customers about profit percentages and how they were necessary to maintain a decent profit. These guys were so persuasive that they convinced me to change one of the core calculations in my software.

Most plumbers still use straight markups to arrive at a sell price and so did my software. To illustrate why the change was essential, let's take the example of a typical struggling plumbing shop, Joe's Plumbing.

Joe's accountant tells him his overhead runs about 20%. Joe wants to make a modest profit of 10% over his overhead. Joe sells a faucet that costs \$100 and marks it up 30%, figuring this will get him his 10%. The sell price will be  $\$100.00 \times 1.3 = \$130.00$ . The problem here is that Joe's overhead comes in at 20% of what he sells that faucet for:  $\$130 \times .20 = \$26.00$ . To figure out what Joe really makes on this faucet you subtract the overhead from the selling price, a whopping 4 bucks! This is why Joe is struggling to pay his bills on time!

The profit percentage method starts with setting a goal: how much to make over and above your overhead. So let's take Joe's goal of making 10%. Using the profit percentage method, Joe divides the cost of the item (\$100) by .7 (this is the reciprocal of the profit percentage) and he ends up with a sell price of \$142.86. Joe is thinking, that's a straight markup of 43%! I have to mark up that much to make 10%? Well num-

bers don't lie, my friend, unless you sell mortgage derivatives. The truth is many plumbers fool themselves into thinking they'll be making \$30 on that faucet but really make \$4. That keeps him on a treadmill, running as fast as he can and never getting ahead.

## Tiered pricing for enhanced profit

Back to those sharp guys: they also convinced me to add tiered pricing to my software. Tiered pricing calculates a higher profit on the little stuff that rattles around in the truck — the cheaper it is, the more profit is built into the sell price. The theory goes, if you can make more profit on the little stuff you can be more competitive on the big stuff.

## Real time profit chart

I then added a simple pie chart that shows users the profit measured against the company's overhead while they work! These changes resulted in a ton of calls from plumbers that said that that little chart was a major eye-opener! "I can't let my customer talk me out of business," they said. "This shows me the profit I have to make every time if I'm going to get a real vacation and



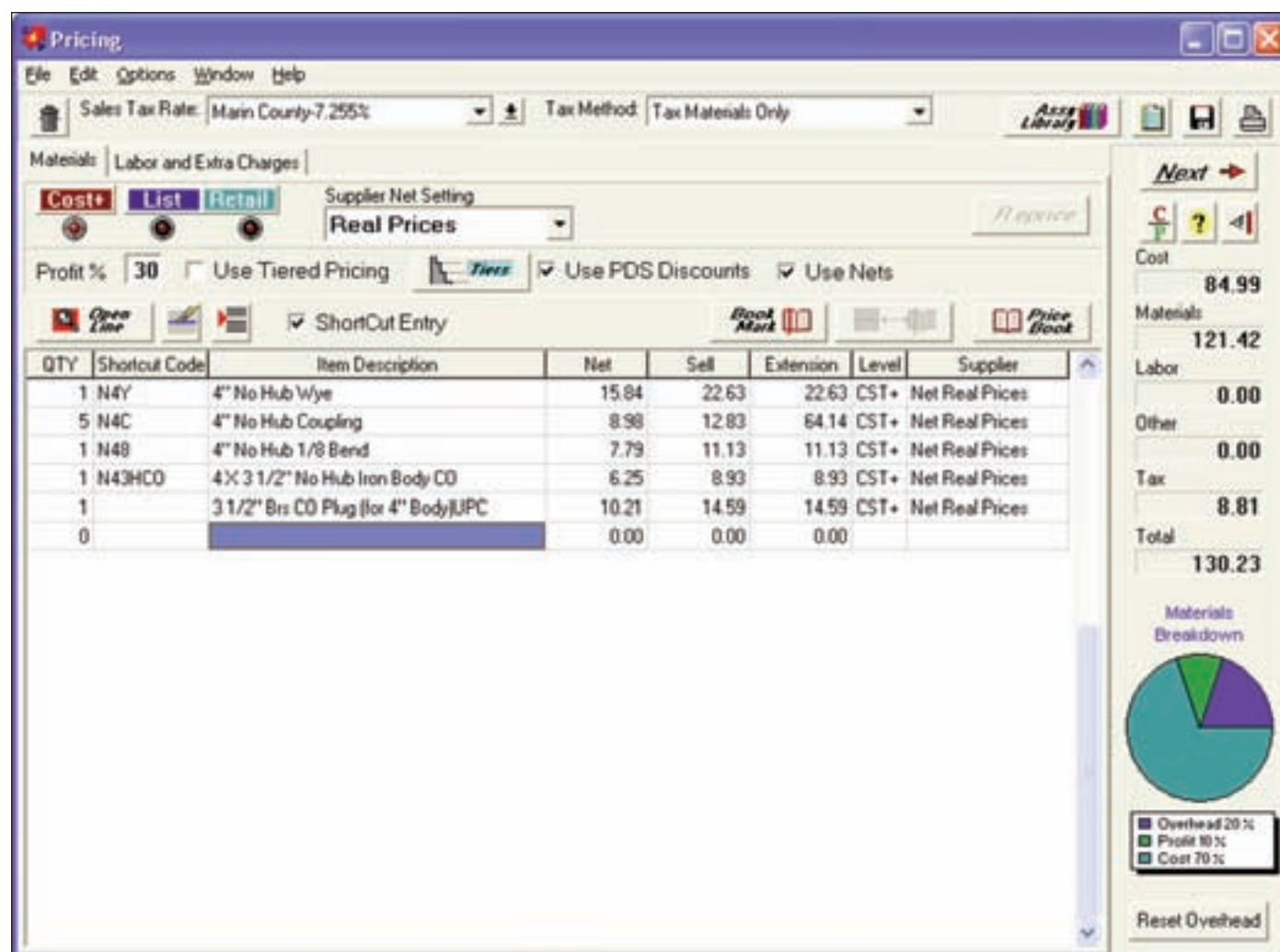
BY TIM CLOVER,  
contributing writer

my kid is gonna go to college!"

## Making a difference every day

I've had more than a couple of my customers tell me that my software has made a big difference in their lives, and that makes me happy. I'm also lucky to have smart customers who are willing to help me improve my software for the benefit of all. ■

Tim Clover is the plumber behind PricePoint software for P/HAVC contractors. PricePoint includes: Pricing, Flat Rating, Customer History, Invoices, Estimates, Work Orders, Scheduling & Dispatch, Inventory Control, Service Agreements, Proposals, Accounts Receivable, Accounts Payable, Email tools and more. Find out more at [www.pricepnt.com](http://www.pricepnt.com) or email Tim at [clowersoftmail@earthlink.net](mailto:clowersoftmail@earthlink.net).



PricePoint software for plumbing/HVAC contractors underwent considerable development in its early days, and then more development with the input and help from contractors who bought the package.



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# ***Phc News***

## ***SUPPLIER PROFILES***



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# 2009 SUPPLIER PROFILE

## It's time for a facelift with Symmons Trim Replacement

In 1939, Symmons Industries set the standard for uncompromised quality in plumbing fittings by pioneering the pressure-balancing, anti-scald shower valve. Since then, Symmons has combined its superior engineering with its experience in luxury bath design, creating over 50 premium products that offer beautiful functional design.

Currently, Symmons is focused on answering the demand of consumers, by offering shower trim kits that make bathroom renovations simple, non-invasive and inexpensive.

### Focus on the details

In recent years, design trends have placed increased emphasis on the bath, claiming the bath as a space not to be overlooked but rather a place to indulge in rich design elements.

High-end homes or luxury hotels are often the inspiration for renovation and consumers want products that recreate the same look and feel as their inspiration. In many well decorated spaces attention is paid to detail, in particular, bath fixtures. Shower trim and shower heads impact the design of the bathroom tremendously and help determine the look of an entire space. Outdated shower trim can make a bathroom look drab and often the homeowner doesn't realize it can be easily replaced.



Contractors and interior designers are consulted for renovation ideas, and suggesting a Symmons trim replacement is a perfect solution for the consumer looking for a quick renovation.

When it is time to renovate the bathroom, beauty and design are important, however functionality is paramount. Consumers are looking for products that give their space a facelift, without the cost or time commitment of a major renovation. Replacing outdated shower trim with a new premium trim design that features intricate lines and Radiance® satin nickel finish can transform the standard shower into a shower with historical Victorian elegance, leaving a lasting impression.

### Bath redesign as easy as 1-2-3

The universal nature of the Symmons Temptrol® valve allows for any premium Symmons trim design to be installed in front of the wall with ease, instant-

ly changing the look of the shower. Outdated shower trims can be replaced in just three steps, when working with the Symmons Temptrol® valve.



### Start with Symmons, Stay with Symmons

Whether enhancing the bathroom of a homeowner, or renovating an entire hotel, the Symmons trim upgrade saves time and money. The pressure-balancing, anti-scald Symmons Temptrol® valve serves as the standard for shower safety but also the foundation for endless design options. When it is time to select the basics for shower installation, it makes sense to select a Symmons Temptrol® valve because it offers quality and design flexibility. Homeowners and property owners alike will appreciate that their contractor has selected a product that will remain in place for years to come.

Homeowners can view their Symmons Temptrol® valve as an investment in their home, a starting point for future renovations because of its compatibility with a wide range of trim styles. Personal styles and renovation projects vary and with a Symmons product, both can be easily changed.

One great valve. Many design choices. One easy upgrade.

Learn more about Symmons trim replacement at [www.symmons.com](http://www.symmons.com).



# 2009 SUPPLIER PROFILE



## Taco employs the latest technologies for LEED certification of its facility addition

### ***A cogeneration plant and LoadMatch® single pipe system combine for big energy savings***

Taco, Inc. has been manufacturing in the same building, a converted trolley car barn in Cranston, RI, since 1954. For decades the plant operated in the summer months without the benefits of air conditioning. Over the years the lack of conditioned make-up air created negative pressure inside the brick building and caused a myriad of problems affecting air quality, productivity and especially paint operations.

To cope with the heat and humidity during the summer large fans would be positioned at either end of open bays in an attempt to keep things cool, but the brick walls held the heat like “an old brick oven.” Clearly the company needed a system to draw in conditioned outside air to help cool the place down. Compounding the problem was the decision to expand the plant in 2006 by adding on 60,000 sq. feet of new warehouse and distribution space.

The need to remedy the lack of air conditioning in summer combined with the decision to move ahead with new construction prompted Taco to totally revamp the building's HVAC system and construct its new distribution center addition to LEED New Construction (NC) standards. This would not only modernize the plant but would also demonstrate Taco's commitment to the environment along with employing its own line of equipment and systems uniquely tailored toward sustainable building practices. Specifically, it would allow Taco to showcase its single pipe LoadMatch® system in its own facility.

A new and modern conditioned make-up air system for the 175,000 sq. ft. facility (existing building and new addition) would be an expensive proposition. Working with Carrier Corporation, however, Taco came up with a design to use a cogeneration plant to reduce electricity use by a

third, utilizing waste heat from electricity generation to produce both chilled water and hot water for the HVAC system. In capturing waste heat from electricity the cogeneration plant produces both chilled water and hot water for BAC-supplied rooftop air handlers.

The cogeneration plant was designed to generate approximately one-third of Taco's electrical requirements through six 60-kW gas-fired Capstone microturbines, utilizing waste heat from electricity generation. Chilled water production would be via hot water waste heat to the 180-ton absorption unit. A high efficiency Carrier 500-ton electrical centrifugal chiller with VFD makes up the rest of the central chilled water plant.

During winter, heat from the microturbines is used to heat the building. Four high efficiency gas-fired Thermal Solution boilers serve the existing office area loop and serve each of the new rooftop air handlers to temper outdoor air makeup air.

To move water through the building, use of the company's own LoadMatch single pipe system was a natural and logical fit for both heat and cooling needs – not only to showcase the LoadMatch system within its own facility but also to enhance energy savings and reduce installation costs – twin benefits of the LoadMatch system that replaces control valves and most balancing valves and greatly reduces the amount of pipe needed.

The LoadMatch-type system installed at Taco replaces normally used LoadMatch 00 circulators with higher gpm Taco KV pumps working with the rooftop air handlers. The KV pumps provide decoupled secondary piping off the primary, single pipe loop.

This combination of old technology (co-generation) and new technology (the LoadMatch single pipe system

and the Hydronic Systems Solution (HSS) software that designed the system) provided substantial energy savings compared to typical energy code-compliant systems. The new HVAC system to serve both the original building and the new distribution center addition played a major role in the company's objective to qualify the facility for LEED Green Building certification. The system provides heating and cooling at approximately 50 percent less energy than would be required for a typical DX cooling and conventional boiler hot water heating.

The LEED scorecard for the project, mapped out by the project architectural firm AECOM, called for achieving 29 points to qualify for LEED certification. The project employed a number of sustainable design and construction practices to satisfy all of the LEED category requirements, to include:

- Remediation of soil contamination on the property that Taco acquired for its distribution center along with storage racks for bicycles
- Construction materials were specified in order to achieve a minimum of 20 percent overall recycled content. During construction, waste materials were sorted for recycling/salvaging of 95 percent of the total waste generated at the construction site.
- Low VOC construction products and materials were also specified to provide improved indoor air quality. Window materials were selected to provide natural daylight and were incorporated as clerestory windows
- High efficiency lighting in the storage area is controlled by motion sensors, saving energy and reducing operating costs – rack aisle lighting comes on only in the presence of a forklift truck.

Completed in June of 2007, Taco's new HVAC system provides comfortable heating and cooling by employing cogeneration and LoadMatch solutions. The negative air pressure that bedeviled the plant's interior dur-



*Taco worked with Carrier Corporation to design a cogeneration plant that cuts electricity use by a third and uses waste heat from electricity generation to produce chilled and hot water for the HVAC system in this 175,000 sq. ft. facility.*



*Taco received LEED NC notification for its warehouse-distribution facility in January 2009, and held a certification ceremony on April 22, Earth Day 2009. Taco President and CEO John Hazen White, Jr. is flanked at the LEED presentation ceremony by RI Governor Don Carcieri and Cranston Mayor Alan Fung.*

ing the summer is gone for good, replaced by a 78° F space ambient temperature (72° F during winter).

In addition to a one-year \$200K electrical rebate based on anticipated energy savings, Taco purchased renewable Green Power certificates for 70 percent of the warehouse addition's electrical requirements for two years.

The company received LEED NC notification for the warehouse-distribution facility in January of 2009, and held a certification ceremony on April 22nd, Earth Day 2009. ■

*Information for this article was supplied by Taco, Inc., AECOM and RDK Engineers.*

#### **Project Partners:**

**Architect:** AECOM, Boston, MA

**Construction Manager:** A.O. Ahlborg & Sons, Cranston, RI

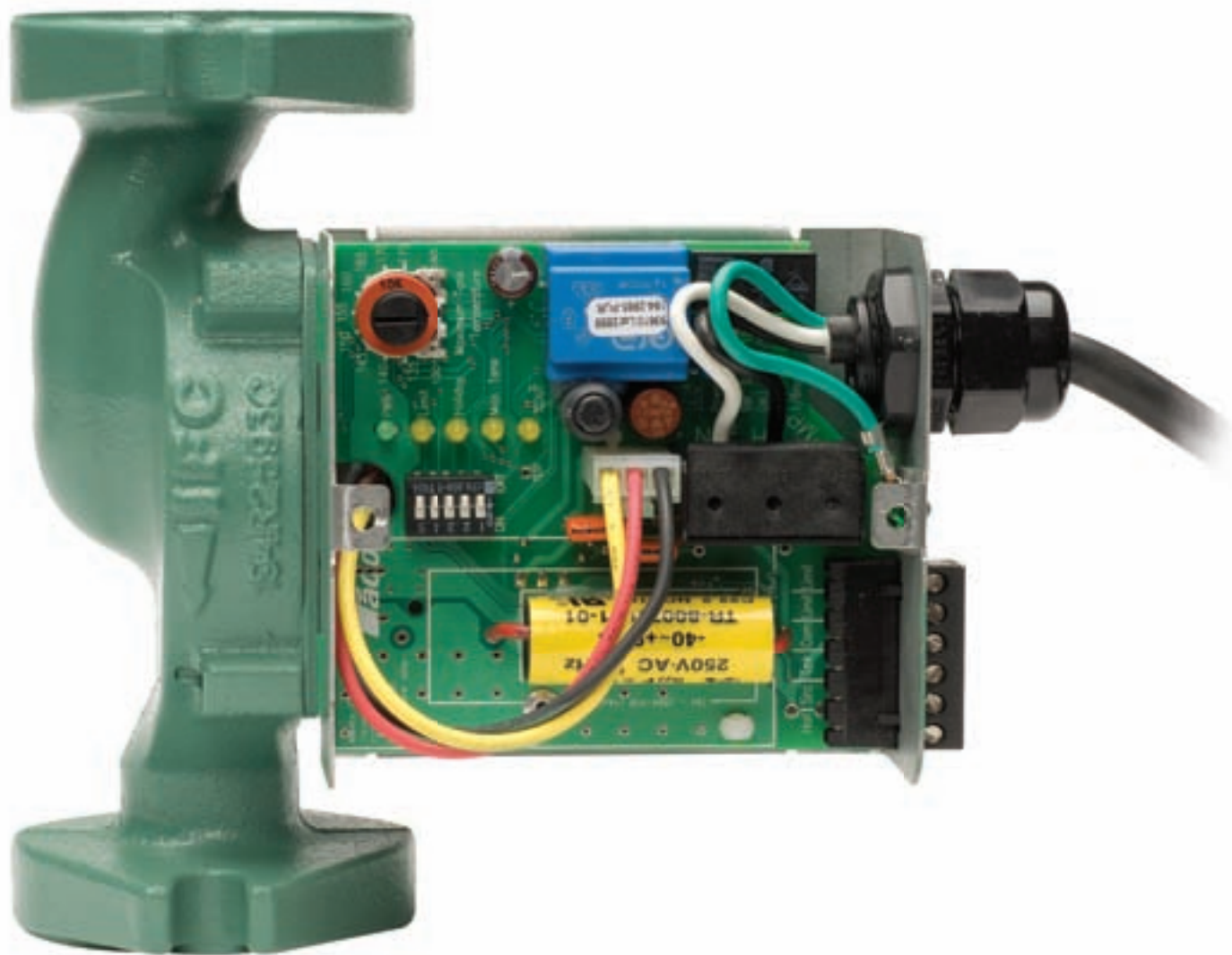
**HVAC System Support:** Carrier Corporation, Needham, MA

**LEED Commissioning Services:** RDK Engineers, Andover, MA



# solar powerful.

Eliminate short cycling and increase system performance by 20%



Taco's Variable Speed Solar Circulator continuously adjusts its speed to maximize the output of the collector while increasing the usable higher temperature water throughout the day. It's like getting more power from the sun.

## Easy to install.

The dip switch configurable settings optimize the all-in-one circulator for virtually any solar application. Plus an LED status panel makes it easy to check functionality.



## Easy to trust.

Taco 00® Cartridge Circulators are famous for reliability. Visit our web site and explore our family of solar products. We're confident they'll brighten your day.





# 2009 SUPPLIER PROFILE

# RIDGID®

## RIDGID® Sets a New Standard for Compact Press Tools

**Smaller and Lighter, the RIDGID RP 210-B Press Tool Can Access More Connections in Tighter Spaces**

**R**IDGID® has long developed professional tools and equipment demonstrating quality and innovation. The most recent example arrives in the form of the RP 210-B compact press tool, a small, powerful addition to the line. For a fast and reliable way to join copper, stainless steel and PEX tubing, the RP 210-B press tool has more capacity than any compact press tool on the market.

### RIDGID Press Tools Continue to Evolve Based Upon Professional Need

Since their introduction to the United States in 1999, RIDGID press tools have revolutionized the heating and plumbing industries by providing contractors a safer and more efficient method of joining tubing. The success of these tools has created an interest in smaller press tools that can navigate into even more confined spaces. With the needs of the tradesmen in mind, RIDGID has developed its smallest, lightest press tool yet — the new RIDGID RP 210-B press tool.

To maximize tool up-time and help keep professionals working, the RP 210-B press tool has the longest service interval of any compact press tool on the market (32,000 presses). Also, the RP 210-B press tool is backed by the RIDGID lifetime warranty.

### Smaller, Lighter and More User Friendly

The compact RP 210-B is two inches shorter and 25 percent lighter than any RIDGID press tool in history. With an ergonomic design, the tool weighs only 6.4 pounds (with battery) and features a flattened top to provide greater access in confined spaces.

Despite the size reduction, the RP 210-B press tool remains powerful and loaded with useful features. Indicator lights provide feedback and safety information. With 270-degree barrel rotation, an improved battery platform and the most capacity of any compact press tool in its class (up to 1 1/4-inch copper and stainless steel), the RP 210-B press tool will meet the needs of the most demanding professional.

Each RP 210-B kit is available with 1/2-, 3/4-, 1- and 1 1/4-inch jaws. These jaws are fully compatible with previous RIDGID compact press tools, so RIDGID Compact 100-B press tool owners can utilize their jaws with the new RP 210-B press tool.

### Lithium-Ion Battery for More Presses-Per-Charge

The RP 210-B press tool is the first RIDGID compact press tool to feature a lithium-ion battery. This upgrade allows more presses-per-charge and optimal cold weather performance (-10°C to 50°C). In addition to the lightweight 1.1 Ah battery, RIDGID offers a 2.2 Ah and a 3.3 Ah battery option for added runtime.

### Durable and Rugged to Withstand Jobsite Abuse

The durable and rugged RP 210-B press tool is designed with rubber overmolding to protect the tool during rough handling or inadvertent drops. The material is ergonomically engineered to provide a more comfortable grip on the tool.

“The RP 210-B is the smallest press tool in the RIDGID product line,” said David Roberts, product manager for pressing technologies, “but it still incorporates the same performance and value-added features our customers demand.” [www.RIDGID.com](http://www.RIDGID.com)



*The compact RP 210-B is shorter and lighter than any other RIDGID press tool. Weighing only 6.4 pounds (with battery), it's loaded with power and useful features such as indicator lights, 270° barrel rotation, an improved battery platform and the most capacity of any compact press tool in its class.*



**RIDGID**

# UPGRADE

#31763 SEESNAKE® LCDPAK + #32678 DVDBASE

**A modular inspection system  
you can view, record and rely on.**



>MODULAR  
SYSTEM



>BROAD DVD  
FORMATS



>BATTERY  
POWERED



The new SeeSnake® DVDBase quickly adds DVD-recording capabilities to the SeeSnake LCDPak or your current monitor. The battery-powered DVDBase features a rugged, weatherized design making it easy to transport and use in the field. It even has a built-in microphone so you can narrate inspection footage. Whether you need the DVDBase, the LCDPak or both, upgrade with RIDGID® today.

Learn more and schedule demonstrations:  
[www.RIDGIDUpgrade.com](http://www.RIDGIDUpgrade.com)



We  
Build  
Reputations™

**RIDGID**

  
**EMERSON**  
Professional Tools

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DIAGNOSTICS

PRESSING

PIPE & TUBE TOOLS

DRAIN MAINTENANCE

POWER TOOLS



# 2009 SUPPLIER PROFILE

# Oventrop

## Oventrop Solar Integrated Radiant Heating System Wins System Showcase Award for Innovation

When Joan Tonyan embarked upon building her residence in Sedona AZ, she was fulfilling a life-long dream. There she built her 3,000+ square foot home-based health and wellness research center, Sky Farm. Using a unique construction method called “rammed earth,” the walls are made of compacted soil from the property and are two feet thick. Sky Farm is a high-mass, energy-efficient structure built for the high desert.

Joan first became acquainted with Richard Copeland, service manager of Verde Sol-Air Services of Camp Verde, Arizona, during the repair and maintenance of Sky Farm’s existing radiant floor heating system. As Joan’s concern for the energy efficiency of the center’s radiant system came to be a topic of conversation, Richard suggested the use of solar energy technologies. Verde Sol-Air, which specializes in energy efficient heating and cooling technologies, provided a solution using Oventrop solar heating products.

“Oventrop was a natural choice for Sky Farm because of the quality of the equipment that we require in our installations,” said Richard, “plus Oventrop’s ‘plug and play’ pumping station, controls, and collectors saved us days on the installation. As a contractor, product support and quality is key, and the assistance we received from Oventrop won the award hands down.”

The radiant floor heating system was upgraded by Verde Sol-Air and retrofitted with an Oventrop solar system to optimize solar performance and maximize fuel efficiency. “The Oventrop system provides 100 percent of Sky Farm’s domestic hot water and 60 percent of the space heating requirements,” Richard explained.

The Oventrop solar radiant and domestic hot water system at Sky Farm includes five evacuated tube solar collectors, one 80-gallon dual-coil stainless steel indirect domestic hot water solar storage tank, two 115-gallon single-coil stainless steel solar storage tanks, and the Regusol EL130 solar pumping and control station. The system is designed with a solar closed loop system and the Oventrop Pro dual pump logic controller, which prioritizes solar domestic hot water production.

The concrete floors and rammed earth walls act as additional thermal storage mass, evenly distributing solar energy throughout the building envelope. An outdoor reset control modulates water temperature to the radiant floor tubing from the solar tanks or from the back-up condensing boiler to maintain trademark radiant comfort during any outdoor air temperature swings. A solar heat dissipater was designed into the system to avoid overheating of the solar transfer fluid during the summer months when space heating loads are off and domestic hot water temperatures are satisfied.

Verde Sol-Air has installed numerous solar domestic hot water systems and wanted to break into solar space heating with a major success. “We couldn’t have done it without Oventrop,” said Richard. “Their support and knowledge were essential in the design process and installation details.” In August of 2008, Verde Sol Air placed 2nd the “System Showcase” award in the category of innovation for their work on Sky Farm, given by the Radiant Panel Association at the annual REX Expo Conference. ■

To learn more about Oventrop and their energy saving products visit the website at [www.ventrop-na.net](http://www.ventrop-na.net).



Sky Farm’s Oventrop solar radiant and domestic hot water system utilizes five evacuated tube solar collectors (top), and (below) one 80-gallon dual-coil stainless steel indirect domestic hot water solar storage tank; two 115-gallon single-coil stainless steel solar storage tanks; and a Regusol EL130 solar pumping and control station. The solar closed loop system is designed with an Oventrop Pro dual pump logic controller, which prioritizes solar domestic hot water production.





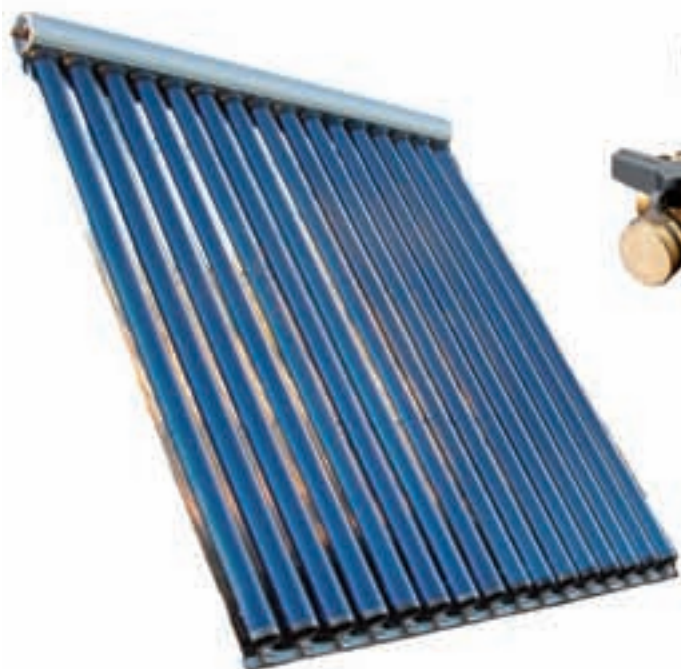
# oventrop

Innovation + Quality

Energy Systems



Oventrop Energy Systems is a complete line of solar collectors, solar controls, radiant floor systems and solar hot water storage tanks. The main components of the Oventrop Solar System are the evacuated glass tube collectors. The collector tubes have aluminum absorbers mounted in either 8 or 16 evacuated glass tubes. The absorber, coated with a special aluminum nitride layer, converts incoming solar radiation to heat. The special coating absorbs more than 92% of the arriving radiation. The Regusol controller can control the flow of fluid between the solar collector and Oventrop's 80- or 115-gallon dual coil storage tanks.



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PO Box 789  
29 Kripes Road  
East Granby, CT 06026  
P. (860)413-9173  
F. (860)413-9436  
[www.oventrop-na.net](http://www.oventrop-na.net)



# 2009 SUPPLIER PROFILE



**Built to be the Best™**

## Bradford White – Energy Star Compliant

**R**esidential water heating represents the third largest consumption of energy in the home, right behind heating and cooling and kitchen appliances. For years, water heaters did not have the ENERGY STAR® logo, until now.

As of January 1st, 2009, the Department of Energy (DOE) released their final requirements for ENERGY STAR® residential water heaters.

ENERGY STAR® is a joint program of the U.S. Environmental Protection Agency and the U.S. Department of Energy. Their goal for developing this program is to assist the residential water heater market in promoting high efficiency products that save money, use less energy, and deliver the same or better performance as comparable products.

Bradford White's innovative line of water heaters now offers ENERGY STAR® qualified models for every type of application: Atmospheric Vent, Ultra Low NO<sub>x</sub>, Power Vent, Power Direct Vent and Combination Heating.

### Qualifying Models: Residential High-Efficiency Gas Storage Water Heaters

- Minimum Energy Factor (EF) of 0.62
- Minimum First Hour Rating (FHR) of 67 gallons
- Annual energy savings in the range 7% to 14% — Based on the National Average Energy Cost and a comparison to a conventional gas water heater with an EF rating of 0.58.

### Customers can expect many advantages from Bradford White ENERGY STAR® models

- Consumers recognize the ENERGY STAR® label as representing energy saving products that result in a “greener” home
- A highly energy efficient product
- More extensive product offering than retail stores
- Certain utility companies will issue rebates for ENERGY STAR® products

### COMING SOON! Advanced Solar Water Heating System with Gas Backup Low NO<sub>x</sub> burner

Bradford White is adding another solar water heater to its innovative line of EcoStor™ Solar Indirect models. First, we introduced our EcoStor™ SC with electric backup. These models feature an internal heat exchanger with two backup heating elements. This unique design allows the entire storage tank to hold hot water during periods where solar heating is not available.

Next, we added our EcoStor™ DC with heat exchanger backup. This advanced design allows combination heat source systems to operate independently (solar heating, boiler heating, space heating, geothermal heating), or at the same time with each other.

COMING SOON is our EcoStor™ SC with gas backup. This sophisticated



*Bradford White's EcoStor™ Solar Indirect Models*

design activates the burner only when supplied solar energy does not meet the hot water demand. For installation flexibility, these models will be available in Power Vent or Atmospheric Vent.

Bradford White offers the most extensive solar water heating line-up for any solar heating application. ■



# IT'S A THREE-PEAT!

## The Brand Most Purchased by Contractors Three Years In A Row!



  
**BRADFORD WHITE**<sup>®</sup>  
W A T E R   H E A T E R S

# The Perfect Choice

For three years, the CLEARReport Water Heater Study by Clear Seas Research has shown Bradford White as the water heater brand most purchased by contractors. Just as importantly, Bradford White came out number one again when contractors were asked what brand they most often recommended.\*

**American Made • Employee Owned • Wholesale Only • Support for the Trade  
Superior Features • Eco-Friendly • Constant Innovation • Technology That Works  
• Always a Premium Product at the Best Possible Price**

***If your wholesaler doesn't carry Bradford White, ask why!***

To Find A Wholesaler Call **800.523.2931** | **www.bradfordwhite.com** | **Built to be the Best<sup>™</sup>**

\*Ranking is based on the 2008 CLEARReport by Clear Seas Research. Please visit [www.clearseasresearch.com](http://www.clearseasresearch.com) for additional information. ©2009, Bradford White Corporation. All rights reserved.

**Circle 47 on Reader Reply Card**



# 2009 SUPPLIER PROFILE

**1-800-PLUMBER®**  
THE NUMBER YOU CAN TRUST™

## 1-800-PLUMBER Franchise Model Supports Plumbers Through Recession

To grow a successful business or even stay afloat in this unstable economy, plumbers need a sound business structure in place. That is exactly why the industry experts behind the newly launched 1-800-PLUMBER franchise have created a model that allows independent plumbers and HVAC operators to achieve maximum growth and profitability while focusing on what they do best – plumbing, heating and cooling. While their corporate headquarters are located in Houston, TX, 1-800-PLUMBER is launching nationwide.

1-800-PLUMBER was developed by veteran business and trades professionals who examined the challenges independent plumbers and competing franchises face and improved upon them. The result is a cutting-edge franchise model that incorporates state-of-the-art technology and simple systems to help plumbers grow successful service-oriented businesses. The best example of this is their high durability computer tablets that cut out the paper process and allow the technician to maintain contact with headquarters at all time. There is a customer benefit with this technology as well. Customers will be able to see an actual diagram of what the technician has to do, product pictures, and instructional videos that explain why a certain action has to be taken.

“Most of the plumbing professionals we interviewed had reoccurring challenges,” explained James Pierce, President and CEO of 1-800-PLUMBER. “They were bogged down with administrative work and didn’t have the sales and marketing support to develop a memorable brand. We created a franchise model that provides that support so they can focus on delivering excellent customer service and top-notch work.”

For all plumbers, marketing is a huge challenge and expense. 1-800-PLUMBER has created user-friendly marketing programs for its franchises to ensure they keep up with the changing media landscape. “Working effectively with all the marketing mediums available these days is challenging, even for marketers. We recognize that to help our franchises be successful, we really need to support them in this area and provide them with programs that are simple, yet effective,” says Tressa Wood, Director of Marketing. Even with large investments in advertisements and promotion, most companies never establish a true “brand.” 1-800-PLUMBER fixes that. Instantly, each franchise has an unmistakable company name, telephone number and corresponding website.

At 1-800-PLUMBER, customer care is their top priority. They want to make sure each customer has the most pleasurable, convenient experience that they can have. Aside from offering a memorable name and number, 1-800-PLUMBER provides a centralized 24-hour contact center. With this call center customers will never be put on hold, be forced to leave a message, or worry about someone being available for emergency calls outside of “regular” hours.

1-800-PLUMBER is awarding a limited number of franchises across the United States and Canada. They are looking for entrepreneurs and contractors who want to grow and run their business, not let their business run them. They must also be committed to customer service through technology and innovation and must operate with high standards and integrity. To learn more or to inquire about attending one of their Discovery Days call 1-800-758-6237 or visit: [www.1800plumber.com](http://www.1800plumber.com)



1-800-PLUMBER provides franchisees with simple business tools and ongoing support to help ensure they achieve maximum growth and profitability. There is only one 1-800-PLUMBER — the number is its name, so it will never be confused with another plumbing service.



Each 1-800-PLUMBER technician utilizes a durable tablet computer for price accuracy, real-time accounting, payment with signature capture, and product presentation.



**Are you concerned about the  
future of your business?**

**Tired of working around  
the clock?**

**We can help.**

**1-800-PLUMBER®**

**THE NUMBER YOU CAN TRUST™**

**1-800-PLUMBER is now offering  
exclusive Plumbing and/or HVAC  
franchises to a limited number of  
contractors throughout the US  
and Canada.**

**If you want to grow your business  
and enjoy some personal freedom  
at the same time, call us today.**

**For more information or to inquire about attending  
our next Discovery Day call at 1-800-758-6237 or email  
franchiseinfo@1800plumber.com.  
www.1800plumber.com**



2009

SUPPLIER  
PROFILE

caroma®

# Caroma Smart Technology for Water Conservation

## Dual flush toilets: Easy maintenance, easy water savings

The Caroma Smart™ Technology is leading-edge. It has been developed and mastered over the last decade, delivering the ultimate of design, water savings, and performance in bathroom fixtures. With Caroma's high efficiency (HET) dual flush toilets, you don't need to trade flushing performance for water savings. It's not simply a matter of taking an existing toilet and reducing the amount of water used. Caroma's toilets are designed to work together as a complete flushing system that takes into consideration waste removal as well as proper drain-line carry out.

Using gravity forced "washdown", this system delivers more energy from less water and pushes (rather than siphons) waste out of the bowl, quite simply making the water work harder and more efficiently.

All 45 Caroma floor-mount toilets are WaterSense labeled, meaning they use at least 20% less water than the current federal standard while still providing equal or superior performance. The water savings chart for a family of four shows that by simply replacing an older, water-consuming toilet with an HET, they could save 10,000-30,000 gallons of water in one year alone.

It's a simple two button flushing system. The reduced flush button releases 0.8 gallons per flush (gpf) for liquid and paper waste. The full flush button releases 1.28-1.6 gallons per flush for solid waste. This can save up to 44% more water than the standard 1.6 gpf single flush toilet and up to 74% more water than a 3.5 gpf single flush toilet.

Caroma also is a major supplier of high efficiency urinals. In October 2008, the H<sub>2</sub>Zero waterless urinal was launched, utilizing breakthrough technology to use zero water for opti-

mum performance and water conservation. The H<sub>2</sub>Zero's unique patented cartridge technology does not use an oil-based seal, as traditionally used in waterless urinals. Within the cartridge is a Bio Fresh deodorizing block that is activated during use. The Bio Seal™ allows urine to pass through the seal freely, eliminating unnecessary waste build-up within the cartridge. The Bio Seal, which lasts up to 10,000 uses, also acts as a one-way airtight valve to seal the cartridge from the drainage system. The Cube<sup>3</sup> Ultra urinal introduces Smart Demand, the first liquid-sens-

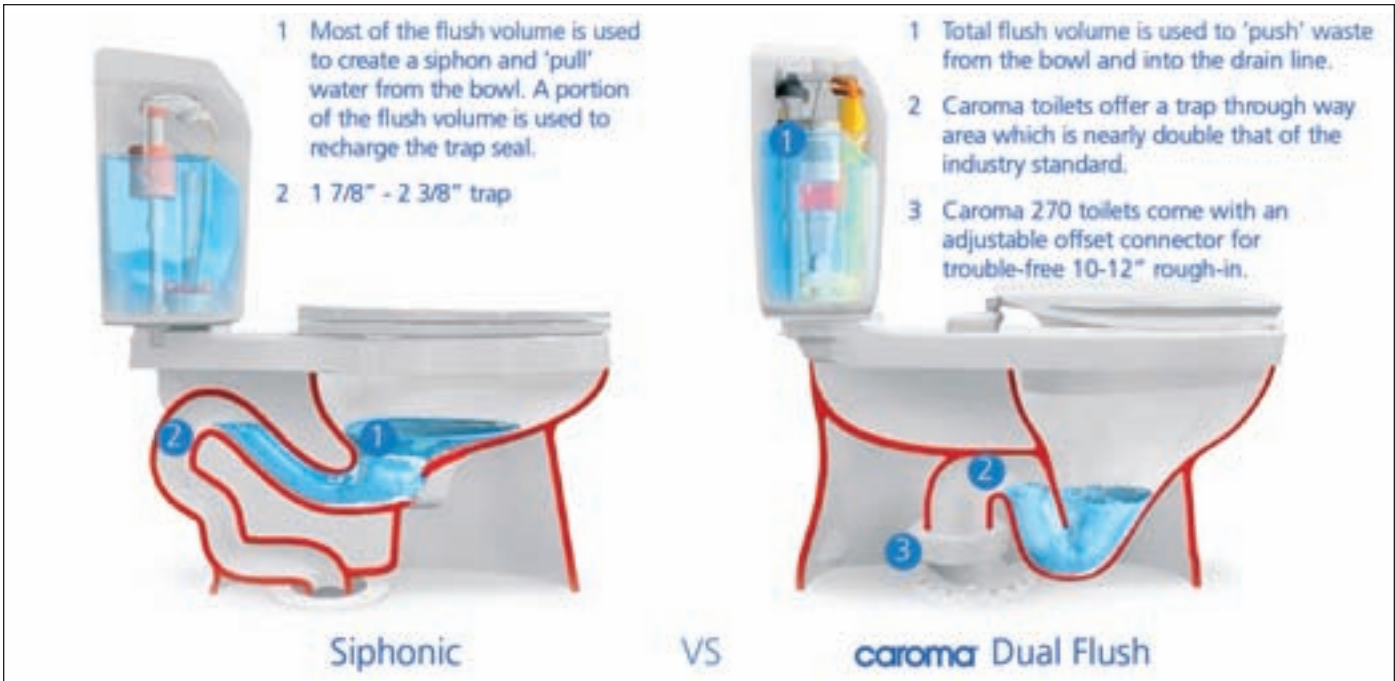
ing automatic flushing mechanism that detects usage rather than motion to activate the electronic flush valve, eliminating accidental flushing. The smart controller automatically reduces flushing frequency during periods of high use. Businesses and households enjoy other features of Caroma toilets. For example, the trap size is nearly double the North American standard, enabling the system to eliminate clogging and double flushing. Additionally, Caroma 270 toilets come with an adjustable offset connector for 10"-12" rough-ins that accommodate rough-in variations and make the toilet ideal for retrofits and renovations. The unique style and clean lines also provide for easy cleaning. The Hilton Palacio del Rio hotel in San Antonio installed 470 Caroma Sydney 305 elongated toilets in 2007. According to Wayne Russell, Assistant Director of Property Operations at

Hilton Palacio, "The toilets' were so easy to install. During the retrofit project, the Hilton did not lose any room nights because of installation." During the first eight months after the toilet installation, the Hilton Palacio had saved nearly six million gallons of water compared to the same months one year earlier. Guest complaints about toilet problems have dropped more than 90%. "During 2006, we had 66 clogs and 173 overflows. During the ten months we've been using the Caroma toilets, we've only had 5 clogs. The clogs, however, were from foreign objects such as a writing pen, a comb, a cell phone, and a piece of clothing - not the normal waste the toilet was designed for." More case studies, product, and technical details are available at [www.caromausa.com](http://www.caromausa.com) or contact your local representative.

Water savings with Caroma	5 gal (19 ltr) single flush toilet	3.5 gal (13 ltr) single flush toilet	2.5 gal (9.5 ltr) single flush toilet	1.6 gal (6 ltr) single flush toilet	1.6-0.8 gal (6/3 ltr) dual flush	1.28-0.8 gal (4.8/3 ltr) dual flush
Annual water used*	36,162 g (137,418 l)	25,314 g (94,022 l)	18,081 g (68,709 l)	11,572 g (43,395 l)	6943 g (26,037 l)	6480 g (24,301 l)
Annual savings with Caroma Smart toilets	29,682 gallons (113,117 liters)	18,833 gallons (69,721 liters)	11,601 gallons (44,407 liters)	5092 gallons (19,094 liters)	463 gallons (1739 liters)	

\* Based on 1:4 solid/liquid usage for an average family of four and 5 flushes/person/day.

Expected water savings by switching to a Caroma high efficiency dual flush toilet.



Using gravity forced "washdown" technology, Caroma toilets deliver more energy from less water, simply making the water work harder.



# High Efficiency Bathroom Fixtures

## Saving water at the touch of a button

Caroma: Leading the way in water conservation

- 45 WaterSense labeled high efficiency toilets (HET)
- Average flush as low as 0.9 gallons per flush using Caroma Smart™ technology (full flush of 1.28-1.6 gallons for solid waste/half flush of 0.8 gallons for liquid/paper waste)
- Trap through way nearly double the industry average, virtually eliminating blockages and reducing maintenance costs
- Fast and easy installations, ideal for retrofits and new builds
- New HETs available for space-restricted areas, such as under a counter or in ADA installations with grab bars
- Considerable water savings compared to 1.6 gallon single flush toilet (assuming 4:1 half to full flush ratio)
  - \* 40% savings using a 1.6/0.8 gpf toilet
  - \* 44% savings using a 1.28/0.8 gpf toilet



## Caroma: the world leader in dual flush toilet technology



**Caroma introduces the H<sub>2</sub>Zero waterless urinal for maximum water savings**

- Unique patented cartridge technology
- No oil seal or liquid additive needed
- Reliable, low maintenance design



# caroma®

Website: [www.caromausa.com](http://www.caromausa.com)  
Phone: 1 800 605 4218

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# 2009 SUPPLIER PROFILE



## Indirect Water Heaters

**E**asy Installation: The Heat-Flo indirect is designed with the installer in mind. All connections are on top for a neat, clean installation. The smooth wall stainless coil will collect less lime and sediment and deliver full output for years. The brass drain and relief valves are factory installed, and a Honeywell L4080B is included.

**Quality Design and Construction:** An all 316L stainless tank and coil, a flexible thermoplastic jacket, and R-12 insulation add up to quality second to none.

### Hot Water Storage Tanks

Considering an instantaneous water heater or a plate heat exchanger for your hot water application, but you have some dump loads?

**Solution:** Pipe the high efficiency heat source to a well insulated all stainless storage tank. Our storage tanks have 4 - 1" connections on top. Two for cold and hot, and two for heat source in and out. Heat source in and out can be hydraulically isolated from cold and hot water draws. Units can be applied to any heat source whether it is a tankless coil, a desuperheat coil on a heat pump, or a plate heat exchanger on a high efficiency boiler. The units are easy to install and are available in 30, 40, 50, 60, 80, and 115 gallons.



### Primary/Secondary Hydronic Subsystem

The Heat-Flo Hydronic Sub-system is a pre-piped, pre-wired, 4 zone hydronic control and distribution system. The system can be used with almost any type of heat emitters including radiant floor heating, conventional finned tube baseboard, or hydronic fan-coils.

- Dimensions: 21" wide x 45.5" high x 7" deep
- Weight: 95 lbs.
- Electrical Requirement: 115 volt, 60 Hz. 6.0 Amps

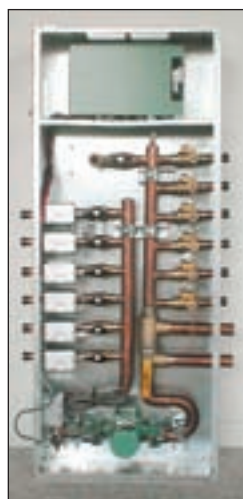
The system includes the following features and components:

- Taco ZVC406-3 Zone Controller, pre-wired.
- Built in Primary/Secondary Valve; use as a pre-piped secondary system, or as a pre-piped primary system by

changing the valve position.

- Full 1 1/4" supply and return manifolds
- Taco 008 circulator pump
- Air purge vent
- 4 zones pre-piped and pre-wired

**Supply side** — includes a full port ball valve to shutoff a zone, and a motorized zone valve with an end switch on each of the 4 supplies. Zone valves are low pressure drop. Cv = 5.0. The zone valves are pre-wired to the system control. On a call for heat,



### Residential and Commercial

- Available in 30, 40, 50, 60, 80, and 115 gallons.
- 40 and 60 gallon units are available in Low Boy models.
- 80 and 115 gallon units are available with High output coils
- 60, 80, and 115 gallon units are available with double coils for solar and other applications.
- Bank together 80 and 115 Gallon units with high water heating demands

### Hydronic Buffer Tanks

**Application:** Geo thermal Heat Pumps / Chillers / Low Mass Boilers

Heat-Flo manufactures hydronic buffer tanks designed to reduce heat pump, chiller or boiler short cycling. Hydronic buffer tanks are used in systems operating below the design load condition, which is most of the time, or in systems having several low BTU cooling or heating loads calling at different times. This can cause the the heat pump, the chiller or the boiler to short cycle, resulting in reduced operating efficiency and shorter equipment life.

The hydronic buffer tanks are built with 4 connections. Two connections can be piped to the heat pump or boiler, and two connections can be piped to the distribution system. If piped correctly, the tank can serve as both a thermal buffer and a hydraulic separator.

The heat pump or boiler can be hydraulically decoupled from the distribution system. The tanks are all 316L stainless steel construction with R-12 insulation, and an ABS jacket. Buffer tanks are available in 40, 60, 80, and 115 gallon capacities, and are available with 1 1/4", 1 1/2", or 2" connections.



### Solar Hot Water Tank with Dual Coils

Our dual-coil domestic hot water storage tanks are made in 60, 80 and 115 gallon units. The lower heat exchanger coil can be connected to solar collectors, and the upper heat exchanger coil can be connected to a boiler for backup. The units are provided with two 3/8" ID thermal wells to control each coil independently. A 1/2" recirc. return port is provide on all dual coil units. All stainless tanks and coils, a flexible thermoplastic jacket, and R-12 insulation add up to a quality product that is easy to install. Multiple units can be backed together for commercial applications.



the control energizes the zone valve. Any of the 6 end switches will start the circulator pump and pump water out to the zone(s).

**Return side** — includes a full port low pressure drop purge/shutoff valve on each return. The valves can be positioned to run full port, shutoff, or purge.

All piping connections are easily assessable to the installer. All supply connections are on the left side of the

unit, and all return connections are on the right side of the unit. The plumbing connections to the zones are all 3/4". Boiler connections are 1 1/4".

- A "fast-fill" water supply connection includes a standard swivel female hose connection to quickly purge air out of the system at startup.
- Includes an 8 ft., 110 volt supply cord.



# Heat-Flo Does the Job For You!

Heat-Flo designs, develops, and manufactures a wide range of high quality products for HVAC, Hydronic and Radiant heating applications.

Our engineers strive to incorporate product features targeting ease of installation. Less time at the job site translates into labor savings and superior value for our customers.

## Dual Coil Indirect Water Heater

Our dual-coil domestic hot water storage tanks are made in 60, 80 and 115 gallon units. The lower heat exchanger coil can be connected to solar collectors, and the upper heat exchanger coil can be connected to a hot water boiler for backup. The units are provided with the two heating coils and two 3/8" ID thermal wells to control each coil independently.

## Hot Water Storage / Booster Tanks

Heat-Flo Hot Water Storage / Booster Tanks are fully insulated, all stainless steel construction, and supplied with thermostat, drain and T+P valves factory installed. Units are supplied with hot and cold connections, and two dip tubes to circulate water through the heat source, and in and out of the tank.



Hot Water Storage/  
Booster Tanks

Dual Coil Indirect  
Water Heater

# Try us and see...

Ph. 508-422-9880 | Fax 508-422-9881  
sales@heat-flo.com | www.heat-flo.com

**Heat-Flo**  
HEATING PRODUCTS



# 2009 SUPPLIER PROFILE



## Watts Introduces Series X65B Water Pressure Reducing Valve



NORTH ANDOVER, MASS. — Watts is pleased to introduce our new X65B cartridge style high-performance water pressure reducing valve. The Series X65B is designed to reduce incoming water pressure to a sensible level to protect plumbing system components and reduce water consumption. Our X65B features a rough-in kit consisting of a bronze body with integral strainer designed to save time and money by eliminating the use of expensive jumper kits. The unique strainer assembly is utilized during the construction phase and is easily replaced at a later time with a permanent spring cartridge assembly.

The X65B also delivers superior flow performance

with lower fall off pressure than the competition while reducing flow noise with its engineered seat design. In addition, we are introducing tailpiece kits available in threaded, solder, Quick-Connect, CPVC and PEX configurations. Spring cartridges are available in standard pressure setting of 20-80 psi or high-pressure setting of 50-150 psi. The X65B Water Pressure Reducing Valve is certified to ASSE Standard 1003 and is IAPMO listed as well. The X65B is available in size 1/2" to 2".

For more information on Series X65B Water Pressure Reducing Valve, request literature PF-X65B by writing Watts Regulator Company, Attn:

Literature Department, 815 Chestnut Street, North Andover, MA 01845, calling us at 1-800-617-3274, faxing us at 978-689-6209 or visiting our web site at [www.watts.com](http://www.watts.com). ■

*Founded in 1874, Watts Regulator Company, part of the Watts Water Technologies family, is one of the world's largest independent valve companies with 11 factories in the United States and Canada. Watts Regulator designs, manufactures, and sells an extensive line of flow control products for the water quality, residential plumbing and heating, commercial and OEM markets.*



# Introducing the Latest Generation of Regulators from Watts



## The X65B Cartridge Style Regulator

Our legacy of quality and innovation continues with our new X65B cartridge style high-performance water pressure reducing valve.

The X65B is available as a complete, ready-to-install regulator, or as a separate cartridge assembly and Rough-in Kit consisting of a bronze body with integral strainer.

Save time and money by installing the X65B Rough-in Kit during the construction phase. Then, simply add a cartridge assembly after system startup to completely eliminate the need for jumper kits while protecting the downstream plumbing system.

The X65B also delivers superior flow performance with lower fall off pressure than the competition while reducing flow noise with its engineered seat design.



For additional information,  
visit our web site at [watts.com](http://watts.com)

**WATTS®**  
A Watts Water Technologies Company

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# 2009 SUPPLIER PROFILE



## HALSEY TAYLOR® OFFERS GREENSPEC® LISTED WATER COOLER

### HVRGRN Water Cooler Identified as Environmentally Preferable Product

**A**s a company dedicated to providing safe drinking water since 1912, Halsey Taylor® is pleased to offer the industry's most innovative and ecologically sound pressurized water cooler – the recently introduced GreenSpec® listed HVRGRN. Upon review of the unit's features and benefits, the independent panel of GreenSpec editors determined that its performance and design minimize ecological impact while maximizing economic performance, meeting the criteria for a GreenSpec listing and even prompting the creation of a new Green Products Sub Category, an industry first for water coolers.

#### Superior Sustainability

The HVRGRN water cooler from Halsey Taylor is approximately 50 percent more energy-efficient, consumes nearly 40 percent less water and uses less refrigerant than any other comparable water cooler in the industry. Utilizing a highly efficient refrigeration system and a lower flow bubbler, the green model is engineered to significantly conserve both energy and water. In addition, the HVRGRN does not contain paints and coatings, eliminating VOC emissions from the manufacturing process.

With its stainless steel construction, the cooler is manufactured from highly recyclable material and offers long-lasting durability. When equipped with the 1,500 gallon filter and easy-to-operate glass filler, the HVRGRN offers a volume of clean water equivalent to 12,000 16-ounce plastic bottles, providing an alternative safe water source ideal for use in schools, hospitals, hotels and other public and commercial buildings.

#### Environmental Experts

Considered by many as the most widely respected product directory in the field of building green, the GreenSpec Directory, published by BuildingGreen, LLC, includes products that have undergone an individual evaluation and meet criteria for a wide range of environmental qualities. The directory lists product descriptions for more than 2,000 environmentally preferable products, which are evaluated based on their entire lifecycles. During the selection process, the editors conduct independent research to ensure unbiased, quality information and rely on information provided by the manufacturers along with their own knowledge of the industry. Available in both print and online, the directory serves as a reference tool for identifying reliable green building products.

Headquartered in Oak Brook, IL, Halsey Taylor offers a wide array of water coolers, drinking fountains and accessories for both indoor and outdoor applications. For more information, contact Halsey Taylor, 2222 Camden Court, Oak Brook, IL 60523, (630) 574-3500, or visit [halseytaylor.com](http://halseytaylor.com). ■



*Halsey Taylor's HVRGRN water cooler uses a highly efficient refrigeration system and a lower flow bubbler, so it is about 50% more energy-efficient and consumes nearly 40% less water than comparable water coolers.*



*The HVRGRN does not contain paints and coatings, eliminating VOC emissions from the manufacturing process; in addition, the cooler is manufactured from highly recyclable material and offers long-lasting durability.*





*Halsey Taylor®*  
Satisfying Thirsts Since 1912.



**ALL THE PERFORMANCE**  
**half the energy**

**GREENSPEC® LISTED.**  
**SAVES APPROXIMATELY**  
**50% ON ENERGY. CONSUMES**  
**NEARLY 40% LESS WATER.**

The new Halsey Taylor® HVRGRN water cooler series spurred the creation of a new GreenSpec listed product subcategory, bringing sharper focus to the value of clean, safe, efficient delivery of drinking water.

The HVRGRN cooler uses half the electricity and reduces water consumption by about 40%. It also uses less refrigerant than any comparable cooler. And you get all this efficiency with virtually no change in user experience.

Learn more more about our GreenSpec listed coolers.  
[www.halseytaylor.com/green](http://www.halseytaylor.com/green)

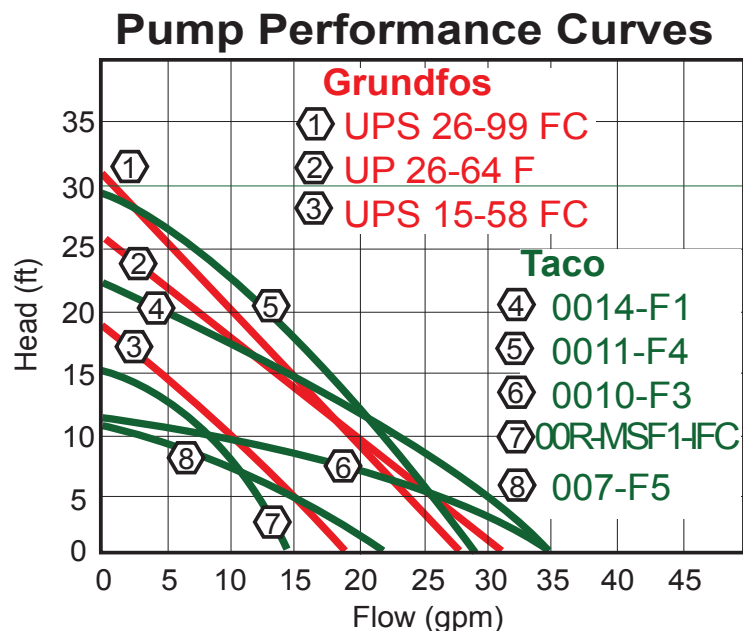





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## Mixing Options



<div> 3/4" 3-way Manual valve Cv = 3.83</div>			<div> 3/4" 3-way Taco i-Valve Cv = 3.3</div>		<div> 3/4" 2-way Taco i-Valve Cv = 10.3</div>	
Flow Rate	Ft. Head	Press. Drop	Ft. Head	Press. Drop	Ft. Head	Press. Drop
1	0.16	0.37	0.21	0.48	0.02	0.05
2	0.63	1.45	0.85	1.96	0.09	0.21
3	1.42	3.28	1.91	4.41	0.20	0.46
4	2.52	5.82	3.39	7.83	0.35	0.81
5	3.94	9.10	5.30	12.24	0.54	1.25
6	5.67	13.10	7.64	17.65	0.78	1.80
7					1.07	2.47
8					1.39	3.21

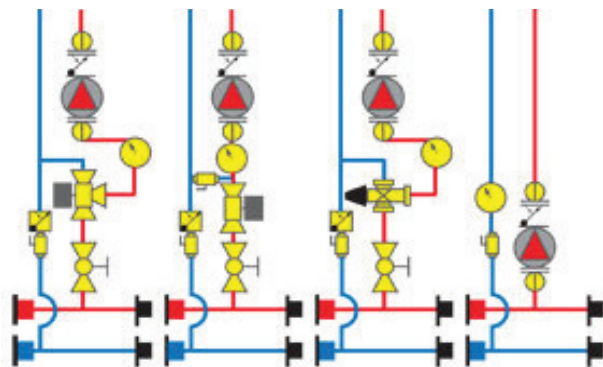
## Component Specifications

	Primary Pump		Secondary Pump		Zone Pump		Indirect Pump	
	Grundfos	Taco	Grundfos	Taco	Grundfos	Taco	Grundfos	Taco
Knight 80,105,150 210	By Manufacturer		UPS 15-58 FC	007-F5			UP 26-96 F	0014-F1
Munchkin T50M, T80M, 80M Pinnacle T50P, T80P, 80P	UPS 15-58 FC	007-F5	UPS 15-58 FC	007-F5	UPS 15-58 FC	008-F6	UP 26-96 F	0014-F1
Munchkin 140M Pinnacle 140P	US 26-64 F	0010-F3	UPS 26-99 FC	0011-F4	UPS 15-58 FC	008-F6	UP 26-96 F	0014-F1
Munchkin 199M Pinnacle 199P	UPS 26-99 FC	0011-F4	UPS 26-99 FC	0011-F4	UPS 15-58 FC	008-F6	UPS 26-96 F	0014-F1
Prestige 110	By Manufacturer		UPS 15-58 FC	0010-F3	UPS 15-58 FC	008-F6	UP 26-64 F	0010-F3
Trinity Ti-100, Ti-150	UPS 26-99 FC	0011-F4	UPS 15-58 FC	0010-F3	UPS 15-58 FC	008-F6	UP 26-96 F	0014-F1
Ultra 80, 105	By Manufacturer		UPS 15-58 FC	0010-F3	UPS 15-58 FC	008-F6	UP 26-64 F	0014-F1
Ultra 155, 230	By Manufacturer		UPS 26-99 FC	0011-F4	UPS 15-58 FC	00R-MSF1-FC	UPS 26-99 FC	0014-F1

### BoilerPak™ Components - (Typical)

Zone Pumping options, from left:  
 3-way Taco i-Valve  
 2-way Taco i-Valve  
 3-way manual mix valve  
 Zone pump

Also optional  
 Zoning with valves



1-5/8" welded stand  
 Amtrol 30 expansion tank (or Watts equivalent)  
 Taco 3350 pressure reducing valve  
 Fill-line assembly  
 1-1/4" primary/secondary loop assembly  
 1-1/4" primary loop isolation ball valves  
 Purge valve on primary loop supply  
 Temperature and pressure gauge on primary loop supply  
 "Wye" strainer on primary loop return  
 1-1/4" spring check on primary loop return  
 1-1/4" Bell & Gossett #112116 air eliminator  
 Taps for indirect water kit  
 Tap for low water cut-off device

Rev 04/09



## **“SPECIFY WITH CONFIDENCE” PHP BOILER “PAKS” AND MODULES**



**Wall modules for use  
with any boiler  
Boiler Pak Stands for:  
HTP Munchkin  
Peerless Pinnacle  
Weil-Mclain Ultra  
NTI Trinity  
Triangle Tube Prestige  
Lochinvar Knight**

### **Specify PHP Boiler Paks**

and wall-mount near-boiler piping modules for assured quality, correct piping arrangements, installations that meet your expectations and limit your liability. These factory-made modular components provide primary/secondary piping arrangements recommended for traditional and modern condensing boilers.

#### **YOU ARE ASSURED OF:**

- *Correct pump and pipe size for boiler*
- *Correct primary/secondary piping*
- *Available pressure differential bypass*
- *Pressure tested and factory warranted*
- *Specifications and drawings available*
- *Pre-made modules limit installation errors*

“Paks” and Modules available with zone pumping or zone valves and with indirect DHW pump kits

For more information visit us at [www.phpinc.us](http://www.phpinc.us) and specify PHP on your next project.

**Precision Hydronic Products - Division of JL industries, inc.**

6730 NE 79th Court Portland, OR 97218

Phone: (503) 445-4188; FAX: (503) 445-4187

[www.phpinc.us](http://www.phpinc.us) - [www.hydronicworkshop.com](http://www.hydronicworkshop.com)

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# 2009 SUPPLIER PROFILE

**heliodyne**<sup>®</sup>  
SOLAR HOT WATER

## HELIODYNE<sup>®</sup> – SOLAR HOT WATER

# FIND YOUR FUTURE IN SOLAR HOT WATER!

**L**earn to install our solar hot water systems with simple online certification. Heliodyne, a pioneer in solar hot water since 1976, has now taken its training program online. The training is a FREE online program for trade professionals who want to learn more about Solar Thermal system installation or the latest Heliodyne product offerings. The course is perfectly suited for installers, wholesalers, engineers and architects. Once registered on the Heliodyne site, you'll be able to learn installation basics at your own pace. Training is broken down into several categories that encompass a solar hot water installation from beginning to end.

### Training topics include:

- Solar Thermal Technology
- Solar Sales and Pre-installation
- Solar Hot Water Installation
  - > Mounting hardware
  - > Collector handling
  - > Solar heating appliances
  - > Piping
  - > Commissioning
- Service & Maintenance

Through innovative design, superb product lines made in the USA, and dedicated service & support, Heliodyne<sup>®</sup> is a trusted industry leader who always strives for excellence — a standard applied to everything they do.

With marketing programs and experienced sales support, they are a true partner that's committed to your success. ■

Log on today at [www.heliodyne.com](http://www.heliodyne.com) to find out more!



*Heliodyne's online training program is free to trade professionals who want to learn more about solar thermal system installation and is well suited for installers, wholesalers, engineers and architects.*



*On the site, learn aspects of solar hot water installation such as: Mounting hardware; collector handling; solar heating appliances; piping; commissioning; and service & maintenance.*





# ONLINE BY DESIGN



## Learn to install our solar hot water systems with simple online certification.

Enjoy the benefits of the green revolution with our FREE, simple-to-use online training course. It's the perfect way to get into the growing solar hot water market, or to just brush-up on your existing installation skills. Once you complete the course, you'll be certified to install our solar systems. But it's not just our training that's online — any installed system can also be upgraded to allow for remote viewing. As the longest-established solar hot water company in the U.S., we're an industry leader you can trust. With our marketing programs and experienced sales support, we're a partner that's committed to your success. So log on today for the rewards of a better life — and the prospect of a better world.



Visit us at [www.heliodyne.com](http://www.heliodyne.com), or call 1.888.878.8750 for information about us and our products.

Heliodyne, Inc. • 4910 Seaport Avenue • Richmond, CA 94804  
T: 510.237.9614 • T: 1.888.878.8750 • F: 510.237.7018  
Information & Support: [info@heliodyne.com](mailto:info@heliodyne.com)  
Sales Inquiries: [sales@heliodyne.com](mailto:sales@heliodyne.com)  
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EXCELLENCE  
BY DESIGN®



# 2009 SUPPLIER PROFILE

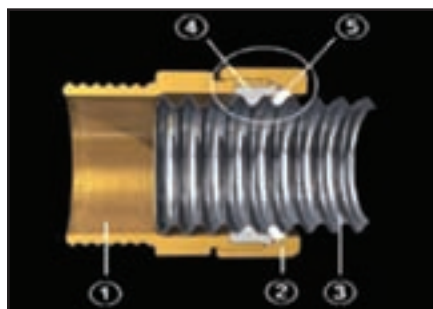
## EASYFLEX flexible stainless steel water distribution system speeds installation

**T**he EASYFLEX Water Line is the first flexible stainless steel water distribution system for all plumbing applications. It combines the strength and durability of stainless steel with the flexibility and ease of installation of plastic alternatives. Featuring corrosion resistant stainless steel, forged brass compression fittings and the flexibility to be bent by hand, the EASYFLEX Water Line can save you half the time on installations vs. copper and with a 50 year warranty, last twice as long as plastics.

The EASYFLEX Water Line is back by 20 years worth of experience and is being used in 30 different countries. It is used in applications such as general plumbing, repair and facilities, re-piping, tankless and solar water heating. Its flexibility and ease of installation gives it endless possibilities for applications and uses.

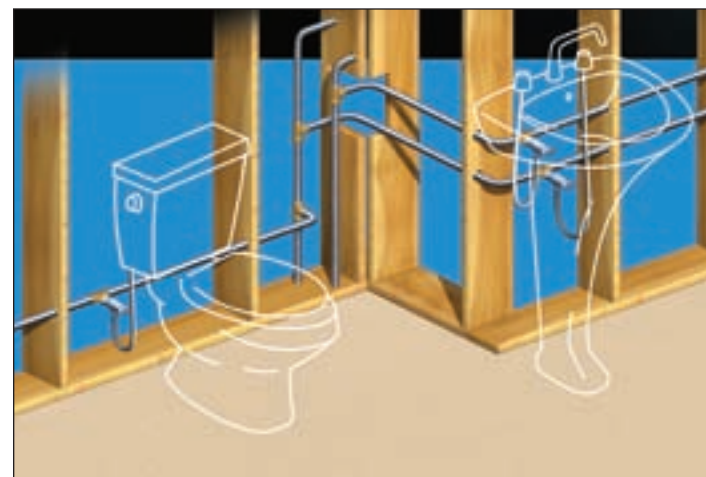
Made from corrosion resistant, 304, annealed, stainless steel, the water line features durability and flexibility enabling numerous bends and twisting of the tubing for installation, use and repair. The tubing features brass fittings with sealing gaskets that allow for simple push-in installation and a secure connection. In addition to the regular brass fittings of tees, reducers and connectors, is the Push-Fit fitting. This tool-free, push-on connection allows flexible tubing to be connected with rigid pipe like copper, galvanized steel or CPVC. The tubing resists burst pressure of 590 psi and operating temperature of 212°F. The stainless steel tubing comes in rolls from 50' to over 150' and diameters from 1/2" to 1 1/4". The flexible tubing can be purchased with red or blue polyethylene coating, which makes installation and repair easier with color coding and adds additional protection to the tubing from harsh chemicals or flux.

The EASYFLEX Water Line can save you time and money. With prices similar to L type copper, but an installation that takes half the time, see why flexible stainless steel is being used the world over and ask for it at your local wholesaler today. ■



EASYFLEX comes in rolls from 50' to over 150' and diameters (left) from 1/2" to 1 1/4", and can be purchased with red or blue polyethylene coating for easier installation and repair with color coding and adds additional protection to the tubing. At right, brass fittings with sealing gaskets provide simple push-in installation and a secure connection.

## EASYFLEX™



*EASYFLEX is ideal for fast, easy plumbing rough-ins.*



*EASYFLEX is ideal for tank, tankless and boiler, water heating installations.*



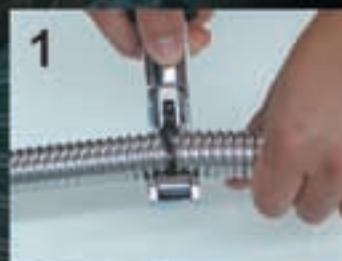
*EASYFLEX makes fast work of installing a solar hybrid system.*



CORRUGATED STAINLESS STEEL TUBE  
**EASYFLEX**<sup>®</sup>  
WATER LINE SYSTEM



Installation



Tankless Water Heating



General Plumbing



Solar Water Heating



T. 888 577 8999 / 714 258 2600 [info@easyflexusa.com](mailto:info@easyflexusa.com) [easyflexusa.com](http://easyflexusa.com)



ISO9001:2000  
QC-023-C(0)

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# 2009 SUPPLIER PROFILE

## Stiebel Eltron On-Demand Tankless Electric Water Heaters

The Stiebel Eltron company has been in existence for over 80 years and is currently the largest manufacturer of tankless electric water heaters in the world. Over the last 60 years Stiebel Eltron has pioneered and lead the development in Germany of tankless electric water heating technology. In recent years, Stiebel Eltron's on-demand, tankless electric water heaters have found enthusiastic acceptance among engineers, plumbers, homebuilders, businesses and homeowners in North America as well.

Conventional tank-type water heaters draw power to heat water 24/7, resulting in a lot of wasted energy. On-demand tankless water heaters use electricity only when you open a faucet or turn on a shower, and heat the water instantaneously as it passes through the heating elements. As a result stand-by heat losses, so common in tank-type systems, are completely eliminated and water heating bills are reduced by 15-20%. Savings can be increased depending on individual use.

Stiebel Eltron Temptra™ series of tankless, electric water heaters are designed for whole house and various commercial applications. Engineered and manufactured in Germany to North American standards, the rugged, space saving Temptra™ contains durable copper sheathed heating elements housed in copper cylinders. This ensures many years of reliable service. The Temptra™ features an advanced microprocessor control that allows the exact water temperature to be dialed in via a knob and digital display on the front cover. The advanced technology ensures that the water temperature will not deviate from this set point. The compact, energy efficient Temptra™ provides an unlimited supply of hot water, heated to the exact temperature as it flows through the unit.

The newest member of the Stiebel Eltron family of innovative tankless water heaters is the Mini™ series, designed for low to medium flow point-of-use applications. The extremely compact Mini (6.5" tall x 7.5" wide x 3.25" deep) only weighs 3.5 lbs. and can fit in almost anywhere, right next to a sink, beneath it or tucked away in a cabinet.

Installation of Stiebel Eltron tankless heaters can be easily integrated with existing water piping, and plumbers and contractors all over North America have now had the experience of many installations under their belts.

The quality and reliability of the Stiebel Eltron tankless, electric water heaters has proven itself over and over again, with a return rate of less than 1% for all of the units installed in North America. Our service staff is able to sort out most problems with the end user over the telephone. All tankless heater components have a 3-year warranty.

### Stiebel Eltron Solar Panel/Tank Water Heating System

Stiebel Eltron manufactures components for thermal solar systems for domestic hot water as well, consisting basically of a well-insulated storage tank (SBB Series) with heat exchanger(s) and flat plate collector panel(s) (SOL 25 Plus). They constitute a very economical and reliable closed loop solar hot water system for commercial and residential applications, including space heating and swimming pools.

The Stiebel Eltron thermal solar components are the culmination of over 30 years of experience in the thermal solar business, and there is an industry leading 5-year warranty on all Stiebel Eltron solar equipment.

In order to assure a continuous supply of hot water during the entire year, you can pipe the solar storage tank into the Stiebel Eltron Temptra™ tankless electric heater described above and use it as a back-up when the sun is not providing quite enough hot water. In this case, the Temptra™ would be set up in series after the solar tank and would be automatically activated when required. ■

For more information please visit our website at [www.stiebel-eltron-USA.com](http://www.stiebel-eltron-USA.com), or call us at (800) 582-8423.

## STIEBEL ELTRON

*Simply the Best*



The Stiebel Eltron Mini™ series of tankless water heaters for low- to medium-flow point-of-use applications measures just 6.5" tall x 7.5" wide x 3.25" deep, weighs only 3.5 lbs. and can fit almost anywhere.



Stiebel Eltron's thermal solar systems components for domestic hot water include a well-insulated storage tank with heat exchanger(s) and flat plate collector panel(s) and are an economical, reliable closed loop solar hot water system for commercial and residential applications.



# INSTALL GRATIFICATION TEMPRA® SERIES TANKLESS ELECTRIC WATER HEATERS



- Unlimited Supply of Hot Water
- Saves Energy and Reduces Your Electric Bills
- Sleek Design Saves Space
- Proven Reliability Backed by a Three Year Warranty



**STIEBEL ELTRON**  
**Simply the Best**

TOLL FREE **800.582.8423**

[www.stiebel-eltron-usa.com](http://www.stiebel-eltron-usa.com)

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# 2009 SUPPLIER PROFILE

# RIDGID®

## microEXPLORER™ Digital Inspection Camera

Going beyond examining hidden and unseen areas, the microEXPLORER™ Digital Inspection Camera from RIDGID® is a powerful handheld video inspection system that can capture high-quality images and record video in color to help analyze problems and make a more accurate diagnosis. This tool allows users to take digital quality images and record video onto a secure digital (SD) card inserted into the integrated SD slot. Additionally, an integrated mini USB port is available to transfer the recorded information onto a computer where it can be saved, emailed or posted online for customers, repair technicians, or anyone needing to see the captured content.

The high-resolution anodized aluminum camera head, with a water and scratch resistant sapphire lens, sits at the tip of a flexible 3-foot cable that is reinforced with a waterproof vinyl jacket. The camera can focus on a specific area using the 3X digital zoom and/or pan functions on the easy to use, menu driven graphic user interface controlled by buttons located on top of the comfort-grip handle. The microEXPLORER Digital Inspection Camera can capture JPEG images or AVI videos displayed on the 3.5" color LCD screen. The camera head is also equipped with four fully adjustable LEDs to provide a range of super bright to soft light for any job.

The microEXPLORER Digital Inspection Camera is the first tool from RIDGID that includes digital self leveling technology. The camera electronically knows what point is up and automatically adjusts the view so users see the upright image without having to move the camera head or tool.

Each tool comes with an accessory pack that includes three separate attachments that twist and lock into place on the camera head. A J-shaped extension called the Hook Tip lets users pick up, tug, or pull small objects within reach of the cable. The Magnetic Tip is small but strong and can pick up metal objects. When users have to probe the tightest spaces, the Mirror Tip lets them look around corners, providing more versatility in even the tightest spots.

Integrated into the side of the tool are two expandable software bays for accessories that can be purchased separately. The first expandable accessory available will be the Audio Memo Recorder that can capture user's voice notes to accompany a JPEG or AVI file. The accessory is also operated by a small software cartridge that is easily loaded into one of the expandable bays and includes an earpiece and microphone that plugs into the audio port so users can either record or replay audio memos.

Additional accessories to increase the use of the microEXPLORER Digital Inspection Camera include a 9.5mm Diameter Imager Head and a 3-foot or 6-foot Cable Extension. The 9.5mm Diameter Imager Head has one super bright LED light that allows users to see into the smallest areas, such as an engine's cylinder. Also available separately is a 3-foot and 6-foot Cable Extension that twists and locks onto the end of the existing cable giving the tool up to 6-feet or 9-feet of reach.

The microEXPLORER Digital Inspection Camera also includes a rechargeable lithium ion battery and charger to power the camera for up to four hours of continuous viewing or recording time. Weighing just under two pounds, the tool is easily transportable and comes with a rugged hard shell carrying case, neoprene carrying bag for the attachment hook tips, and a USB cable to connect the tool to a computer. SD cards are sold separately. [www.RIDGID.com](http://www.RIDGID.com)



The microEXPLORER Digital Inspection Camera from RIDGID now incorporates digital self leveling technology. Each tool comes with an accessory pack that includes three separate attachments for greater versatility.



# Pictures like these were meant to be shared.

Share them with your customer.  
Send them to the manufacturer.  
Show them to a fellow contractor. With the new RIDGID® microEXPLORER™ Digital Inspection Camera, you can shoot still and video images in hard-to-reach areas and then share those images with others. There's no better way to diagnose and solve tough problems.

Learn more and schedule demonstrations: 800.769.7743  
or [www.RIDGID.com](http://www.RIDGID.com).

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We  
Build  
Reputations™

**RIDGID**

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**EMERSON**  
Professional Tools

DIAGNOSTICS

PRESSING

PIPE & TUBE TOOLS

DRAIN MAINTENANCE

POWER TOOLS



# 2009 SUPPLIER PROFILE



## Navien's 'Condensing 98%' tankless water heater series

*Where Technology meets Ecology!*

Navien, a leading condensing gas appliance manufacturer, is pleased to introduce a first of its kind in North America, a "Condensing" tankless water heater featuring an exceptional 98% efficiency.

Utilizing its patented dual-stainless heat exchanger design, the "Condensing 98%" series will be North America's most efficient line-up of tankless water heaters.

In addition to all the usual tankless features like an endless supply of hot water and space savings, the Navien "Condensing 98%" is the most environmentally friendly tankless water heater on the market. The Navien models eliminate more than 85% of the flue gas wasted by standard tankless water heaters, reducing CO<sub>2</sub> emissions by at least 420 lbs less per unit per year. That equates to the photosynthesis work of approximately 14 trees or driving a car 420 miles less per year.

Navien comes to market with an exceptional collection of features including:

- PVC venting up to 100 feet;
- Exceptional performance: the optional "A" models include a mini-buffer tank eliminating the minimum flow rate requirement and the so-called "cold water sandwich" and a built-in pump offers recirculation capability for hot water to the faucets quicker and water savings;
- Precision Technology: with Navien's patented Gas-Air Ratio Control (GARC), ideal combustion and steady temperatures are continuously monitored and maintained;
- Premium materials: dual stainless heat exchangers for much longer life cycles than copper;
- One of the best warranties in the business (15/10 [CR/CC] on the Heat Exchanger; 5 years parts, 1 year Labor);
- New Unique Features: the only tankless water heater to include built-in "Leak Detection" protecting your property from water damage; built-in air filter minimizes dirt and debris from collecting inside the water heater reducing service calls;
- Direct Vent: all "Condensing 98%" models are direct vent, making them the perfect indoor unit for energy efficient homes and buildings;
- Space Heating: all Commercial Condensing (CC) models can be used for combination space

heating applications as well.

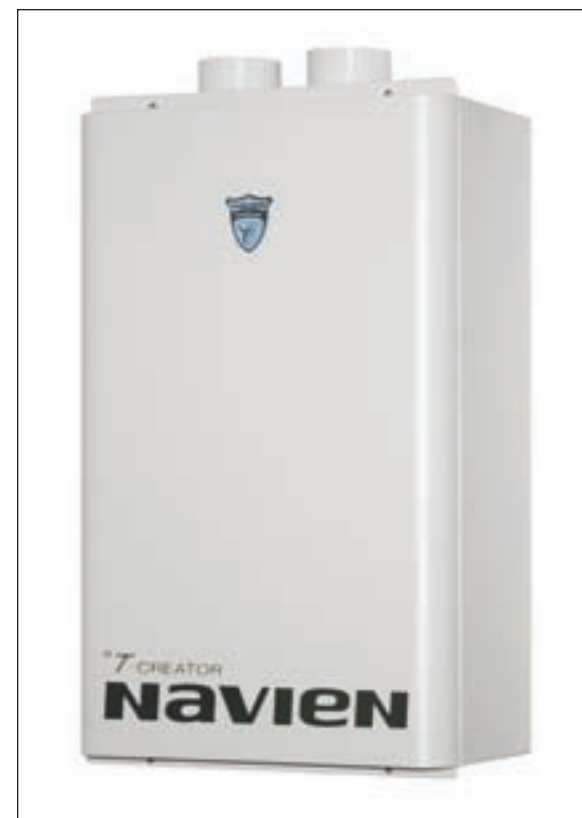
Navien's "Condensing 98%" models come in BTU ranges (maximum input) from 150,000 to 199,000 and can deliver flow rates up to 11GPM ( $\Delta T=35^{\circ}\text{F}$ ) making them the best in their class. Because of its much higher efficiency, Navien heats more water with less BTUs so when comparing with conventional noncondensing tankless water heater, be sure to compare outputs not inputs!

The Navien water heaters are ideal for not only residential applications but also perfect to commercial installations. In addition to the dual stainless steel heat exchangers, Navien's commercial models feature full stainless steel internal piping to stand up to the most aggressive volumes and water types.

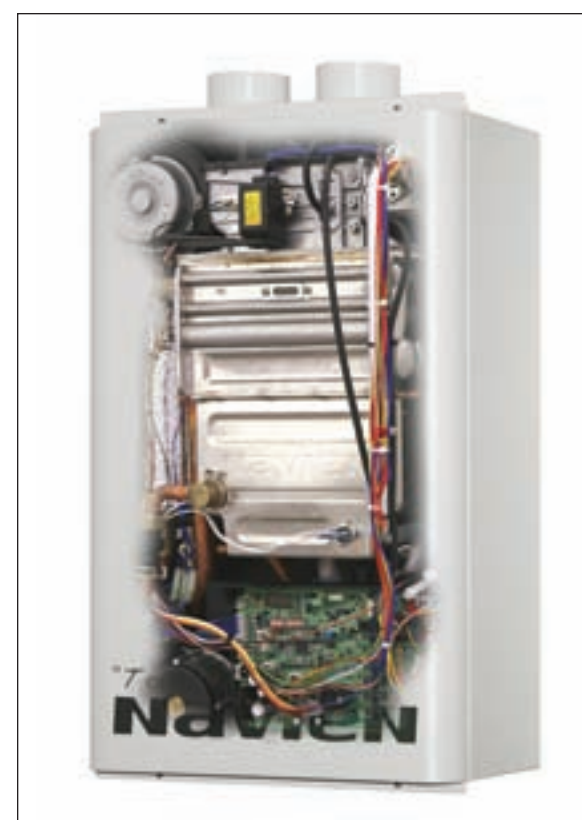
These durable units can fit into any application from restaurants, hotels, sports clubs and seniors' facilities to hospitals, schools or industrial processes. If a single unit is not enough to satisfy the application demand, add up unlimited additional units to create a fully modulating system. This performance is unparalleled by existing boiler technology. The multiple unit control design is such that subsequent units are brought on-line as the hot water demanded by the application increases. Priority is automatically rotated to ensure equal running time for all units in the system.

This scalable, multi-unit design offers the flexibility to "right size" applications and avoids the tendency to over-size systems. Multiple units also offer the advantage of minimizing facility interruption and down-time. Having multiple units allows for the systematic isolation and servicing unit by unit such that the remainder of the system stays in operation. In a 10-unit application for example, taking 1 unit offline to service means that the 9 remaining units (or 90% of system capacity) are still on-line and ready to meet the demand. Whether 2 or 3 units use for a local restaurant or 8 units for local sports club, Navien is ready to meet any specification. ■

For more information, technical specifications or local supplier information, contact Navien at (800) 519-8794 or visit us on the web at [www.NavienAmerica.com](http://www.NavienAmerica.com). Witness the evolution of water heating and see what the future holds!



Navien's "Condensing 98%" is the most environmentally friendly tankless water heater on the market, eliminating more than 85% of the flue gas that standard tankless water heaters waste, reducing CO<sub>2</sub> emissions by at least 420 lbs less per unit per year. Navien's commercial models incorporate full stainless steel internal piping that withstands most aggressive volumes and water types.





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# 2009 SUPPLIER PROFILE



## The Boss, Figure number 4505 – Cleanout and Test Tee Application for High Rise Projects

### Problem

Contractors that specialize in high rise building construction, routinely test the DWV piping system after installation to ensure there are no leaks. In order to be efficient on the job the testing needs to be done in a timely manner. Using traditional methods, such as inflatable plugs, only adds unwanted time to the project as there are several issues associated with this method. The plug can leak, which requires a retest that can take up to 2-3 hours. Water can spill inside the chase, soaking the person performing the test and posing a safety hazard in larger stacks. This can also increase the risk of mold, which can become a serious liability issue for the contractor.

### Solution

Abbott Industries is an experienced contractor in the Chicago area and has been a leader in high rise construction for over 50 years. Bob Abbott, owner of Abbott Industries feels that he owes it to his customers to use a product that provides more reliability to the job and ultimately to their building.

His choice for testing the piping is the Boss Tee, Cleanout and Test Tee by Jay R. Smith Mfg. Co.

The Boss Tee, figure number 4505 is designed to work double duty in the sanitary DWV piping system: during construction to hydrostatically test up to three floors of the piping system for leaks then after testing as a standard cleanout tee.

Testing the piping system with The Boss Tee is simple compared to traditional methods. The large opening in the fitting allows for better hand access, which makes the testing easier. Simply install a raised head hex plug into the internal threading of the cleanout tee to seal off the stack. At the front of the cleanout tee remove the 1/2" raised head plug from the test port and add a water pressure gauge and boiler drain valve. The system can then be filled to its highest point with the installed pressure gauge indicating any system leaks. This is an excellent way for an inspector to make sure there are no leaks.

When testing and inspection are complete the piping system can be drained either down the stack, to the nearest floor drain, or an acceptable drain point. This drainage step helps to eliminate any water spills in the chase, which can lead to major cleanup expenses. With traditional testing methods accidental water spills into the chase are a common occurrence.

The contractor is pleased with the fact that he can test up to three floors without fail or risk of danger by using The Boss Tee. He also leaves this part of the construction project with peace of mind, knowing his work has been performed with a reliable product. To use the words of Mr. Bob Abbott, "Problems always come back to the contractor so it's worth my time to do it right."

If time savings, reliability, safety, mold reduction, and simpler methods are problems in your pipe system testing, then the Boss Tee is your answer. ■

For more information on this and other Jay R. Smith Mfg. Co. products, or to contact your local representative, visit the Virtual Yellow Pages Web site at [www.jrsmith.com](http://www.jrsmith.com).



The Boss Tee, figure number 4505 does two jobs in a DWV piping system: 1) During construction it is used to hydrostatically test up to three floors of the piping system; and 2) after testing it serves as a standard cleanout tee.



Welcome to the 2009 *Phc News* Boiler Report. *Phc News* has the inside scoop from the top boiler manufacturers about the economy, new product introductions and other news and notes. Overwhelmingly, relationships are the key to weathering this economic uncertainty. It is imperative to

maintain healthy relationships with your wholesaler, manufacturers (especially for training), and, most importantly, your customers. And just as important, manufacturers remain committed to you, the contractor. Here is a compilation of companies interviewed. They appear in no particular order.

**Slant/Fin Corp.**  
100 Forest Drive  
Greenvale, NY 11548  
[www.slantfin.com](http://www.slantfin.com)

**Brief history:** Slant/Fin Corp. was founded in 1949 in Coney Island, N.Y., by Mel Dubin. Slant/Fin is in its 60th year of manufacturing baseboard heating, residential gas and oil fired boilers, residential and commercial modulating condensing boilers, commercial cast iron boilers and commercial fin tube and cover. Slant/Fin provides to its distribution and contractor network the most complete offering of hydronic heating. The addition of its modulating condensing gas products and its new Eutectic Triple Pass Oil boiler have allowed Slant/Fin to become the best choice for single source purchasing to meet every hydronic heating requirement.

**What's new:** Slant/Fin has come off an unprecedented year in which it announced five new boiler models. The Lynx boiler is a modulating condensing gas boiler producing 85,000 Btu/h in a very compact design. The Bobcat boiler, the flagship of its high efficiency gas line, was designed, engineered and manufactured in the USA specifically for the design characteristics that face every contractor in the U.S. The Bobcat is available in two sizes: 120,000 Btu/h and 200,000 Btu/h. Following the Bobcat is the Jaguar boiler that is rated at 390,000 Btu/h. On the oil side is its Eutectic Triple Pass Oil boiler. With a rating of over 87% AFUE, this boiler is the quietest triple pass boiler on the market. Slant/Fin rounds this out with two new electric boilers, the Monitron II and the Minitron.

**Quotables:** "In tough economic times, the companies that succeed, whether they are manufacturers, distributors or contractors, will be the companies that provide the best service and that stay closest to their valued customers. Slant/Fin is dedicated to doing its very best for its distributors and contractors by listening and providing them with very best service possible," said Bob Flanagan, Slant/Fin.



The 93% efficient Bobcat is built in the USA. Two models: 120,000 Btu/h and 200,000 Btu/h with 4:1 turndown. Wall-mounted or floor standing, Bobcat has a five-year parts and labor warranty included.

**Lochinvar Corporation**  
300 Maddox Simpson Pkwy.  
Lebanon, TN 37090  
[www.lochinvar.com](http://www.lochinvar.com)

**Brief history:** Lochinvar's history dates back to 1919 with its founder Walter Vallett, Sr.'s entry into the water heater business. A true industry pioneer, Vallett was instrumental in the development of the first automatic gas fired water heaters early in his career. He founded the Walter Vallett Company May 16, 1946, which eventually became Lochinvar Water Heaters and is known today as Lochinvar Corporation. He remained committed to the industry, and active in the company, serving as Chairman of the Board until his death in 1982. Bill Vallett, Sr. took over as the second-generation owner of the business and currently his three sons, Bill Vallett, Jr. (president), Tom Vallett (executive vice president) and Jeff Vallett (executive vice president) own and operate the company.

**What's new:** Lochinvar always has been a company that has been dedicated to ongoing product and technology development. The most recent introductions are the SHIELD™ commercial water heater, which is designed to provide a 100% defense against lime scale buildup within the tank, and the SYNC™ condensing boiler with an advanced touchscreen control system called SMART TOUCH™.

**Notables:** The KNIGHT heating boiler was recently featured on an episode of "This Old House," and we have received a lot of positive feedback from our contractor customers about our involvement on this project.

**Quotables:** "Lochinvar enjoys many strong relationships with the top contractors and wholesale distributors in the industry. Having products and support in the field is a key ingredient to our continued success, especially in today's challenging economic climate.

"Our VIP Contractor Program for residential boiler installers helps us stay in tune with what our contractors want in a boiler and allows us to reward their efforts of supporting our product sales. As part of our revamped VIP Contractor Program, we recently hosted the inaugural VIP Extreme Event. The 12 top-selling contractors received an all-expenses-paid trip to Nashville for a training session, plant tour and a trip to the Nashville Speedway — where they had the opportunity to ride shotgun along with a professionally trained driver from the Andretti Gordon Racing School, experiencing speeds up to 150 mph," said Stirling Boston, director of marketing, Lochinvar Corp.



SYNC combines stainless-steel heat exchanger technology with modulating/condensing combustion to deliver thermal efficiency as high as 98 percent. With models producing 1.0, 1.3 and 1.5 million Btu/hr inputs, low NOx operation and 10:1 turndown, SYNC serves a wide range of commercial applications, offering cutting-edge green technology for today's building owners and facility managers.



**Heat Transfer Products**  
120 Braley Road  
East Freetown, MA 02717-0429  
[www.htproducts.com](http://www.htproducts.com)

**Brief history:** Established 1974 as a designer and fabricator of heat exchangers for the boiler and solar industries, Heat Transfer today is a full-fledged manufacturer on the cutting edge of energy efficient water heating technology. Although the company makes a wide assortment of water heating products and system components, it is best-known for its indirect-fired water heaters, first introduced in 1980; and, more recently, for its state-of-the-art lineup of condensing, modulating ("mod-con") boilers.

Heat Transfer was the first U.S.-based manufacturer to bring a condensing gas water heater to the domestic market, unveiling the Voyager in 1994. Its condensing technology not only delivered a thermal efficiency of up to 98% (versus 80% for most conventional commercial gas water

heaters), but also reduced flue-gas temperatures enough to permit venting with less expensive, easier-to-install PVC pipe. Two years later, Heat Transfer delivered yet another breakthrough with the launch of the Munchkin. This highly compact boiler coupled condensing technology with a modulating burner to further trim energy costs by align-

ing the burner's firing action to present demand.

**What's new:** The new, high-efficiency Elite Plus residential heating boiler features a unique, state-of-the-art, electronic combustion-control system that automatically adjusts to the type and quality of the fuel being used. An HTP exclusive, this breakthrough Gas Adaptive Technology assures a constant, optimum, air-to-gas combustion mixture with every firing — one that protects the environment and the end user's budget.

• Phoenix "Heat Packs": Heat Transfer expands capabilities of its 96%-efficient Phoenix mod-con water heater with add-on technology that combines DHW with hydronic, hydro-air or radiant-floor space heating in one unit.

Depending upon which Phoenix Heat Pack is chosen, installers and specifiers can combine not only hydro-air space heating with DHW, but also traditional hydronic baseboard or radiant heating — all within the same comparatively small footprint and at the same ultra-high efficiency as the original Phoenix.

**Quotables:** To be a true innovator within the still-emerging mod-con space heating and water heating markets entails special responsibilities and obligations. "Whenever a contractor decides to pursue a new technology, he is understandably apprehensive," said CEO Dave Davis. "He needs time to climb the learning curve even as the technology is evolving, but without losing money or standing with his own customers because of problems. So he depends upon a manufacturer like HTP to help him up the curve, provide all the support he needs to get the job done right the first time, and then to back him to the hilt should things not turn out exactly as planned.

"At Heat Transfer, we absolutely embrace those high customer expectations, and we are doing everything we can to meet them," Davis continued. "Once contractors understand the full ramifications of our specialization in this market, and how that is intended to help support their own success at the local level, they inevitably feel a lot better about our company, as well as the special opportunity that awaits them in this market."



**Crown Boiler Co.**  
3633 I Street  
Philadelphia, PA 19134  
[www.crownboiler.com](http://www.crownboiler.com)

**Brief history:** What started in 1949 as Crown Industries, today's Crown Boiler Co. has grown into an industry leader offering the latest in hydronic heating technology.

Crown's product offering includes residential and commercial oil and gas fired cast iron boilers, as well as residential and commercial cast aluminum condensing boilers. Along with this extensive offering of boilers, the product line includes stainless steel indirect water heaters, hydronic air handlers and warm air furnaces.

Over the years, Crown Boiler Co. has remained true to its guiding principal of delivering quality products with outstanding customer service at competitive pricing.

**What's new:** The latest Crown boiler is the Maui (MWC), a wall-mounted combi boiler.

Crown also is introducing a CPV/PVC vent option for the Bimini (BWC) series of condensing boiler to complement the already available concentric vent option.

**Notables:** One of the most important things that Crown does: it has no automated answering or voice mail for incoming phone calls. When a wholesaler/contractor calls in, he/she will talk to a person; this allows employees to take care of their questions in a prompt and personal fashion. Crown also places a very strong emphasis on training and maintains a very full training schedule, both here at Crown and on the road with one of its four training vans. Crown maintains a large inventory of product to serve its customers needs in a rapid fashion. Finally, Crown has been updating its website to make sure the latest in Crown Boiler Co. information can be found there, as well as other tools including a contractor locator that enable homeowners to find a Crown Boiler contractor near them.

**Quotables:** "I think that there is an even greater emphasis placed on our relationship with our contractor/wholesaler customer base during these rough economic times because it is these relationships that allow us to work together in combating a downturn in business and to prepare for the next upswing," said Lee Ensminger, national sales manager, Crown Boilers Co.



*The Maui is a wall mounted 85% AFUE "Energy Star" rated boiler available in a "heat only" or "combi" model. It has a sleek compact design and the ability to deliver both heat and hot water from the same unit (when the combi model is installed) making it ideal for those applications where space is at a premium. All of the major system components are incorporated within the boiler.*

**Heat-Flo, Inc.**  
1 Spaceway Lane  
Hopedale, MA 01747  
[www.heat-flo.com](http://www.heat-flo.com)

**Brief history:** Heat-Flo, Inc. was started in 1998 as a design, manufacturing and marketing organization that focused on providing easy to install, high quality products that offered the installing contractor and the end user superior features and benefits.

The first product introduced in 1999 was the indirect water heater. This platform product has expanded into dual coil indirect water heaters that are used in solar thermal systems, hot water storage tanks that provide high amounts of hot water to satisfy "dump loads," and hydronic buffer tanks that improve the operating efficiency of heat pumps, low mass boilers and chillers.

All of these products are manufactured in-house by Heat-Flo. This gives Heat-Flo total control over the product that its customers demand and appreciate. The company continues to expand by offering products in the growing alternate energy markets.

**What's new:** Heat-Flo never rests in its efforts to continuously improve both product offerings and manufacturing processes, and quickly respond to customer needs.

The goal is to be the best supplier of product and customer service in our industry. All of the new products that are in the development stages come directly from the close working relationship with the customer base. This clear picture of a need in the market place allows us to get new product to market faster. Our focus for the future is to leverage our product and process expertise and apply it to new products in the heating and hydronic fields, and in the growing alternate energy fields.

There are some circles of thought that recognize that the leadership in the heating products field in terms of product innovation, performance and quality is imported from Western Europe. Heat-Flo's goal is to meet and exceed these levels of technical and manufacturing expertise.

**Quotables:** "With the recent changes in the economy, we are striving to improve our service and shorten our delivery times for our customers. Our customers are generally less willing to inventory all of the broad range of products that we manufacture. The solution is to improve our response time to ship," said George Celorier, Heat-Flo, Inc.



*Hydronic buffer tanks are used in systems operating below the design load condition, which is most of the time, or in systems having several low Btu cooling or heating loads calling at different times. This can cause the chiller or the boiler to short cycle, resulting in reduced operating efficiency and shorter equipment life.*



**LAARS**  
20 Industrial Way,  
Rochester, NH 03867  
[www.laars.com](http://www.laars.com)

**Brief history:** In 1948, Laars engineers invented a way to improve the transfer of heat between metals, which led to the design of a new commercial boiler. Their concept was based on the principle that water could be heated rapidly through a finned copper tube heat exchanger exposed to gas flames, a technique that virtually eliminated the scaling and electrolytic corrosion that shortened the life of the cast iron and steel tube boilers.

In the 70s, the company expanded into residential hydronic systems. Laars Heating Systems Company was purchased by the Bradford White Corp. in 2005, greatly expanding Laars' scope and marketplace. Recently, Laars completed full consolidation of all manufacturing at its Rochester, N.H. plant, with facilities in Canada.

**What's new:** The NeoTherm® condensing boiler is a fully packaged, space-saving hydronic solution that offers 95% energy efficiency. Four new, smaller sizes are now introduced to the modulating boiler line. The boilers were first introduced in

light commercial sizes of 285, 399 and 500 MBH. New residential models now include 80, 105, 150 and 210 MBH systems. All sizes will soon be available as volume water heaters.

NeoTherm is a direct vent, sealed combustion boiler that modulates with a 5:1 turn-

down. Zero clearance to combustibles and convenient top connections (horizontal or vertical direct vent) make it a good choice for tight installations. The natural gas or LP-fired boiler features an ASME stainless steel heat exchanger, integral three-speed boiler pump and low NOx emissions. Features include top-mounted water and gas lines and air intake, permitting close, multiple boiler installation.

**Quotables:** "We've got one of the industry's best-equipped and accessible technical resources for installers. But to add new dimension to this, we're now offering regional webinars that have been very well attended and received. These are put together specifically for customers of wholesalers and rep organizations, by request. We're also developing our fourth demo trailer. The residential and light commercial units are fully operational, and are sought out frequently for industry events. And we're now about to unveil robust, online account information for trade customers with detailed, real-time access to all account information that includes details about shipments, invoices, credits and statements.

"Soon we'll announce our new 'Parts Finder,' an online resource. One of the most common sources of irritation for homeowners, building owners and installers — industry-wide — is the inability to locate detailed information about past and current products. Soon, anyone will be able to locate, specify and purchase a replacement part for a Laars boiler, storage tank or water heater. Equipped with a serial number, a searcher will see an exploded illustration of the product and all its parts, complete with part numbers, and even new part numbers that have replaced older parts," said Bill Root, vice president of sales and marketing, Laars.

"The backbone of our distribution strategy is to nourish the relationship between our management, wholesalers, and their customers — the professional installers. To develop it, we routinely hold meetings at wholesaler and manufacturer's rep locations, sometimes in conjunction with training, our operational demonstration trailers and cookouts. One of our key strengths, early on, was the strength and effectiveness of our regional training. And, today, we have a program where installers qualify for a free combustion analyzer with units purchased. Also, we offer wholesaler packages that enable suppliers to take advantage of pricing discounts and freight terms and lower quantities," said Root.



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A Sloan video offers step-by-step instruction for installing SloanStone® 7000 series solid-surface lavatory systems. Installation of the double- and triple-station lavatories is a one-man job. The video shows how all the serviceable components are under the latched lid for easy maintenance.

**SLOAN VALVE COMPANY**

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## MIXING VALVES 101

Leonard Valve's "Mixing Valves 101" training presentation explains what mixing valves are and where they are used, and how to maximize their performance. Leonard is committed to supporting customers' increased technical demands with the resources they need to be successful.

**LEONARD VALVE**

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## PREPARE FOR MASS NOTIFICATION

Find out about the three critical components of a campus mass notification system from RJA, the experts in safety and security consulting. RJA's guide can educate you about assessing, designing and implementing multi-faceted plans for various emergencies.

**ROLF JENSEN & ASSOCIATES**

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## HOW DO YOU PUT A TOILET ON A WALL?

Learn more about the Geberit Concealed Tank and Carrier System, which enables off-the-floor toilet bowl design with no visible pipework. Geberit's informational video shows how the system works and how to install the in-wall, steel-frame carrier to wall framing studs.

**GEBERIT**

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## FIRE INFO ANYTIME, ANYWHERE

Carry installation manuals and data sheets for System Sensor fire detection and notification products wherever you go. Request a copy of an E-DOCS CD-ROM, your on-the-go, know-it-all guide on smoke, duct and CO detectors; horns/strobes; and more.

**SYSTEM SENSOR**

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## ELEGANCE WITH A PUSH OF A BUTTON

The BWO Literature and Video CD shows the various types and finishes of Bath Waste & Overflow products available from Geberit, including the PushControl™ style. Specification and installation details tell how to add a touch of class to elegant bathrooms.

**GEBERIT**

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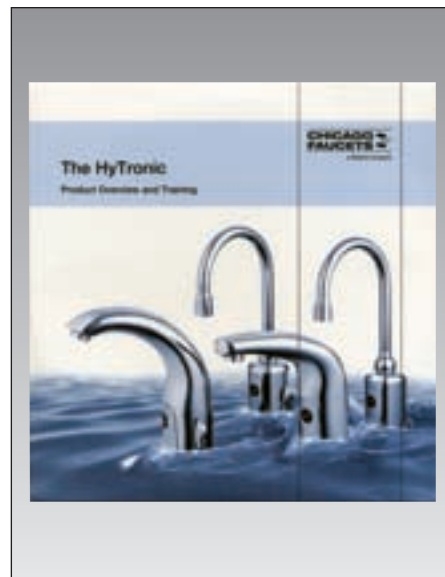


## VIDEO SHOWS CARTRIDGE CHANGING

Learn the basics of Sloan Waterfree Urinal maintenance from this short, informational video. Waterfree Urinal cartridges can be quickly replaced in a few easy-to-follow steps. The video also shows simple cleaning tips.

**SLOAN VALVE COMPANY**

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## FAUCET INSTALLATION DVD

Chicago Faucets has released a product overview and training DVD for its HyTronic™ electronic faucet line. The DVD demonstrates how to install faucets, make custom adjustments and change batteries. Product details allow contractors to choose the appropriate model.

**CHICAGO FAUCETS**

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To receive information **FAST**, go to:  
[www.Contractor-Resource.com](http://www.Contractor-Resource.com)

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**Energy Kinetics, Inc.**  
**51 Molasses Hill Rd.**  
**Lebanon, NJ 08833**  
[www.energykinetics.com](http://www.energykinetics.com)

**Brief history:** Founded in 1979, Energy Kinetics is a manufacturer of innovative, high efficiency integrated heat and hot water systems designed to meet the needs of today's demanding homeowners and heating professionals. Recognizing the inadequacies of existing technologies and understanding the growing need for more efficient heating systems, the System 2000 low mass boiler and thermally purgeable control system was developed. The result is a high performance system, capable of satisfying home and building heat and hot water requirements while greatly reducing energy consumption. System 2000 is manufactured in the U.S. with exacting, world-class standards, and it uses industry standard components.

**What's new:** In 2008, Energy Kinetics needed to expand its corporate facility while managing overall energy consumption and costs. The expansion project offered an excellent opportunity to integrate energy efficiency, conservation and solar power production with their advanced heating technology into a state-of-the-art, high-performance facility located in Lebanon, N.J. This multi-faceted project features an industry-leading, renewable energy solar photovoltaic system used to produce electricity for manufacturing. This project also includes energy efficient upgrades to lighting (including motion sensors and natural lighting designs), HVAC systems with high efficiency motors, heat recovery ventilators, programmable thermostats, and insulation and weatherization efforts. The results demonstrate the benefits of combining efficiency, conservation and renewable energy.

Energy Kinetics was named 2008 New Jersey Clean Energy Small Business Leader of Year by the New Jersey Board of Public Utilities (NJBP), Office of Clean Energy.

Energy Kinetics also received the 2009 ENERGY STAR Excellence Award.

**Notables:** Energy Kinetics partners with the installing contractors for close integration of product operation, feedback, support, design improvements, and product development. The company also provides on-going installation, service, technical, sales and marketing support and materials. Working with contractors to share best practices, providing tips and training to quickly analyze and design jobs for cost effective and efficient solutions in operation and installation is critical to business success in today's economic climate. This process is also particularly important because home owners and building managers expect savings, and proper design and integration optimizes solutions, comfort and energy savings.



*The System 2000 is top rated for efficiency in the Department of Energy's Brookhaven National Laboratory study "The Performance of Integrated Hydronic Heating Systems," and works with baseboard, large water volume systems, radiant heat, snow melt, and more. A simple conversion from natural gas, propane and oil heat fuel sources provides the ultimate in versatility in today's volatile fuel markets.*

**Bosch Thermotechnology Corp.**  
**50 Wentworth Ave.**  
**Londonderry, NH 03053**  
[www.buderus.net](http://www.buderus.net)

**Brief history:** Buderus established a presence in the United States in 1990, and in 2008 became a member of Bosch Group. Buderus has been developing new heating technologies since 1825, making us a leader when it comes to manufacturing energy efficient, user friendly, and environmentally sound products. Today, Buderus products are acknowledged as the world standard in high-efficiency, low-emissions hydronic heating.



Buderus distributes residential and commercial hydronic heating equipment, including hot water boilers, DHW storage tanks, climate and energy controls, panel radiators, and solar thermal equipment. Headquarters in Londonderry, N.H. include a state-of-the-art training and distribution center to serve a large network of business partners.

**What's new:** Buderus has one of the only condensing oil boilers qualifying for the Federal Tax Credit for Energy Efficiency, the GB125BE

System. The GB125BE Boiler has AFUEs of over 91%, a high quality cast iron Buderus Boiler, a Buderus low NOx burner and a Buderus Logamatic System Control. Other Buderus qualifying products are the GB142 Condensing wall-hung gas boiler and the 201 wood/coal boiler. The Buderus Solar Thermal Systems, qualifies for an additional Federal Tax Credit. Buderus products are designed to be energy efficient and qualify for many other state, regional and utility rebates.

Buderus Solar Thermal Systems are new in the United States, but are backed with over 25 years of solar experience in Europe. The fully integrated Solar Solution consists of two styles of flat collectors with flexible mounting solutions for any roof type, two styles of storage tanks, a pump station and climate control.

**Notables:** Buderus is taking extra steps to help contractors reach their customers. Buderus offers a brochure to contractors to give consumers about the Federal Tax Credit for Energy Efficiency and the qualifying Buderus products, more information is available at [www.boschtaxcredit.com](http://www.boschtaxcredit.com). The Buderus website, [www.buderus.net](http://www.buderus.net), has links to other state and utility rebates, for which Buderus products qualify.

At its state-of-the-art facility, Buderus offers hands-on training for contractors. These one or two day trainings go over installation, servicing and troubleshooting. Full class offerings and dates can be found on the website. Buderus also brings training to the contractors who cannot travel to our facility.

Buderus is committed to bringing energy efficient products to the market and helping consumers save on expensive heating fuel without sacrificing comfort.



**Weil-McLain**  
**500 Blaine St**  
**Michigan City, IN 46360**  
[www.weil-mclain.com](http://www.weil-mclain.com)

**Brief history:** Weil-McLain was founded in 1881 by Isadora and Benjamin Weil as a small plumbing and heating house in Chicago under the name "Weil-Brothers." In 1918, they bought out their largest boiler supplier, J.H. McLain Company of Canton, Ohio and in 1919 the company name "Weil-McLain" was established.

In 1921, Weil-McLain moved its headquarters and boiler operations to Michigan City, Indiana. The headquarters and foundry operation remain in Michigan City to this day. In 2005, the company opened a state-of-the-art assembly facility in Eden, N.C.

**What's new:** As fuel costs soar, home heating efficiency is on the mind of virtually every homeowner. The Ultra Series 3 is designed to be environmentally friendly and exceeds the highest North American air-

quality standards.

For gas-fired applications, Ultra boilers employ an advanced mono-block aluminum heat exchanger that transfers heat faster than conventional materials. Ultra's unique electronic sensor and control system allows key functions like the modulation of firing rates up or down, as conditions both inside and outside the home fluctuate. Unlike most other systems, Ultra senses precisely how much heat needs to be produced at any given instant and adjusts to the conditions.

**Notables:** The Weil-McLain School of Better Heating offers an in-depth training experience for contractors and distributors. Held at the Weil-McLain state-of-the-art training facility in Eden, North Carolina, the two-day session focuses on the ever-evolving technology that makes Weil McLain products and our industry tick.

Contractors and distributors will have the opportunity to:

- Build their own course schedule to meet their unique needs;
- Experience hands-on live-fire training;
- Develop their residential and commercial boiler knowledge and skills;
- Learn directly from and expert team of W-M instructors in small classroom settings; and
- Prepare for certification exams with our NATE-recognized (North American Technical Excellence) courses.

Weil-McLain School of Better Heating two remaining session dates:

- September 13-15, 2009
- September 15-17, 2009.

All Ultra Series 3 Gas boilers feature AFUE efficiencies in the range of 93%. These are some of the highest efficiencies in the industry, and when the Ultra is used in low temperature applications such as radiant heating, it can achieve efficiencies up to 98%.



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## Peerless Boilers www.peerlessboilers.com

**Brief history:** Peerless has provided over 100 years of quality cast iron boilers to the heating industry.

**What's new:** Peerless Boilers is the only American boiler company to offer both oil and gas-fired boilers over 90% efficient that are eligible for the \$1,500 Federal Tax Credit. The Peerless PureFire® is one of the boiler lines that meet the requirements for the tax credit. The direct-vent, gas-fired (for natural or LP gas) condensing boiler offers 96% AFUE. The PureFire is a sealed combustion boiler with many advanced features and controls and is the most thoroughly tested high efficiency boiler in the market. The boiler is ENERGY STAR® approved and has ASME and ETL certifications for both the U.S. and Canada.

**Notables:** Peerless has an outstanding network of manufacturer's representatives across the United States that work closely with the contractor/wholesaler and provide product training and support at all levels. Peerless and its reps have established close relationships with their entire network of contractors/wholesalers, which is why the brand is successful.

**Quotables:** "Peerless' success is contingent upon providing unlimited product support through our knowledgeable sales representatives and staff. Our regional managers are consistently out in the field with our sales team, meeting with customers and listening to their concerns and comments. By utilizing our customers' feedback we are able to continually improve our products and offer new products that meet industry demand," said Nichole Stough, spokesperson for Peerless Boilers.



*The PUREFIRE gas condensing boiler features 96% efficiency and is the most thoroughly tested high efficiency boiler on the market. The PUREFIRE is ENERGY STAR approved and has ASME and ETL certifications for both U.S. and Canada. Features a unique condensate system with float switch protection and built-in neutralizer. A fully modulating burner with 3:1 flame modulation assures dependable operation and maximizes boiler efficiency.*

## ECR International 2201 Dwyer Ave. Utica, NY 13501 www.ecrinternational.com

**Brief history:** Beginning in 1928, Earle C. Reed established manufacturing facilities for cast iron boilers and radiators in Dunkirk and Utica, N.Y. ECR was formed in 1999 as a merger of The Utica Companies (Utica) and Dunkirk Radiator Corp. and named in his honor.

Early on, Dunkirk manufactured cast iron boilers and radiators and Utica manufactured only cast iron radiators and baseboard and bought boilers from Dunkirk. However, as the demand for both company's products grew, the Utica and Dunkirk facilities have gone through many stages of improvements and modernization.

**What's new:** Patented freewatt® micro-combined heat and power gas boiler or furnace based heating systems co-generate electric power while operating, which results in reducing a homeowner's annual electric utility bill by as much as half. Consumers will have greater control and security over their heating system as freewatt® is Internet connected and can be remotely interfaced with for system operation and service monitoring.

Natural gas or propane powers the generator to produce electricity which is used in the house while the heat produced by the generation of electricity is used to warm the house. When and if the outside temperature requires additional heat, the furnace or boiler kicks on to provide the heat. Therefore, the natural gas produces both electricity and heat for the home, i.e. cogeneration.

**Quotables:** "For an average household north of the Mason-Dixon Line, the freewatt® system will cut the consumer's electric bill in half while using the same amount of natural gas as a conventional heating system. In addition, the carbon footprint is reduced by 66% versus what is used in the current home for electricity and heat," said Mike Paparone, president, ECR International.



*By relying less on electricity from the grid, homeowners can cut back on utility costs. The freewatt system is comprised of a Honda MCHP engine-generator and an energy-efficient furnace or boiler. When heat is needed the engine generates 1.2 kilowatts of electric power as well as 12,000 Btu/h of heat. This heat is sent back to the home and used to create a constant comfortable temperature.*



## Alternative Fuel Boilers LLC 795 Deer Street Dunkirk, New York 14048 www.alternativefuelboilers.com

**Brief history:** Alternative Fuel Boilers is a wholly-owned subsidiary of Dunkirk Metal Products, Inc., an ISO 9001-2000 certified company with a 60 year history of commitment to manufacturing excellence. Alternative Fuel Boilers was formed in 2006 as the marketing unit for Econoburn™ wood gasification boilers and began shipping in early 2007. Over the past two-plus years, the company has rapidly expanded its dealer network and sales of its high-energy, low-emission heating boilers designed for both residential and commercial applications. The company employs strict adherence to worldwide industry standards in materials, manufacturing, measuring and auditing to ensure the quality of all Econoburn™ boilers.

**What's new:** The Econoburn™ series of high-efficiency, low-emission, wood gasification boilers was designed to be easy for the contractor to integrate into an existing heating system, and they are rated for indoor installation. These boilers are closed-loop

vessels unlike older style "open-system" outdoor wood boilers (OWBs). This allows the heating professional to integrate using the piping strategy that best suits the system requirements: parallel, primary/secondary, reverse return, etc.

The Econoburn sales and technical team are currently on a two-month training and promotional tour throughout the Northeast that concludes at the Radiant Panel Association's national convention in Utica on May 29-30. Factory training events are scheduled throughout the year as well to educate new dealers and installers. Sales of the Econoburn are expanding into the Canadian market as the final requirements for CSA — the Canadian equivalent of a U.L. safety certification in the U.S. — have been met. As emission guidelines continue to tighten in both the U.S. and Canada, the

Econoburn offers consumers on both sides of the border boilers to meet their heating needs while controlling their fuel costs and limiting the emissions to the environment. The addition of ASME-certified boilers to the product line-up this year has allowed for growth in "code" states and in the light commercial/industrial market. Solid-fueled boilers are treated differently from state to state and from municipality to municipality. Econoburn™ offers the broadest product line in the industry to handle most any heating application, while at the same time complying with regulations for both the pressure vessel and particulate emissions in any jurisdiction. The company has certified its boilers as qualifying for the Federal Tax Credit for Energy Efficiency of up to \$1,500.

**Notables:** Initial sales of Econoburn™ wood gasification boilers was driven by a web-based, direct-to-consumer marketing program augmented by extensive public relations promotions in target markets. As demand for the product grew, it became evident that a key to high customer satisfaction was at the installation and service level. The company quickly moved to establish a network of well-qualified dealer/installers who, working with Alternative Fuel Boilers' technical support staff, could effectively install and integrate the boilers into the heating and hot water systems of end-users. This important relationship has improved customer satisfaction and increased product demand. In addition, the company continues an aggressive direct-to-consumer public relations program that supports dealers and increases dealer sales by maintaining high market visibility for Econoburn™ boilers. The promotion plan emphasizes the cost-saving benefits of the wood gasification boiler during a time in which consumers and businesses are seeking alternatives to high heating fuel costs.

With the gasification technology employed by the Econoburn™, almost all the gases are burned, with little residual soot or creosote, and the extra energy is transferred to the Econoburn's heat exchanger. Econoburn™ residential boilers range in size from 100,000 to 300,000 Btus and commercial boilers of up to 1,000,000 Btus are available. The Econoburn™ is compatible with radiant floor, forced air or traditional hot water boiler heating systems. Accessories to heat leisure products such as swimming pools and hot tubs are also available. The Econoburn™ can be installed as the primary boiler or easily integrated with existing heating appliances for automatic backup use. Dealer and customer support provides pre-purchase consultations on appropriate boiler sizing, system integration, accessory applications and other specialized design requirements the company's website.



### **Jet-Set™** Clears Grease Clogs Fast.

The J-1450 electric water jet, a compact and portable drain cleaning machine, uses high pressure water to clear drain lines clogged with grease, sand and ice.

- Clears 1-1/2" to 4" lines of grease, sand and ice.
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- Vibrapulse® helps the hose around tight bends.
- Slide-out handle makes it easier to roll to the job.
- Easily removable hose reel to make machine more compact.



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or visit [www.drainbrain.com](http://www.drainbrain.com).

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### **Hot-Rodder™** The Muscle Machine

The Hot-Rodder™ sectional drain cleaner blends power and maneuverability for rapid removal of clogs in large lines and long runs.

- Rugged 3/4 hp motor spins 10' or 15' x 1-1/4" cable sections at 715 rpm.
- Clears heavy stoppages in 3" to 10" diameter lines up to 200 feet away.
- Big chrome plated handle folds over in seconds; large 10" wheels make it easy to move to and from the job.
- The high-density plastic motor cover is so tough it can stand up to sledge hammer blows.



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or visit [www.drainbrain.com](http://www.drainbrain.com).

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### **AutoCut™** Copper Tubing Cutter

A great tool to have when you don't have the swing room to use a conventional tubing cutter. You can cut copper tubing with less than one inch of clearance.



- Just snap it on the tube, close the gate and turn – no knobs to twist.
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- AutoCut has long lasting hardened steel cutting wheels.
- Ratchet turning handle available for extra turning power in tight spaces.
- Available in 1/2", 3/4" and 1" sizes.

Call 800-245-6200 or visit  
[www.drainbrain.com](http://www.drainbrain.com).

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### **Power-Vee™** Works Great in Tight Spots!



When working under sinks or in other awkward places, the Power-Vee is like having a third hand. Just squeeze the feed lever and three offset rollers in the automatic feed grip the cable and drive it into the line.

- Handles 1/4" through 3/8" cables without any need for adjustment.
- Feeds and retrieves 3/8" cables at 16 feet per minute.
- Dyna-Thrust™ bearing system reduces motor wear and extends the life of the tool.
- Quick-change cable cartridges make cable changing clean and easy.
- Flexicore® wire rope center cables have unequalled strength and the right amount of flexibility.

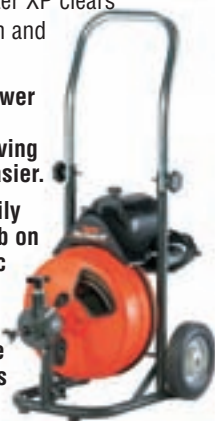
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### **Mini-Rooter XP™** Clears Clogged Drains From Rooftop to Basement.

With 75 ft. of 3/8" cable and a 1/3 hp motor, the Mini-Rooter XP clears clogged kitchen, bath and laundry drains.

- Variable speed power cable feed makes feeding and retrieving the cable much easier.
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- Roll bar protects motor when moving machine up and down stairs.
- Free floating inner drum cage helps prevent cable tangling.



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## **Gen-Ear LE™** WATER LEAK LOCATION SYSTEM **Sound Investment**

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**N**ow, a smaller investment gets you a better method for tracking down water leaks. The Gen-Ear LE is a simplified, more economical tool with stronger sound amplification than other systems. Use it to pinpoint water leaks in residential and commercial water lines, whether they are under concrete slabs, in walls, swimming pools or hot tubs.

The compact amplifier with mute button fits in the palm of your hand. It provides noise free amplification with built-in preset audio filters, so you don't have to guess what settings to use.

And the high performance David Clark® headphones with noise cancellation features block out interference from ambient noise.

Hard to find leaks get a boost with the Sound Amplification Manifold. It helps amplify hard to hear leaks by using air to pressurize the water line, making leak location easier. The Gen-Ear LE will save you a lot of guesswork and unnecessary digging. And that saves you a lot of money.

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**Burnham Hydronics**  
U.S. Boiler Co., Inc.  
PO Box 3079  
Lancaster, PA 17604  
[www.burnham.com](http://www.burnham.com)

**Brief history:** Burnham has been in the boiler business since 1873 and is the industry leading manufacturer in hydronic heating equipment, with the most complete line of oil and gas fired boilers utilizing cast iron, carbon steel, stainless steel, and cast aluminum heat exchangers. Burnham is a very vertically integrated operation, including its own foundry in Zanesville, Ohio that produces all of Burnham's cast iron, which is 100% made in America.

**What's new:** The Alpine boiler is part of Burnham's newest lineup of condensing boilers with efficiencies of 95%. Along with our cast aluminum Freedom and CHG condensing boilers, Burnham is the only boiler company to offer both stainless steel and cast aluminum heat exchangers with all three venting options: the popular PVC venting, the European standard polypropylene concentric venting, and AL29-4C stainless steel venting.

**Notables:** Burnham Hydronics has introduced more new, high efficiency products over the last several years than any other company at any time in the history of hydronic heating: from new ENERGY STAR® certified, gas-fired residential boilers to high efficiency oil-fired boilers, including advanced-design, 3-pass, cast iron boilers, along with the industry's only, 3-pass, oil-fired, steam boiler, the only American-made commercial, 3-pass boiler with 89% efficiencies and units up to 3.5 million Btus.

Taken together, Burnham's expansive lineup of hydronic heating products boasts the highest average efficiency, exceeding 85%, with maximum efficiencies over 95%.

And it doesn't stop there. Burnham now offers the broadest line of condensing boilers available from any manufacturer anywhere. Only Burnham provides all the condensing options, cast aluminum heat exchangers, stainless steel heat exchangers, and three venting options, including the popular PVC piping system, the European standard Polypropylene Concentric Venting and AL29-4C stainless steel two-pipe systems.

**Quotables:** "Our customers, both distribution and installing contractors and dealers, are the strength of our line. We make every effort to provide them with the right tools and extensive training so that they can effectively, sell, install and service our products," said Ken Niemi, Burnham Hydronics.



*The Alpine boiler is a fully modulating condensing gas boiler with a 95% AFUE. From its high efficiency stainless steel heat exchanger designed for maximum heat transfer, to its fully modulating firing rates, the new Alpine truly is the peak of efficiency and reliability.*

**Marathon International**  
Exclusive Baxi distributor in North America  
1815 Sismet Road  
Mississauga, Ontario L4W 1P9  
[www.wallhungboilers.com](http://www.wallhungboilers.com)

**Brief history:** Marathon International has been offering the Baxi hydronic heating line-up throughout North America since 1998. Baxi (since 1866) has been making wall-hung boilers for four decades, and is the second largest manufacturer of wall-hung boilers globally, producing and factory-testing 4,000 units a day at its Bassano, Italy plant. The Baxi range in N.A. includes modulating, condensing (up to 98% EE) and modulating, near-condensing (86% EE), with fully packaged residential models available in either combi CH&DHW, or heating-only; maximum output ranges from 105M to 350 M Btu/hr; up to 12 Baxi commercial-sized boilers may be cascaded to generate up to 4 million Btu/hr. Baxi is also a leader in renewable energy solutions, including solar water heating and micro combined heat and power technology.

**What's new:** Working with its mostly exclusive-territory Baxi distributor network, Marathon International has stepped up its installation training and certification efforts to help Baxi contractors achieve flawless installations — first time, every time. In addition to regional classroom training coordinated by Marathon/Baxi reps and distributors, the company has an impressive Baxi learning series of CD-ROMs, covering the Baxi Luna HT modulating, condensing, Baxi Luna modulating and the new Baxi Luna 3 Comfort products. Each CD-ROM offers a direct online Baxi certification test opportunity. Marathon rewards Baxi-certified contractors for their commitment to ongoing Baxi learning receive a long list of benefits, including: advanced technical training and Baxi dealer networking opportunities; sizing and technical drawings support; qualified Baxi leads; personal use credits; extra months added to one-year parts warranty; the ability to offer customers an optional 10-year extended parts and labor warranty; first look at Baxi product innovations; customized sales support co-op ad materials; and 24/7 access to comprehensive technical and sales support information via password-protected section of [www.wallhungboilers.com](http://www.wallhungboilers.com).

**Notables:** Marathon Intl. also announced that it has become the exclusive North America distributor of the proven Sentinel chemical water treatment products.



*The high efficiency, low-NOx Baxi Luna HT 380 modulating, condensing is an ideal choice for single residence and multi-family residential applications, from 600 to 4,000 square feet. Up to 98% efficient in a low temperature application, like radiant in-floor, the Luna HT 380 model is a combination central heating and domestic hot water boiler that, with the Baxi coaxial pipe, is rated zero clearance to combustibles and approved for closet installation. The boiler has a closed loop, and the separate domestic hot water loop features a plate-to-plate stainless steel heat exchanger producing 3.9 gpm at an 80-degree temperature rise.*



**Viessmann Manufacturing Company (U.S.) Inc.**  
45 Access Road  
Warwick, RI 02886  
[www.viessmann.com](http://www.viessmann.com)

**Brief history:** The Viessmann Group is one of the world's leading manufacturers of heating and renewable energy systems. Family-owned since 1917, Dr. Martin Viessmann leads the company in its third generation. The group today employs over 8,000 employees worldwide and for three generations has been providing comfortable, efficient and environmentally-responsible heating solutions, tailored to the needs of the market. With ongoing research and development and a focus on product innovation, Viessmann has pioneered technologies that have continuously set standards and made the company into a technological innovator and pacesetter of the entire industry.

**What's new:** Viessmann is expanding its training capacity at its U.S. headquarters in Warwick, R.I. This year Viessmann will offer training to 1,600 professionals, up from 1,200 last year. From a product standpoint, the company will announce some new features in the coming months. The new Vitodens 100, for example, is getting a little bigger in size to approximately 120,000 Btus of input, up from 100,000, and it will burn LP or natural gas and be rated for use up to 10,000 ft. A new Vitodens 200 will be introduced in the early third quarter with some

new and exciting features and expanded size range.

Viessmann's wall-mounted Vitodens 200 modulated condensing boiler offers superb efficiency and reliability. The Inox-Radial heat exchanger surface of high-alloy stainless steel and the modulating MatriX-compact gas burner make for maximum energy usage with minimum emissions and small space requirements.

This high-tech boiler offers efficiency of up to 98% with full modulation and 95.2% AFUE on all models and the ultimate in heat exchanger reliability. The boiler's compact and lightweight design with multiple venting options means space limitations are not an issue. The unit is quieter than most refrigerators and can be installed in living areas.

**Notables:** Viessmann has always been, and will continue to be, dedicated to providing products to market via high quality professional distribution. It remains committed to continued development of value-added, two-step distribution and high quality training of its wholesalers and their contractors to assure effective installations for the end user. Structurally, Viessmann is committed to being proactive in support of its product. This commitment begins with upfront training, and it has a staff of professionals engaged that supports the product anywhere it's installed.

Viessmann is a vertically integrated company. For example, in the upcoming release of the Vitodens 200, it continues to manufacture the boiler, heat exchanger, control system and combustion system, giving Viessmann a unique position as a single source supplier. No other manufacturer provides that level of single-source knowledge and responsibility.

**Quotables:** "Our focus is to provide industry-leading innovation, features and benefits that add value for our wholesalers, contractors and home or building owners. We design flexibility into our products through the application of various Viessmann controls. This means that the wholesaler can have one boiler that offers several different functions and levels of sophistication, allowing them to easily provide customized solutions for the end user," said Rich Corcoran, general manager, Viessmann Mfg. Co.

*The factory-calibrated, self-adjusting burner requires no adjusting in the field. A built-in programmable indoor/outdoor control system on each boiler provides efficient and personalized control for space heating and domestic hot water heating needs. Models configurable up to four; ideal for light commercial apps.*



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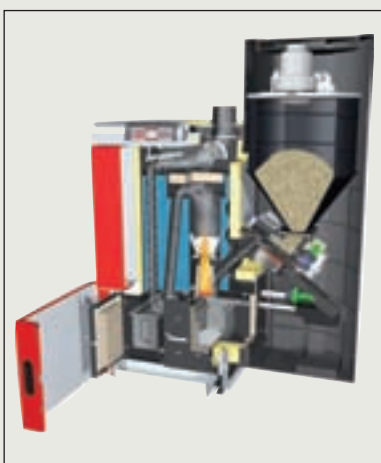
**BioHeatUSA**  
P.O. Box 285  
Lyme, NH 03768  
[www.bioheatusa.com](http://www.bioheatusa.com)

**Brief history:** BioHeatUSA, formerly TARM USA, is a third-generation, family-owned business that has pioneered the sales and service of European residential central heating equipment to North America for more than 30 years. BioHeatUSA's primary objective is to offer European innovation in home heating solutions, paired with a significant commitment to consumer education and environmental awareness. Exclusive partnerships with ISO 9001 certified manufacturers allow BioHeatUSA to offer products with operational reliability, exceptional efficiency, and to promote the clean burning of carbon-cycle biomass that is critical to the lowering of net greenhouse gas emissions.

**What's new:** Made by Froling of Austria, the Lambda controlled wood boiler and the Vesta award-winning P4 pellet boiler have been introduced within the last six months. Froling boilers only are sold through specially-trained dealers.

**Notables:** BioHeatUSA has focused its efforts on dealers since the fall of 2007. It believes that during up, down or flat business periods, a network of trained sellers, installers and service people is necessary to properly serve the customer. When customers are well served, they will help build business. Energy should be a major focus in the plumbing and heating business — now and in the future.

BioHeatUSA offers generous discounts with a retroactive discount program. This discount program enables the beginning dealer to start with one unit and build from that point where at each discount quantity break, the dealer receives a retroactive discount on earlier purchases made at the smaller discount. BioHeatUSA also offers a "dealers-only" website, where all materials are posted; and there is a dealer bulletin board.



*The P4 pellet boiler features a patented multiple-pass heat exchanger for variable boiler operation. Boiler can operate with a supply temperature as low as 104 degrees F. Boiler can reach efficiencies of more than 95% The 3-pass design of the heat exchanger ensures exceptionally efficient ash separation. Automatic sliding grate enables almost maintenance free operation. Automatic ash removal to two ash drawers for easy transport and disposal.*

**Ray, a division of Mestek, Inc.**  
260 North Elm Street  
Westfield, MA 01085  
Tel (413) 568-9571  
[www.knowsomethingmore.com](http://www.knowsomethingmore.com)

**Brief history:** Mestek, Inc., is a leader in commercial and residential HVAC technologies, and metal forming equipment in the United States and Canada. The company is headquartered in Westfield, Mass. For more information, visit [www.mestek.com](http://www.mestek.com).

**What's new:** Mestek has introduced its newest breakthrough in residential hydronic heating appliances: Ray™, the first high-efficiency, low mass, fully condensing cast iron boiler engineered for the American home. Ray is a gas fired system, running on either propane or natural gas with no conversion kit required, delivering 40,000 to 199,000 Btuh at 92.7% AFUE. The combination of high efficiency and clean-burning fuels make it among the most "green" residential heating options available.

Ray's cast iron sections have a patented design specifically engineered for condensing performance. They provide the well-established durability and long-cycle thermal retention of cast iron with the high-efficiency performance typically associated with less resilient tube-formed exchangers. In addition, Ray's down-fired design requires less energy for operation while allowing less opportunity for condensate corrosion. This proprietary technology also is utilized in another proven Mestek-manufactured boiler line, the KN-Series, which has been demonstrated to excel in the most demanding commercial applications. Ray is completely cast, machined and assembled in one integrated facility, so that every component works as a total package, manufactured without compromise in quality or precision.

Mestek's philosophy is to build its relationship with contractors, engineers and wholesalers through product training and education. The new Mestek Institute has been established to formalize our training programs. For info on boiler training, [www.MestekInstitute.com](http://www.MestekInstitute.com).

*Ray features full modulation with a 5:1 turn-down ratio utilizing SmartCycle™ technology, an on-board digital monitoring and control device that learns the most fuel-efficient cycling pattern/firing rate based on actual usage once installed — every unit adapts to its unique load demands. This consistent heat delivery is highly suited to radiant heat systems, including snow-melt systems.*



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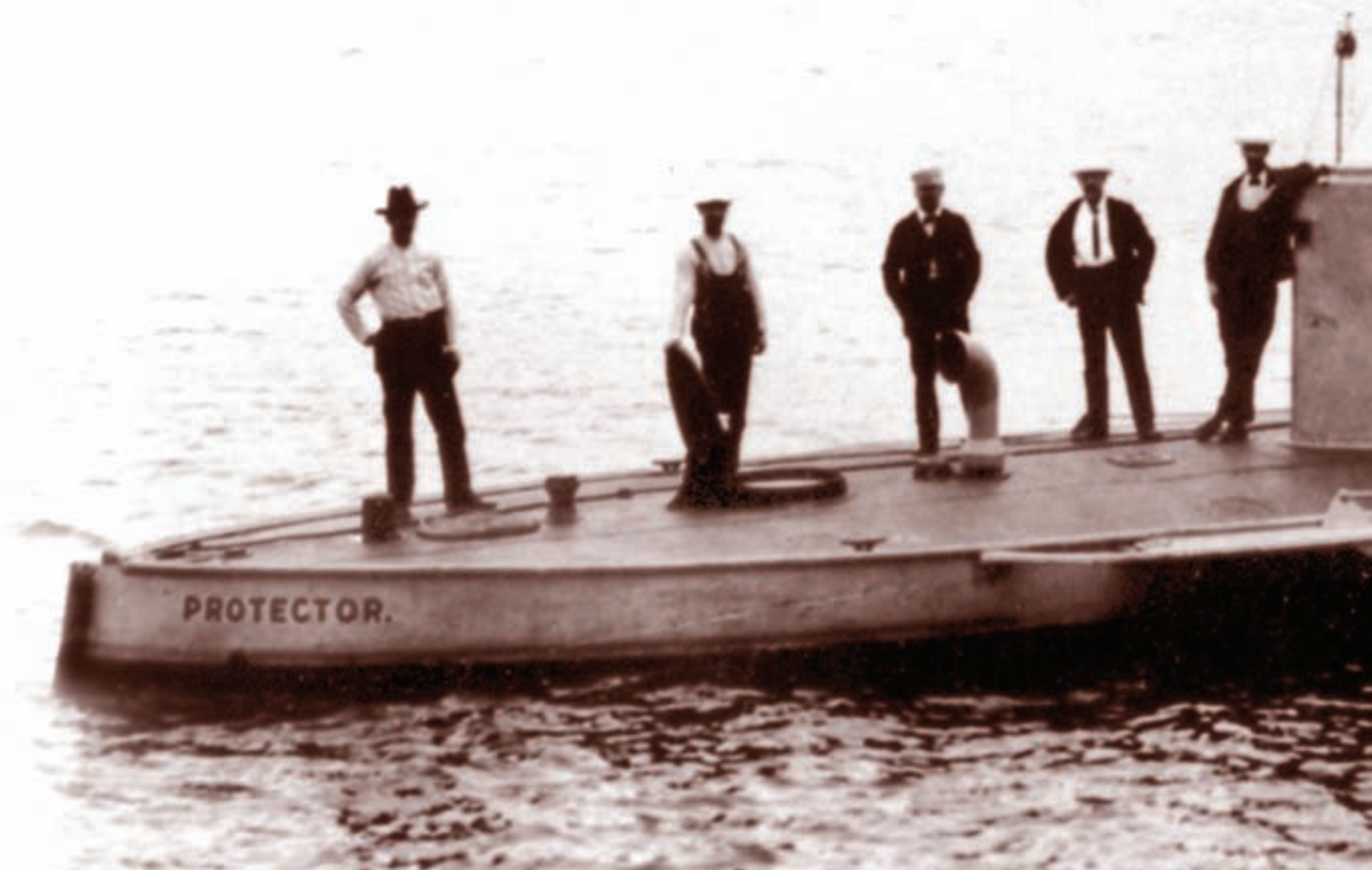
The Stanley® VIRAX® M20+ cordless pressing tool has quick-change inserts that let you go from copper to PEX with ease. It also has 180° head rotation, a four-second cycle time, the lightest weight in its class and an ironclad, full lifetime warranty. It's enough to restore your faith in engineers. At least, tool engineers. For a free on-site demo and complete warranty details, call +1 800-827-7558 or visit [www.stanleyvirax.com](http://www.stanleyvirax.com).

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We put more into every product we make – more design, more experience, more innovation and cutting edge manufacturing technologies. Combined with a relentless quality control program that’s every bit as unforgiving as A.W.’s ocean.

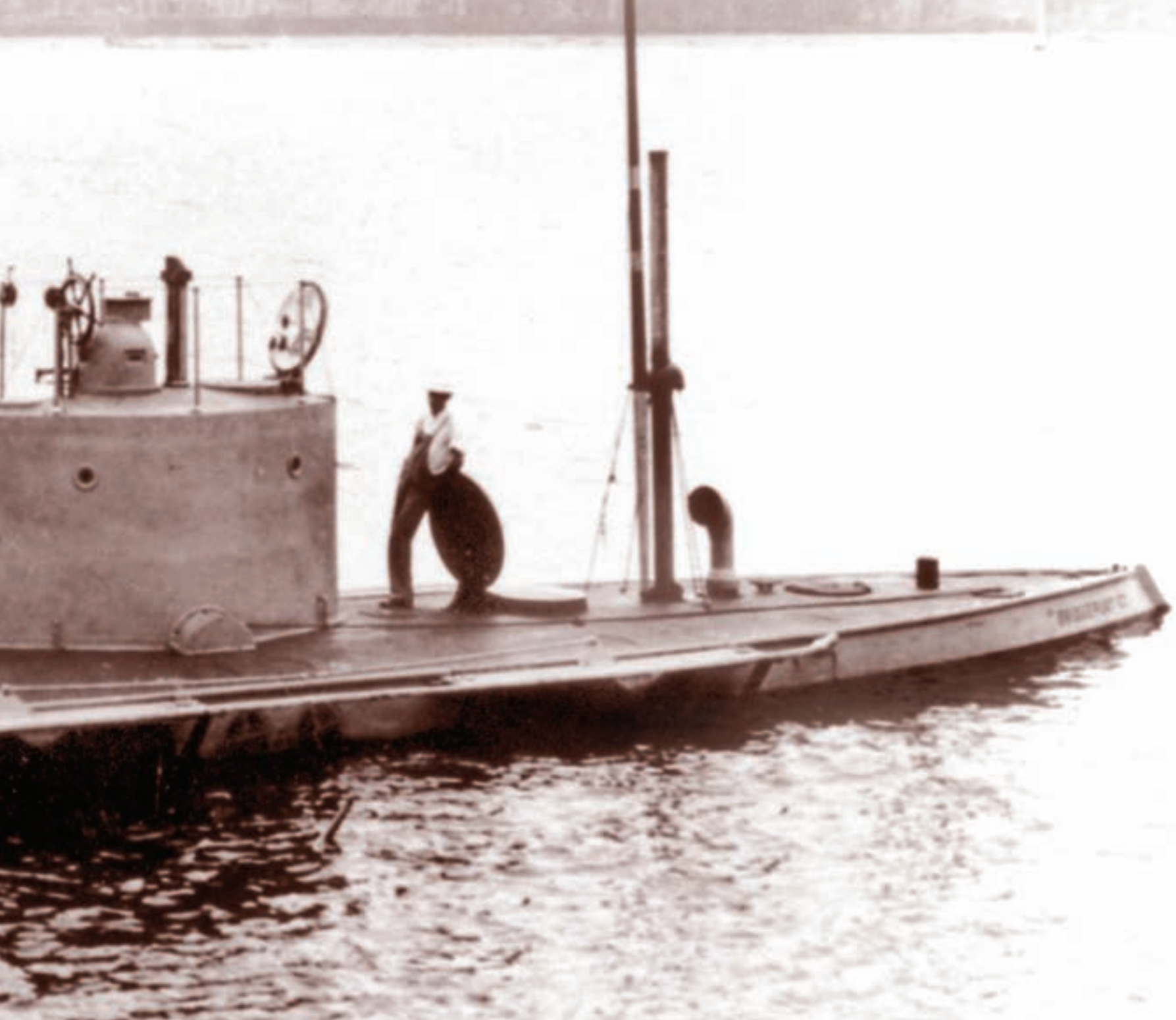
In short, we don’t just build it, we overbuild it. The result is industry-leading products like Heatguard®, our thermostatic



*Heatguard®*



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# Dow donates heat transfer fluids nature center for geothermal heating

BY KEVIN CONNOR,  
contributing writer

You do not need geysers like the one at “Old Faithful” or steaming streams of hot water heated by a nearby volcano to take advantage of geothermal heating and cooling. Even in a chilly climate like the

ground in any backyard or building site; it is a potential source of heating and cooling. While the air temperature varies all year long as the seasons change, the temperature of the earth, from four to six feet down, stays pretty constant year-round. This is because the earth absorbs 47% of all the heat energy that reaches it from the sun. A geothermal heat pump system circulates inhibited propylene glycol, like DOWFROST fluid, through loops of pipes buried underground. The fluid filled pipes take advantage of the constant underground temperatures by transferring heat from inside a dwelling for the cooler temperatures found underground, or swapping out cold temperatures for warmer ones.

Geothermal heat pump systems are designed to deliver energy efficiency savings, compared with traditional heating and cooling systems, and help save costs on utility bills.

Propylene Glycol based products like DOWFROST are ideally suited for applications like the Chippewa Nature Center. The very low toxicity of propylene glycol makes DOWFROST an attractive heat transfer fluid for applications where accidental leakage to ground water is possible. In addition, mixtures of propylene glycol and water provide good heat transfer performance and have excellent freeze protection properties. Properly formulated products like DOWFROST also contain corrosion inhibitors which help provide effective, long-term protection against costly corrosion of heat transfer system components. DOWFROST inhibited propylene glycol is not flammable and when mixed with water within a recommended range of 25% to 60% by volume of glycol it has no mea-

surable flash point. Conversely ethanol (and other alcohol) based products sometimes used for geothermal systems are flammable and can represent a serious fire risk even when mixed with water.

## Value proposition

Having been in the heat transfer fluid industry for over 75 years, people from Dow know there is more to business than having a reliable product that can perform in extreme conditions. Dow fluids are also supported by reliable technical service. Customers depend on Dow for trusted technical support whether a system is being designed, built, or in need of routine maintenance.

## The heat transfer cycle

During the heating cycle, the heat transfer fluid circulates through the loop extracting heat from the ground. The heat energy is transferred to the geothermal unit and this reduces the amount of heat that must be generated and delivered through normal duct systems or radiant heating sources.

## Geothermal loops

The loops of tubing that go underground are the heart of the geothermal heat transfer system. A drilling rig bores holes in the ground and a coil of high density plastic pipe is inserted into the ground. The holes are backfilled and installed with the rest of the HVAC equipment. By using heat naturally provided by the planet, the system reduces dependence on fossil fuels and greenhouse gas emissions. And while the initial expense of a heat pump for a geothermal system is more than what a traditional system would cost, owners can expect that the money saved on energy will pay back the added investment. ■

The Chippewa Nature Center is a private nature center, open to the public year-round. Its mission is to help people enjoy and learn about the environment, as well as to inspire and teach them how to be responsible stewards of the land, water and air.

Chippewa Nature Center is one of the largest private non-profit places of its kind in the United States. The staff offers hundreds of programs each year, from canoe trips down local rivers to nature hikes throughout Michigan to craft programs for kids. Programs include dozens of options for school and scout group leaders, as well as a summer Nature Day Camp for kids.

Through the years, CNC has grown from its original 198 acres parcel and staff of dedicated volunteers in 1966 to include over 1,200 acres, 40 staff members and hundreds of volunteers. Over 50,000 people visit CNC every year, including 20,000 school kids and 700 Nature Day Campers.

With annual sales of \$54 billion and 46,000 employees worldwide, Dow is a diversified chemical company that combines the power of science and technology with the “Human Element” to constantly improve what is essential to human progress. The Company delivers a broad range of products and services to customers in around 160 coun-



You do not need geysers like the one at “Old Faithful” or steaming streams of hot water heated by a nearby volcano to take advantage of geothermal heating. Image courtesy of Dow

one in Michigan, the Chippewa Nature Center (CNC) will use chemistry from The Dow Chemical Company Performance Fluids Business to geothermally heat and cool their newly constructed building in Midland, Michigan. The Dow Chemical Company donated 165 gallons of DOWFROST™ heat transfer fluids for the geothermal “heat pump” system, installed by Answer Heating and Cooling of Freeland, Mich.

## How geothermal heat pump systems work

The ground under the new building at Chippewa Nature Center is like the

ground in any backyard or building site; it is a potential source of heating and cooling. While the air temperature varies all year long as the seasons change, the temperature of the earth, from four to six feet down, stays pretty constant year-round. This is because the earth absorbs 47% of all the heat energy that reaches it from the sun. A geothermal heat pump system circulates inhibited propylene glycol, like DOWFROST fluid, through loops of pipes buried underground. The fluid filled pipes take advantage of the constant underground temperatures by transferring heat from inside a dwelling for the cooler temperatures found underground, or swapping out cold temperatures for warmer ones.



Similar to the image above, the loops of tubing that go underground are the heart of the nature center's geothermal heat transfer system.

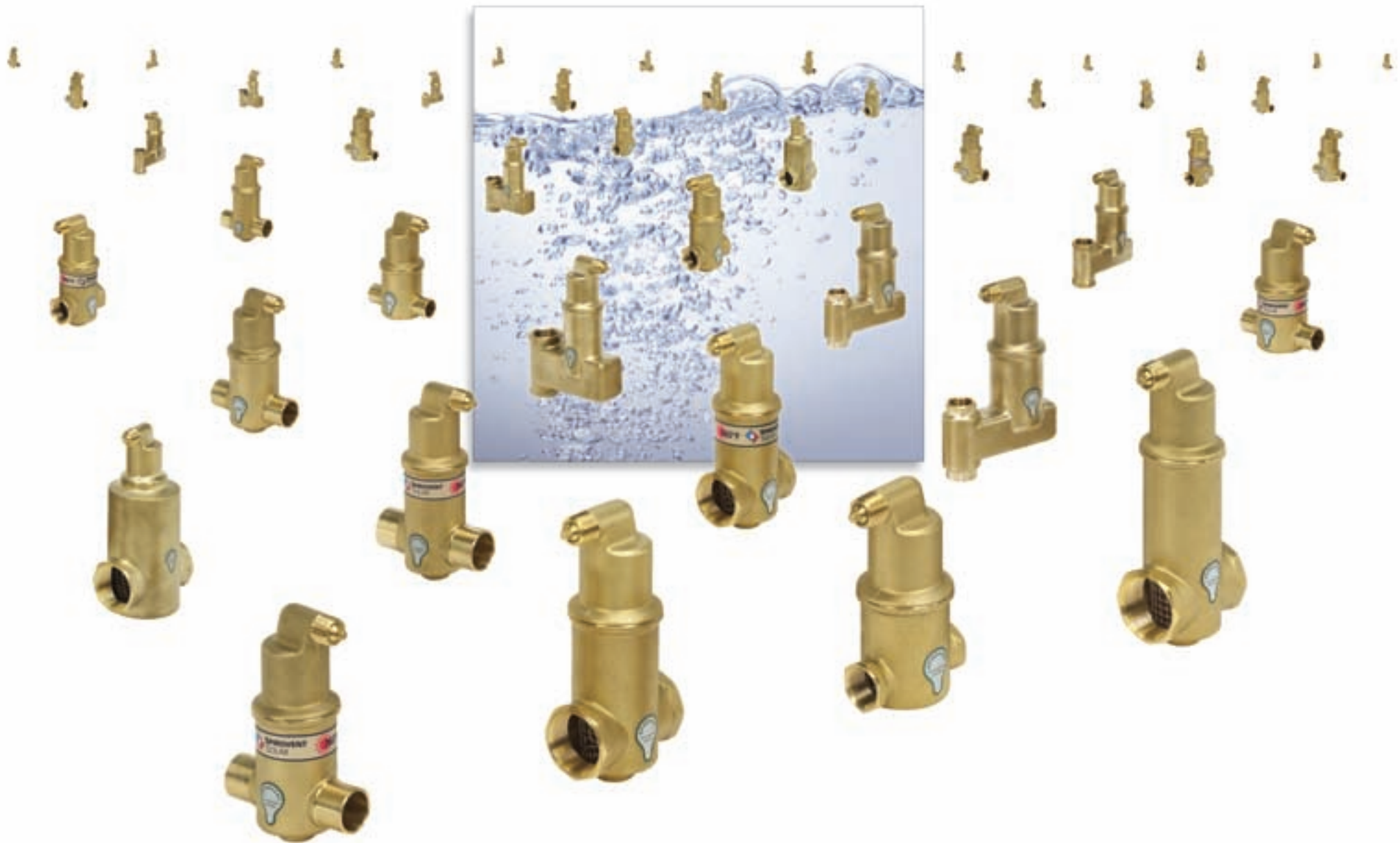
Image courtesy of Saint Cloud Heat Fireplace and Spa in Saint Cloud, Minn.

tries, connecting chemistry and innovation with the principles of sustainability to help provide everything from fresh water, food and pharmaceuticals to paints, packaging and personal care products. More information about Dow can be found at [www.dow.com](http://www.dow.com).

Kevin Connor is a Senior Development Specialist at The Dow Chemical Company and provides technical support for all DOWTHERM and DOWFROST inhibited glycol heat transfer fluid products. Kevin has worked for Dow for the past 24 years and is currently a member of ASHRAE.



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# The German diaries

*A first-hand account of traveling with Viega in Germany*

BY JOHN MESENBRINK,  
chief editor

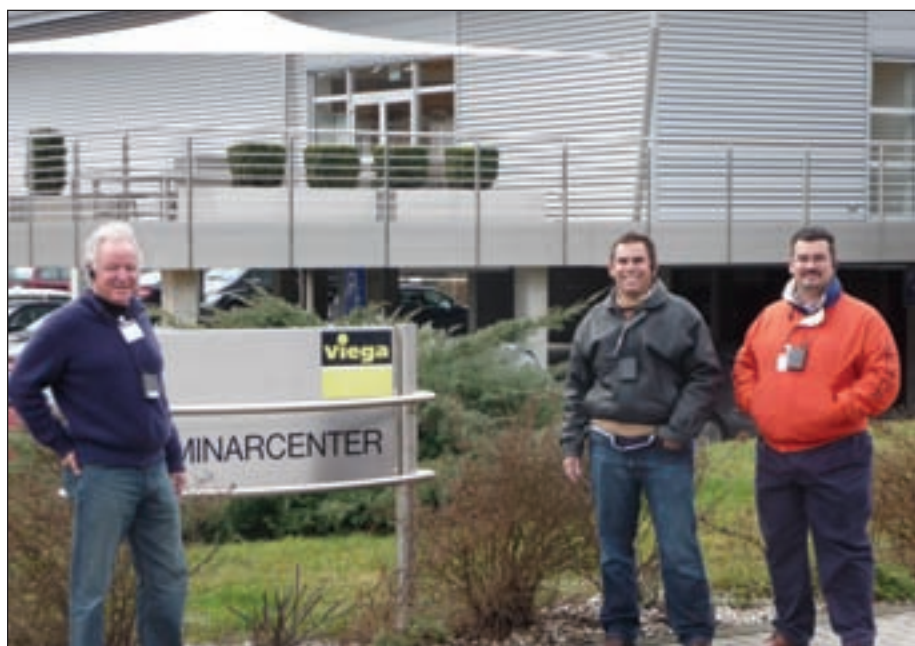
German coffee is a bit strong and it takes a little getting used to, but it's 5:30 in the morning, and after an eight-hour flight, I need a pick-me-up. It is the beginning of a week-long trip to

adventure. During our early morning conversation, I learn that Dave loves to ride anything with wheels. He rides motorcycles to motorbikes, and he travels internationally any chance he gets. If you run into him, ask him about riding dirt bikes across the Mexican countryside. Cool stuff.

Now we wait until our entire posse

more guys had arrived. When I look over, one of the guys extends his hand for a shake and displays an infectious smile that only makes you want to smile with him. This is Frankie Jaen, Viega product manager for Infiva, an industrial distributor of products for total flow management located in Puerto Rico. He is by far the most outgoing person on the trip, a social entrepreneur, to say the least. Frankie is accompanied by his good friend, Jesus Herrero, ElectroMec Corp., a soft-spoken, "muy inteligente" engineer from Puerto Rico. I begin calling Jesus "Rico Suave" after I notice him asking the locals for German translation advice. He aspires to be the smooth talker.

Next to the group is a gentleman who introduces himself by the name of Mock. Now that's an interesting name, I thought. Never heard that one before. But before I knew it, I figured it was just his Boston accent. His name is Mark Perrone, purchasing manager, of JC Cannistraro LLC. A huge Boston sports fan, he is one of the nicest, unassuming guys, who we later found out was celebrating his 50th birthday on the trip. ("I did not tell anyone, but Friday was my 50th birthday and I couldn't have planned a better party with a better group of people. Thank you! If you are ever passing through Beantown, you all



From l to r: Jose Merino, Infiva; Frankie Jaen, Infiva; and Jesus Herrero, ElectroMec Corp., complete the Viega manufacturing & training tour.

Germany, thanks to the generosity of Viega, an innovative global leader in plumbing and heating technology. (The powers that be had invited me to accompany 12-15 contractors, wholesalers, engineers and Viega employees to visit two Viega manufacturing and logistics facilities, attend ISH Messe Frankfurt and get a taste of the German culture. And that we did!)

**Tuesday, March 10, 2009** — At 5:30 a.m., I find myself navigating through the labyrinth of what is the Frankfurt airport. I am one of the first to arrive at our meeting point and I meet up with our Viega contact, Dave Garlow, vice president of sales for Viega North America. A very interesting guy, Dave reminds me of, well, me when I was single — never backing down from an

meets us at the airport, which spans the next three hours. One by one each personality makes his presence. Sean McGinnis, junior vice president, J.J.M. Plumbing Co. Inc., Glendora, New Jersey — near Philly, actually — introduces himself. Sean is the most down-to-earth, happy-go-lucky guy. After our tour of Germany, Sean is off to do some snowboarding at Innsbruck in Austria. Again, cool stuff.

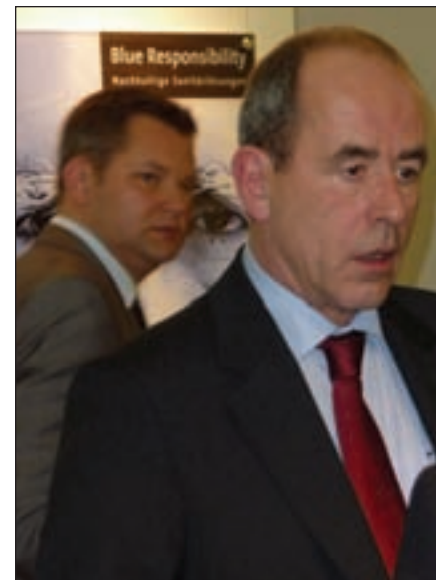
Next to the meeting point was Dan Schmierer, president of Viega North America. Normally I initially might get nervous sitting across the table from the "head honcho" of a major company, but Dan has an uncanny way of making everyone feel comfortable. I guess that's because he likes to talk and he engages you in conversation. Running Viega North America for nearly 10 years, Dan should be proud of the fact that he is a main facilitator of the opening of a new 439,000,000-sq.-ft. manufacturing plant in McPherson, Kan.

One of the bonuses of the trip is meeting people from across the country, and across borders. We have people on the trip who speak English, Spanish, French and, of course, German.

Deep into my conversation with Mr. Schmierer, unbeknownst to me, two



Frankie Jaen enjoys a little down time in the middle of the Autobahn!



Heinz-Bernd Viegner, foreground, part owner of Viega, was kind enough to say hello at ISH Frankfurt.

Mark from Boston's accent. You instantly can see a bond forming between the two. Mark Foster, on the other hand, is one of these guys for which the world doesn't stop. He is the consummate professional in everything that he does. It seems he is juggling work from a half a world away, taking in all the sites, nonetheless. His avidness for photography is evident, as he shares all his pics with the group. I think the trip is good for Mark; he can relax and enjoy everything even while still conducting important business.

Joining us on the trip is Mark Evans, director of sales — Viega Canada out of Alberta. With three Mark's on the trip, everyone calls him "Big Mark." But



The ISH Frankfurt Show had it all! The Viega booth captures it all: size, scale and attendance.

have a friend up here," Mark said later.) Happy Birthday!

Following Mark are two guys from Florida, Dick Smith, Nagelbush Mechanical Inc., Fort Lauderdale, and Mark Foster, regional vice president, plumbing/HVAC, HD Supply, Orlando. Dick, to me, seems like the patriarch of the bunch, and he loves to mimic

nothing could be bigger than his heart of gold. When he returns from the Germany trip, he is going to surprise his daughter with a trip to Hawaii with his wife. Again, cool stuff.

The last two to arrive are flying in from Montreal. Carl Beaudoin, director of operations, Groupe Beaudoin, (Turn to Diaries, page 106.)

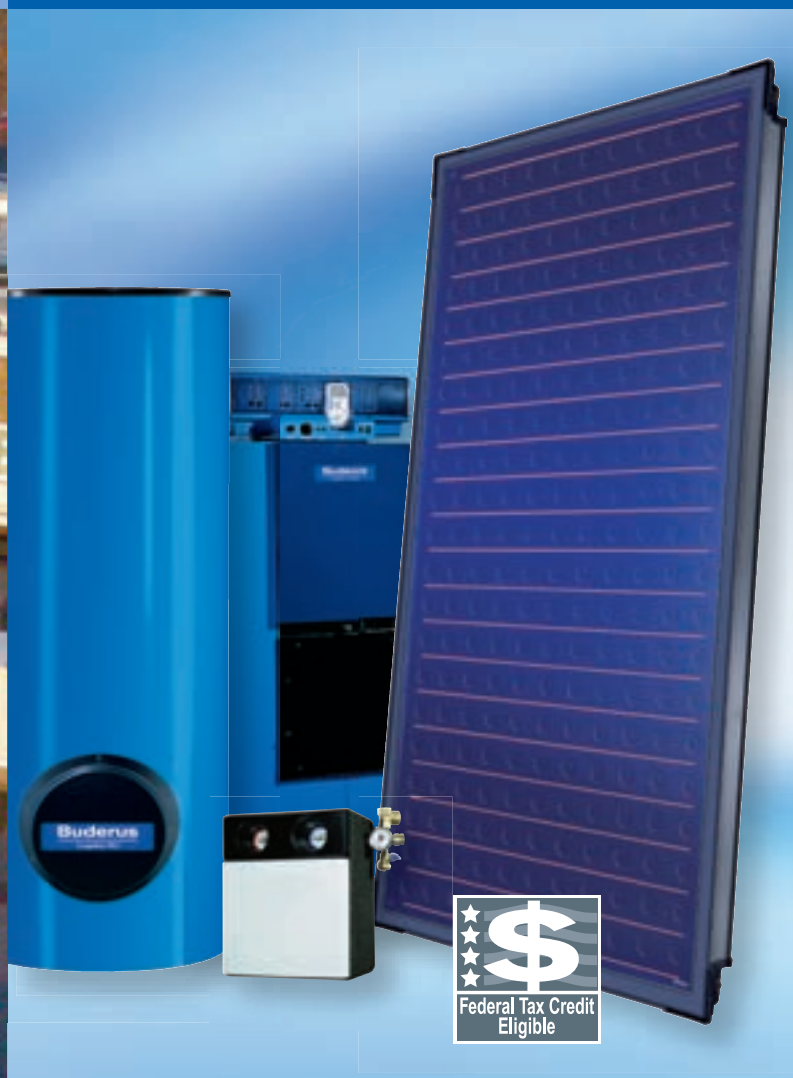


# Riverside Correctional Facility

## Buderus Solar Thermal System

Buderus Solar System Case Study

Philadelphia, Pennsylvania



### The “greening” of a prison facility through the installation of a Buderus solar thermal system

Since December 24, 2008, 800 inmates of Riverside Correctional Facility have been in hot water, but not of their own making. This hot water is made by a Buderus solar thermal system, which is estimated to save the City of Philadelphia \$1.1 million and prevent one million pounds of carbon emissions over the estimated 25-year life of the system.

Unveiled on December 4, 2008 by Philadelphia Mayor Michael A. Nutter, this is the first solar thermal system installed in a large urban jail in the U.S. and is one project towards the Mayor's goal for Philadelphia to become the greenest city in America. The system was paid for with \$400,000 from the prison system's budget (spread over 3 years) with additional funding of \$265,000 from the Mayor's Office of Sustainability. It is expected to completely pay for itself in 8–10 years.

The Riverside Correctional Facility, a multi-building complex, is the central intake for all women sent to jail in Philadelphia. The solar system was installed on one building with an average daily population of 800 that had recurring water heater failures. One project challenge was making the transition to the new system without interrupting the existing hot water service for personal hygiene, laundry, and cleaning. Another challenge was the limited existing boiler room space.

The Buderus solar system replaced 15-year-old direct-fired water heaters with 45 roof-top solar collectors, 15 indirect storage tanks, 2 dual-fuel back-up boilers, and associated controller and pumps. The solar panels transfer their heat to a closed, antifreeze-filled system, with “overheat protection” set to 265°F. The heat is transferred via dual coils to the water in the storage tanks. The back-up boilers provide additional heat, if needed, and are dual-fuel to take advantage of the lowest energy costs.

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### Project Quick Facts

#### Project Partners

- U.S. Facilities, Phila. - Facility Management
- Herman Goldner Company, Phila. - Contractor  
Contact: Jim Childs, 267-346-2987
- J. Lorber Company, Phila. - Distributor  
Contact: Bruce Kershaw, 215-791-2783
- Philadelphia Mayor's Office of Sustainability  
Michael A. Nutter, Mayor

#### Equipment

- 45 Buderus SKS 4.0 Flat Plate Collectors, mounted in 2 rows at a 40° angle facing SSE
- 15 105-gallon Buderus Logalux SM400 Dual Coil Indirect Storage Tanks
- 2 Buderus G515 1 million BTU Dual-Fuel Boilers
- 15 Buderus KS0120 Solar Pump Stations
- Buderus TR0310 U Solar Controller

#### Cost

- \$665,000

#### Savings

- 1st Year: \$54,974
- 8-Year: \$673,295 (based on 20% energy cost increase)
- 10-Year: \$712,863 (based on 10% energy cost increase)
- \$1.1 million over estimated service life of 25 years
- 1 million pounds carbon emissions

#### Project Size

- 1 building, 200,000 ft<sup>2</sup>
- 800 inmates average daily population



## Diaries

(Continued from page 104.)

Quebec City, who, it seems, cherishes his time with the group as much as he does his lone adventures. Accompanying Carl is Stan Katz, president, Rojec Mechanical, Montreal, who with his slicked-back hair and his flashy necklace is quite debonair in his own way, and he is one of the brightest contractors I have met, explicating on any topic. We have great conversations revolving around recruitment of the plumbing trades to design/build contractors.

After three hours of connecting at the airport, it is finally time to embark on our German adventure. The group proceeds to the tour bus, which is waiting in front of the airport. It is rainy and chilly, but I am ready for a nice nap! The tour bus has everything: a restroom, spaciousness, good conversation, and best of all, German beer!

The start of the tour has us heading to Weimar for the night — about a three-hour drive — with a great chance to catch up on some shut-eye. I fall asleep immediately, but about an hour and a half into the bus ride, I awake to the Autobahn in gridlock. An accident a couple of miles ahead has traffic stopped. As I look to the front and center of the bus, here comes that smile, it's Frankie, "John, you want a beer?" he asks. And the next thing you know we are enjoying good German beer, some bockwurst — that Heinz the bus driver had handy — and again, great conversation. Jesus Herrero is in the seat right behind me



A typical German moonlit night at the Castle Burg Schnellenberg.

and we talk about wind energy and wind turbines — which you see a lot of in the German countryside. It is one of those "you had to be there" moments, sitting on the Autobahn parking lot, allowing German travelers in to use the restroom, and cracking jokes along the way.

We finally check into our hotel in Weimar and have a few hours to relax. When I come down to meet for dinner, more people have joined the tour. There is Katrin Wichert, a Viega employee from nearby Attendorn, the woman who makes it all happen. She makes sure we are up on time (and believe me, with some of the nights the group experienced, that wasn't easy). You could say Katrin is our tour coordinator, making sure that we are where we are supposed to be. And it is reassuring to know that there is somebody on the bus who speaks

English well enough for the group to feel comfortable.

Also, I notice a familiar face, Christian Geisthoff, vice president, marketing and business development, Viega North America. Christian, a German native working in Wichita to help head the marketing department, is by far the tallest member of the group. He, too, speaks English well, and it is nice to have him part of the group.

And then there is Jose Merino, president and owner, Infiva, an industrial distributor in Puerto Rico. Jose is a calm and graceful man who seems to have his ducks in a row. You can't help but be gravitated to him, and by the end of the trip he had offered me a job and had me moving to Puerto Rico. Perhaps in another life. He is part of the group, although he never joined us on the bus. You see, he owns a nice little red Porsche and keeps it in Germany for the few times he travels there. Tell him where we are supposed to be and he inputs it into his GPS. Needless to say, he is always miles ahead of us. Traveling the German countryside in a Porsche. How cool is that?

The last one to join the group is Richard Lacey, Canadian Aqualine Sales and manufacturer's rep for Viega in British Columbia and Alberta. He reminds me of Jason Statham of *The Transporter* fame. He loves to have a great time. After the Germany trip, Richard, his son and Dave Garlow are heading to Poland and Eastern Europe for a vacation.

**Wednesday, March 11, 2009** — This is where the meat of the trip begins! With wake-up calls every morning at 7:00 a.m., Katrin has us on the bus by 8:00 a.m. heading to Grossheringen to

visit the Viega manufacturing plant and training center. Can you say impressive? The Viega facility — which manufactures the highly-touted ProPress fittings — are state of the art. The size and scale of Viega's production capabilities and the amount of production automation is impressive. Quality control is imperative, insomuch that every fitting is hand inspected. The plant was immaculate and the process was "structured clean."



A barkeep pours Kölsch beer at one of the brew pub stops in Cologne.

After the facility tour we head toward Attendorn, the headquarters of Viega. The group was treated to a great night. We stop at the Atta Hohle, or Atta Cave, to tour this underground marvel of limestone stalactites. Upon finishing the cave tour, we check into our hotel, the Castle "Burg Schnellenberg," a large, renovated 17th-century castle, which is now a hotel. It still features a Renaissance chapel and a castle museum. If you are ever in Germany and in the area, I highly recommend it! We enjoy a great duck dinner and we proceed to the bar for after-dinner drinks. Closing the bar, let's just say that some questions are better left unasked, and off to bed we went.

**Thursday, March 12, 2009** — Rise and shine! Back on the bus, heading to Ennest to visit another Viega production and logistics facility. Three words kept permeating through me while touring the site: size, scale and automation. "I was surprised at the amount of quality control that they do and that every fitting is hand inspected. The logistics portion of the trip also was impressive. The mechanisms employed for storing product and picking orders for shipping are amazing. The breadth of their assortment and the products they provide is far greater than we have visibility to here in the States," said Mark Foster, HD Supply.

"The robotics impressed me the  
(Turn to Viega Trip, page 108.)



Standing in the heart of the Schloss — the castle in Heidelberg — at sunset, members of the group include, from l to r: Richard Lacey, Carl Beaudoin, Dan Schmierer, Anna (a Heidelberg native), Frankie Jaen, Katrin Wichert, Dave Garlow, Anita Pilka, Stan Katz, Sean McGinnis, Mark Perrone, Jesus Herrero and John Mesenbrink.



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## Viega Trip

(Continued from page 106.)

most! The machinery that made and distributed fittings was cool to see. What I thought was the most interesting in the whole plant was the 70 ft. high by 200 ft. robotic storage facilities that stores more than 10,000 products," said Sean McGinnis, J.J.M. Plumbing, Co., Inc.

"The fact that Viega is a 110-year-old company, the two facilities that were shown to us were ultra-modern in every aspect, and what impressed me the most was the robotics and the cleanliness within the plants, as well as the efficiency in which these plants seem to work," said Stan Katz, Rojec Mechanical.

After the facility tour, it was off to Cologne to do some sightseeing and partake in a German "pub crawl."

The beauty of Germany is that you are steeped in history. Visiting the Cologne Cathedral is awe-inspiring.



A view from the Schloss shows a serene Heidelberg at sunset.

of the city and the people who have lived there," said Mark Foster.

The visit of the Cologne Cathedral was followed by a pub crawl, administered by our personal Cologne tour guide named Uta. The group enjoys many kölsch libations, a local beer

us really knew. Even people in the industry for 30 years were impressed with all that was available to see," said Mark Foster.

"I discovered new processes and technologies at the ISH show: a number of new suppliers who are actually available in North America; how far behind we are in North America; and how we are limited with the number of suppliers and manufacturers as compared to what is available in Europe. They are so much more advanced than we are in energy and technology, in architectural design and look, in manufacturing processes, in quality of product at reasonable cost, etc. North America has got some catching up to do and we've got a long way to go to get to where Europe is now, let alone surpass them," said Stan Katz.

To end a busy day at the ISH Show, we head to a nice Italian restaurant on the outskirts of Frankfurt. We enjoy great food, wine and conversation. What is a good night turns into a great night when we head to Heidelberg, check into our hotel, and the entire group settles in a great pub to burn off some of the day's toils. (By far, that Friday night in Heidelberg was my favorite night. The entire group bonded, I thought, and maybe, just maybe, we became a family that night.)

**Saturday, March 14, 2009** — Today is a day to relax in Heidelberg. A beautiful day! Mark Perrone, Sean McGinnis and me take in the culture of this beautiful area. A walkable city, we have breakfast in the town square, which gives me a chance to shop for souvenirs for my family back home.

Later in the day we tour the Heidelberg Schloss, or castle, around sunset and it is quite beautiful. The view of the city is breathtaking.

Interestingly enough, Heidelberg was not bombed by Allied forces during World War II. Rumor has it the

General Eisenhower had distant relatives from Heidelberg, and because the city was a university town and a cultural mecca, he ordered it not to be destroyed.

The last night together, we all share dinner at a lovely brew pub, with a tour of the brewery. We enjoy each other's company and conversation one last night, as we indulge in the German fare.

Viega went above and beyond for me, and for that I am thankful. I learned a lot about the company, its employees and the German culture. It was really a trip of a lifetime! But don't take my word for it, listen to what others had to say:

"Being my first trip overseas, my experience on the Viega trip was amazing. I felt very fortunate to have been chosen to join this great experience. Everything Viega had in store for us was incredible! The knowledge that they shared with us was very motivating and influential. Also, the



A view of the Schloss from downtown Heidelberg.

other people who accompanied me on the trip not only were great company, but were also full of knowledge and wisdom.

"My favorite moments of the trip were getting to know the Viega employees outside and inside the workplace. Knowing that they actually tried to get to know who we are as people, not just employers, was important. I liked that they asked for my feedback on the pros and cons of their products. And the tours that Viega set up — the castle, the Cologne Cathedral, the exquisite German restaurants — it really opened my eyes to German culture," said Sean McGinnis.

And, from the poignant words of Frankie Jaen, "Viega knows how to take care of its customers." ■

*I would like to thank Dan Schmierer, Dave Garlow and the rest of the Viega employees that made this trip happen for me. I truly appreciate it! I also would like to think that I had two angels watching over me: Adina Barnes and Tricia Musgrave of Viega North America. Thank You!*



Mark Perrone (l) and Dick Smith enjoy a cold one. I'm sure Dick is trying to perfect Mark's Boston accent.

The cathedral is the seat of the Archbishop of Cologne, under the Roman Catholic Church and is renowned as a monument of Christianity and of Gothic architecture. The cathedral was affected by aerial bombing during World War II. It did not collapse, but stood tall while the city lay in ruins. "The Cathedral and Roman ruins are impressive and leave you thinking about the history

specially brewed in Cologne. A relatively early night for me, for tomorrow is a big day — ISH Frankfurt.

**Friday, March 13, 2009** — Heading to ISH! I've heard so much about this show — the size, the scale and the crowds! It did not disappoint. Where in the States can you find 10 separate buildings — three-floors high — with everything to plumbing, kitchen and bath, HVAC, intelligent building automation and energy efficiency — with beer to boot?

"The ISH show is more impactful than the one in the states. It is bigger, the displays and booths are grand in scale, and the show is organized in a way for people to find specific categories they want to explore. There was a large area dedicated to energy technology and I thought that was interesting. I also was amazed at the number of brands I had not heard of before. Plumbing is bigger than any of



Mark Foster checks out a wall of fittings and valves at ISH.



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*Yankees*

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## ★ Phc News product of the month ★

### DISCAL Air Separators



Automatically removing corrosive air and gases from the hydronic circuits of heating and cooling systems is energy wise and thermally efficient. The circulation of fully separated fluid allows a system to function optimally – without noise, corrosion, local overheating or mechanical damage. DISCAL air separators, designed to work at temperatures to 250°F and pressures to 150 psi, lower energy use and expense by eliminating the insulating affect of entrained air and significantly improving heat transfer. Available in brass, 3/4" to 2" sizes, DISCAL air separators continuously and automatically eliminate air, even micro-bubbles, from primary circuits. DISCAL uses an inert, glass-reinforced, nylon fiber mesh (not copper) coalescing material. Resistant to oxygen and acidic boiler water, the material prevents corrosion in the coalescing chamber, and its angular diamond shapes create superior coalescing conditions. **Caleffi.**

Circle 100 on Reader Reply Card



## Adjustable drainage system

Pipe Prop adjustable drainage system elevates and secures all types of pipe for roofing, HVAC, plumbing and electrical applications. The two-part units, with 1 1/2" or 2 1/2" saddles, accommodate varying pipe sizes and take only minutes to mount and secure. Withstands severe weather; the fastest, most cost-effective way to support pipe. **JMB Industries, Inc.**

Circle 107 on Reader Reply Card



## Sump pump discharge hose kit

A new sump pump discharge hose kit for OEM and distributor applications that is ready to install and includes a 24 ft. flexible hose, universal adapter, and hose clamp is introduced. The Flexaust Sump Pump Hose Discharge Kit is supplied complete with a 1 1/4" or 1 1/2" I.D. by 24 ft. flexible polyethylene drain tubing, a universal male thread hose insert with barbed adapter for a tight seal, and a hose clamp. Ready for installation, this kit is designed to fit all sump pumps. **Flexaust.**

Circle 104 on Reader Reply Card

## Commercial water heater

With inputs up to 500,000 Btu/hr, 96 percent thermal efficiency and storage up to 125 gallons, **SHIELD** has everything 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. **Lochinvar Corp.**

Circle 105 on Reader Reply Card

## Vertical turbine pumps

Available in 30 models and 11 five-foot column assemblies, new VT Series short set vertical turbine pumps are quiet in operation, easy to install and come with proven reliability. They come standard with GE high efficiency induction-type motors. All VT Series pumps are equipped with ductile iron discharge heads and 250 psi stuffing box, 416 stainless steel shafting and couplings, stainless steel impellers and epoxy lined, cast iron intermediate bowls. The pump's high profile discharge head allows a two-piece head shaft. Dual 1/4" air release ports are located at the top of the discharge flange. **Taco.**

Circle 106 on Reader Reply Card

## Grease duct selection guide

This guide contains information for the proper selection of grease ducts for various applications: specific information on installed space requirements, construction, clearances, code acceptance, applicable listings, installed costs and warranties. Compares several types of grease ducts including field fabricated carbon steel duct with flexible wrap systems applied, and factory-built G Series™ grease duct. **Metal-Fab, Inc.**

Circle 108 on Reader Reply Card

## Line 5 Faucet

Electronic faucet features self-adjusting sensors. The body is made of chromed brass. The faucet comes standard with a 4" deck plate, flexible supply line, 0.5 gpm vandal resistant nozzle, mounting hardware, plug-in transformer and 4 AA batteries. The faucet can be powered by either the batteries or the transformer or the batteries can function as a back-up supply in case there's a power failure. The faucet is ideal for retrofit applications. **Intersan Mfg.**

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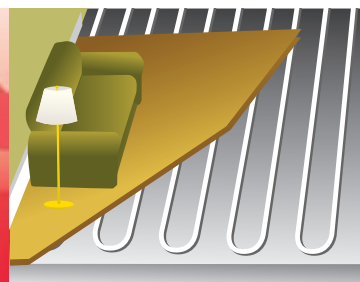
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### Valve actuator retrofit kits

BAI-Belimo electronic valve actuator retrofit kits can replace faulty or antiquated electronic and pneumatic actuators without interrupting service. Compatible with many control inputs and all direct digital control (DDC) systems. Includes appropriate brackets and linkages. In HVAC systems where the valve bodies are working, these kits allow upfitting valves without shutting down and draining the system. **Boston Aircontrols.**

Circle 111 on Reader Reply Card

### ADA under lav insulator/pProtectors

The new Handy-Shield MAXX offers advanced fire safety at no additional cost. Made with superior PVC insulation material that meets ASTM E-84 25



Flame & 450 smoke testing, complying with IBC standards. This presents a safer and better solution than PVC materials which have no smoke testing. Featuring a more "Universal fit" design for brass and plastic P-traps including fitting 1 1/2" Sch. 40 traps and a new longer tail piece design the new Handy-Shield MAXX reduces your inventory SKUs. Superior high gloss finished soft flexible material is the answer to those twisting & looping water supply connectors, and Velcro fasteners insure a quick and easy installation, saving time and labor. Handy-Shield MAXX is the answer for improved safety. ADA and IBC compliance and long term professional-looking and secure installations. **Plumberex Specialty Products Inc.**

Circle 112 on Reader Reply Card

## ★ Phc News product of the month ★



### Blue Monster™ premium abrasives cut & clean faster

Contractors will appreciate the aggressive cleaning and deburring action of Blue Monster® premium open mesh and Ultra-Flex® abrasive cloth, two new and improved abrasive cloths now available. Blue Monster premium abrasives have a 2" width, 33% wider than traditional plumber's rolls, providing contractors with more surface-to-surface coverage that makes it easier and faster to prep large-diameter tube and fittings. Wet conditions have no adverse effect on these premium abrasive cloths as they are both waterproof. Blue Monster open mesh features a blended 165 grit white aluminum oxide that cuts and scores faster for more effective cleaning and deburring. The open mesh has larger holes (21x21 mesh) that prevent clogging, even when working on softer materials, and can be rinsed clean for repeated use. **Clean-Fit Products, a division of The Mill-Rose Company.**

Circle 110 on Reader Reply Card

### Electric water heater

The high-efficiency Marathon heavy-duty electric water heater provides a low-cost water-heating solution for high-temperature applications in harsh environments. Featuring titanium elements and a seamless blow-molded polybutene storage tank that

is impervious to rust and corrosion, the UL-approved unit offers a 10-year warranty on the tank and a five-year warranty on parts — the longest protections available for harsh water and environmental conditions. **Rheem.**

Circle 113 on Reader Reply Card



### HydrationStation bottle filler

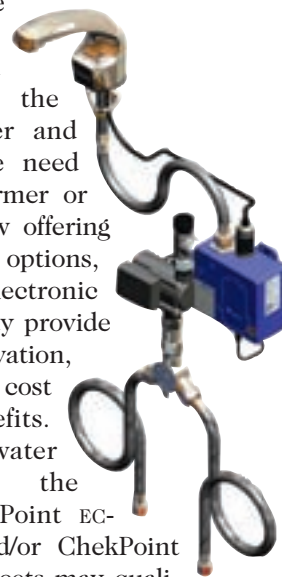
HydrationStation™ is a hands-free sensor operated bottle filler that operates when a bottle is placed under the antimicrobially protected dispenser and stops automatically for a drip-free fill. The HydrationStation™ hooks up to a municipal water line, and using state-of-the-art filtration technology, polishes tap water into pure, refreshing drinking water that is on par with bottled water. **Haws Corp.**

Circle 114 on Reader Reply Card

### ChekPoint® Hydro-Generator

The Hydro-Generator's self-contained power source creates and stores its own power with the flow of water and alleviates the need for a transformer or batteries. Now offering more power options, ChekPoint electronic faucets already provide water conservation, hygiene and cost saving benefits. Through water conservation, the use of ChekPoint EC-Hydrogen and/or ChekPoint electronic faucets may qualify towards credits for LEED certification. **T&S Brass.**

Circle 115 on Reader Reply Card



### UV resistant clear PVC piping

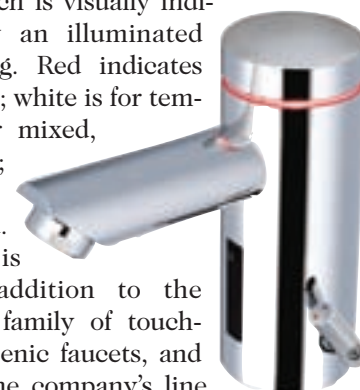
EnviroKingUV™ is a clear PVC piping suitable for exposure to sunlight. Unique UV blocking technology reduces harmful ultraviolet light wavelengths from penetrating the plastic while allowing beneficial wavelengths through. EnviroKingUV offers a cost-effective solution for photobioreactor tubing and other outdoor applications exposed to sunlight where transparency is required. **Harvel Plastics, Inc.**

Circle 116 on Reader Reply Card

### Faucet indicates water temperature

Lumino™ sensor-operated faucet allows users to adjust water temperature, which is visually indicated by an illuminated color ring. Red indicates hot water; white is for tempered, or mixed, water; and blue is for cold. Lumino is a new addition to the Optima® family of touch-free, hygienic faucets, and part of the company's line of sensor-operated, water-saving plumbing fixtures. Flows 0.5 gpm. **Sloan Valve Co.**

Circle 117 on Reader Reply Card



### Macerator high water level detector

SANIALARM is designed to prevent water inside a macerator or gray



water pump from rising above the maximum allowable level as the result of a power failure, limescale buildup or some other abnormality. Once the level is exceeded, the unit's alarm emits a continuous 80-decibel warning sound until it is shut off or the problem is rectified. After the cause for the alarm is removed, SANIALARM can be reactivated by flipping the built-in ON-OFF switch to the "ON" position again. **SFA Saniflo Inc.**

Circle 118 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.

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- Patented, advanced design, large diameter, aluminum tube and plate heat exchanger
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- Floor Standing or Wall hung
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- Self cleaning, no maintenance required
- Quiet operation
- Environmentally friendly—Low NO<sub>x</sub>
- 12 year limited warranty and 5 year parts and labor warranty
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## Water leak detection system

The simplified Gen-Ear LE™ is a more economical water leak locator with stronger sound amplification than other systems. Its compact amplifier fits in the palm of your hand and provides noise-free amplification with built-in preset audio filters; no guesswork. Noise cancellation headphones block surrounding ambient noise. **General Pipe Cleaners, a division of General Wire Spring.**

Circle 120 on Reader Reply Card

## Vibration control hammer

A vibration damping system is featured on the new 11264EVS and 11265EVS 15/8" rotary hammers and



11321EVS 12-pound demolition hammer. The vibration control's slightly longer air cushion between the piston and striker pin greatly reduces vibration while increasing impact energy by about for 20% faster drilling in concrete. A shock-absorbent main handle has rubber damping elements to further isolate the user from vibration. **Bosch Power Tools & Accessories.**

Circle 121 on Reader Reply Card

## Rotating laser

The PR 26 rotating green laser makes alignment work easy; greatly improves visibility in indoor applica-



tions compared to red lasers. Depending on ambient light, up to four times more visible than other class III lasers. Its built-in alignment system has a range up to 650 feet for use in large buildings with significant distance between walls. **Hilti.**

Circle 122 on Reader Reply Card

## ★ Phc News product of the month ★



## SeeSnake® microDrain™ inspection system

The compact 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' flexible cable and a small 22mm 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 119 on Reader Reply Card

## T110 compact track loader

With a width of 47", the T110 can travel through narrow openings or grade on narrow lot lines without treading



on a neighbor's property. The width of the T110 also makes the machine ideal for other home projects, including additions, pool excavation, landscaping and site prep for sidewalks. For agricultural operators, the narrow width of the T110 will allow them to access the inside of barns and animal stalls. **Bobcat.**

Circle 123 on Reader Reply Card

## 12V cordless lithium ion tool series

The launch of the 12Volt Peak series includes a micro lithium ion driver drill, the DS10DFL, a micro lithium ion impact driver, the WH10DFL and a



combination of both tools in a 2-piece combo kit, the KC10DFL. The main advantage to the 12V Peak series is their convenient micro stature that allows them fit into places where conventional counterparts will not, along with impressive performance and power seemingly unexpected in such a small package. **Hitachi.**

Circle 124 on Reader Reply Card



## High torque impact wrenches

The M18 cordless 1/2" high torque impact wrenches feature industry-leading power in a compact size with new additions for longer run time and faster driving speed than competitors. Delivers 450 ft-lbs of torque for up to 80% more power. Only 8 7/8" in length and weighs 6.75 lbs.; the M18 is up to 1 7/8" shorter and up to 1lb lighter than any other tool in its class. The two 1/2" models vary only in their anvil types: The 2662-22 has a detent pin to achieve superior socket retention, while the 2663-22 has a friction ring for quick, easy one-handed socket changes. **Milwaukee Tools.**

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## Pipe thawing machine

Thaws frozen copper or steel pipes fast, up to 75 ft. depending on O.D. of the pipe. Faster than a torch and safer



than a welder. Uses safe, low voltage, high amperage power. Two models available: UES 190D & 200D. Standard equipment includes a 115 v power pack, two 25-ft. heavy-duty cables with pipe clamps, and overload protection. **Electric Eel Mfg. Co., Inc.**

Circle 126 on Reader Reply Card

## Reciprocating saw blades

T2 Technology reciprocating saw blades deliver up to 100% longer blade



life and 25% faster performance in metal cutting applications versus the prior generation of blades. The technology is applied to the manufacturer's entire range of metal cutting recip blades including Gold™, LAZER™ and Bi-Metal. Blade feature optimized tooth geometry to minimize friction and heat build-up when cutting through the widest variety of metal materials. **LENOX.**

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### Pro380

Shallow 24" x 24" System (shown)

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# Commercial solar hot water design

BY PETER BIONDO,  
contributing writer

In today's revitalization of job creation and emphasis on renewable energy, there is a renaissance of activity within the engineering community for commercial solar hot water systems. Spurred by federal and state tax incentives, utility rebate programs, grant money and prestigious LEED accreditation, this push into solar hot water has engineers venturing into a new aspect of design that had quietly gone away for almost 20 years (since the end of the early



Solar collectors on this commercial building soak in the sun.

stage of solar hot water development in the 1980s).

Many mechanical engineers have had to rethink domestic hot water design and include a solar system for the first time. Using a solar fuel source requires a dynamic approach to design that is very different from using traditional fossil fuel or electric boiler water heaters. The purpose of this article is to help explain sizing criteria, designing for the usage pattern or building occupancy and the importance of the dynamic use of solar hot water storage.

## Measuring hot water loads for solar

Commercial hot water system design begins by sizing the hot water load under full occupancy of the building. Electric or fossil fuel boilers and hot water heaters are sized by this requirement. ASHRAE charts help determine the hot water requirement for each fixture so that, at a given design volume of hot water required for the building, the heating source can match with delivery.

This method will not work, however, for sizing solar hot water systems. Why not? To size a solar system, the designer needs to determine the volume of hot water expressed in daily use. The design load cannot establish the hot water volume in gallons per

day and, to make it worse for the designer, there are no charts for solar (that I am aware of) that help estimate daily hot water volumes. Also, the load of a hot water recirculation loop should be taken into account for the additional amount of daily energy consumed through the losses of the hot water piping lengths. With these daily loads taken into account — gallons per day at design temp and Btu losses through hot water recirculation — we can express the value of energy used per day in a hot water heating system for solar integration.

For example, let's look at a hotel that uses an estimated average of 2,400 gallons per day and has a 400-foot recirculation hot water loop, timed for 12 hours per day. Incoming water temperature is 55 F and design hot water temperature to achieve is 140 F. To find the daily hot water usage load, calculate 2,400 gallons per day  $\times$  8.3 lbs. per gallon  $\times$  1 Btu per 1 F temperature rise  $\times$  85 F temperature rise. This will equal the total daily usage, which is 1,693,200 Btu per day. Next, estimate the recirculation hot water loop heat loss load.

loss. This is calculated as 1,693,200 Btu  $\div$  39,600 Btu. The total energy use per day is 1,732,800 Btu/day.

This total Btu equivalent would be the estimated daily energy load for hot water. With a good sense of the daily load, the solar designer can build a monthly hot water load profile and then establish solar performance based on solar radiation data and collector sizing for a particular location.

## Solar collector sizing options

The solar contribution for hot water heating can be measured in an annual solar savings fraction. In other words, how much solar hot water will contribute to the full hot water load over the course of an average year? In some cases, the solar contribution may be a small fraction of the total load (5% or less) where the hot water demand is high and the roof area to mount collectors is limited. The benefit for the small solar hot water system is for the commercial owner who wants to make a "green statement" and is interested in appealing to his or her customer base.

In many cases, for commercial buildings, the limitation of sizing solar for the total load can be imposed by the installation area of the roof facing south or by space in the mechanical room for installing solar storage tanks. Both require space that could

Solar flat plate w/selective absorber DHW Commercial Sizing Calculator

Project Name: Restaurant

Date: 3/21/09

Location: Boston

Hot Water Load: number of gallons per day 350

4 x 8 Selective surface absorber flat plate collector

Aperture Area in Ft. Sq. 30

Number of Collectors 6

Design Water Temperature ° F 120

Percent Solar Savings per Month

January	February	March	April	May	June	July	August	Sept.	Oct.	Nov.	Dec.
20%	12%	58%	68%	74%	84%	85%	82%	76%	58%	41%	25%

Annual Solar Savings Fraction 63%

How much solar hot water will contribute to the full hot water load over the course of an average year?

In this case, I will use a loss of 8.25 Btu/hr per linear foot of recirculation pipe (assumptions: pipe surface temperature, 125 F; pipe diameter,  $\frac{3}{4}$  inch; pipe insulation, 1 inch).

To find the daily recirculation hot water loop heat loss load, calculate 12 hours of use per day  $\times$  8.25 Btu/hr per foot of pipe  $\times$  400 feet of pipe. This will equal the total daily load of 39,600 Btu/day. The total energy (Btu) draw would be the sum of the estimated daily energy load for hot water use and the recirculation pipe

set the parameters for solar hot water sizing. Budget also has its constraints. Where limitations are imposed, the solar contribution can be viewed as a technology that increases the efficiency of the hot water heating system rather than as a system that has the ability to carry a significant portion of the hot water load.

Higher solar savings are made by sizing the solar hot water system to result in annual savings of 50% (in some cases up to 65%) of the hot water load. The 50% goal solar is a

good rule to apply to a commercial building; this helps to avoid the problem of stagnation in the solar collectors during low load cycles. Solar performance in the summer also needs to be taken into consideration for sizing. Due to high ambient air temperatures, solar radiation increases in the summer, as does efficient solar collection; this can produce more than twice the amount of energy for domestic hot water production than in the winter months.

The problem to avoid in closed loop solar hot water collection is stagnation of the working fluid, propylene glycol, in the solar collectors. If the solar storage tank has reached its high temperature limit, the solar collection loop will stop circulation, stagnate and reach temperatures of 300 F and higher. Propylene glycol can then flash to steam quickly on large collector banks and, if chronic, can significantly decrease the life cycle of the antifreeze and the solar collectors. I have seen large collector banks fail early because of oversized collector arrays or undersized solar storage tanks. Unlike with a conventional fuel source, one cannot turn off the sun, but solar collectors can be sized so that stagnation will not occur. Another way to avoid stagnation is to include a heat dissipater in the design so that the collector loop can continue to cycle throughout the daytime hours when the solar tanks are hot and the hot water load is either low or off.

## Designing solar to building occupancy

Understanding how a commercial building is occupied and the type of hot water load needed can help determine the appropriate design and increase the efficiency and life cycle of the solar hot water system. There are four primary types of solar commercial hot water applications: buildings with daytime heating loads, such as hospitals; those with evening and morning loads, such as apartments; those with intermittent loads, such as offices that are unoccupied two days per week and schools, which have long periods of inactivity.

Buildings with daytime loads, such as hospitals, nursing homes and laundries can be designed without large solar storage requirements. These buildings have a constant daytime load every day of the week, all year round. In this case, and only in the case of steady hourly daytime hot water loads, solar collector arrays may be thought of as heating plants, not unlike boilers, without the need for large solar storage tanks. Solar storage tanks would still be required but would

(Turn to Solar... page 128.)



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## Taco design software and LoadMatch® single pipe system win project for design-build firm

A new medical building outside downtown Buffalo includes a Taco LoadMatch® heating and cooling system that allowed an area design-build firm, MJ Mechanical, to win the project by providing a cost-effective alternative to a conventional 4-pipe fan coil system that proved too expensive for the owner's budget.

The three-story, 65,000-sq.-ft. Maxim Medical Center is an outpatient clinic facility focusing on cancer care, urology and imaging. It features state-of-the-art linear accelerators for advanced cancer treatment.

The original proposed HVAC system came in over budget by some \$1 million, which prompted MJ Mechanical's design-project coordinator, Drew Nowak, to propose a simpler, less expensive alternative that he had been first introduced to in 2007. His proposal centered on Taco's single pipe LoadMatch system, which requires less pipe, eliminates control



The three-story, 65,000-sq.-ft. Maxim Medical Center is an outpatient clinic facility focusing on cancer care, urology and imaging.

sored gathering of design and project engineers held in Montana. At the work sessions the LoadMatch concept was introduced and LoadMatch system design was explored using the

Energy Research & Development Authority (NYSERDA) utility program.

Taco LoadMatch specialist Jeff Pitcairn prepared an initial system design for Nowak using the HSS software; Nowak then finalized the design, employing just over 100 LoadMatch circulators and McQuay fan coils, and added a thermal ice storage system to save additional energy. Nowak reports that the HSS design tool saved him almost 80 work hours or the equivalent of 2-3 weeks of design time on the Maxim Medical building project alone.

"Design-build projects typically go back and forth between the owners and the design firm, with multiple additions and deletions to account and adjust for. With HSS making those changes and recalculations is quick and easy. HSS is a lot more than just rendering parts and pieces on paper — the system demonstrates what the designer is thinking, where he wants to go with his design," said Nowak.

The Maxim Medical HVAC system consists of a primary (LoadMatch) loop and multiple secondary loops for the chillers, thermal storage banks and a fluid cooler. The main mechanical room is adjacent to the medical building and consists of two non-condensing Teledyne Laars gas boilers (million Btu each), a Liqui Chill liquid chiller and Taco-supplied

FI and KV pumps, 4900 Air Separators and two expansion tanks — one tank for heating and the other for cooling.

Outside the mechanical room are five Calmac thermal ice storage tanks holding a 40-60 percent glycol/water mix that is cooled down to freezing temperatures by the chiller overnight when electric rates are lowest. This eliminates the need to run the chiller during the day. The building's chilled water system is supplied during the day exclusively by the stored Btus in the storage tanks. Nowak says that the thermal ice storage systems pairs well with the LoadMatch pumping system.

Considering Buffalo winter weather there is a snowmelt radiant system in the immediate front entrance area, and the building's main lobby flooring is also radiant heated. A separate mechanical room inside the main building houses Munchkin boilers and related Taco equipment for the Watts-supplied radiant system.

Building construction, managed by Burgio Campo & Felice of Cheektowaga, N.Y., commenced in January 2008 and construction and mechanical crews worked straight through the winter to bring the building online and ready for occupancy last June. Nowak says that his firm's installers were putting up Victaulic pipe when the building was little more than a steel shell. The chilled water side of the HVAC system was commissioned last June and the heating side in October.

Nowak is sold on the LoadMatch system for future project applications. Being a young engineer he did not have to jettison a mindset averse to trying an unconventional system like LoadMatch. "Everything's new to me," said Nowak. "There's always a degree



Drew Nowak, MJ Mechanical's design-project coordinator proposed Taco's single pipe LoadMatch system for the Maxim Medical Center project. LoadMatch requires less pipe, eliminates control valves and reduces balancing valves to a minimum.

valves and reduces balancing valves to a minimum.

The LoadMatch system is centered around small, low kW LoadMatch circulators. All loads in a LoadMatch system operate separately from one another, and the secondary flow that circulates through each terminal unit is independent of the system's primary distribution pumps. Because it eliminates all control valves and up to 40 percent of piping, first costs are reduced with a LoadMatch system. Lower pump head and operation of the circulators to match the load reduce operating and maintenance costs.

Nowak first encountered the LoadMatch system at a Taco-spon-

proprietary HSS software platform, which enables engineers to quickly lay out a complete hydronic system, making equipment selections and positioning/sizing everything from boilers and air separators to circulators and valves. Load calculations and schedules are automatically calculated by the software, saving engineers hours of design time over the same design accomplished by more traditional CAD drawing means.

The Maxim Medical project, Nowak felt, would be an ideal LoadMatch application that would still include fan coils but cut out a lot of the installation costs of a conventional 4-pipe system. Plus, it would help qualify for energy grants under New York State's



Nowak then finalized the design, employing just over 100 LoadMatch circulators and McQuay fan coils, and added a thermal ice storage system to save additional energy.

of skepticism, for sure, with something you haven't used before, he added, "but if it works, and LoadMatch does, then why not use it?" ■





## Chicago Faucets and The Buy American Act

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# Steam audit helps customers lower operating costs

*Learn how the process can help reduce energy use, save money*

BY STEVE CONNOR,  
contributing writer

Many of customers are looking to reduce operating costs during these challenging economic times. Increasing the efficiency of a boiler or steam system can offer a quick rate of return on investment.

Finding these inefficiencies starts with a steam audit, a comprehensive analysis of energy used within a facility, process and equipment including

cient, less expensive and more environmentally friendly.

A simple boiler room audit costs approximately \$2,500, whereas a complete facility audit — depending on the complexity and the size of the plant — can cost several thousand dollars.

## Steam audit process

During a simple boiler room audit, facilities should operate as normal so the auditor can spot visual indications of energy loss and possible opera-

- Pressure vessel condition;
- Evidence of overheating and poor combustion; and
- Outdated burners and controls

Many times what is found is a well-maintained boiler that requires an updated burner and/or combustion control system for improving the fuel/air mix and repeatability. Retrofits are significantly cheaper than boiler replacement, and provide a great opportunity for significant fuel savings. The audit will delineate the

oxygen trim system; sensing flue constituents and automatically adjusting to help improve combustion efficiency. If the nitrogen oxide level is high and the boiler is in a non-attainment area for ozone, a flue gas recirculation (FGR) system may be recommended and retrofitted to bring the boiler package into air quality compliance.

If the stack temperature is high it may mean the boiler is scaled or soot-ed inhibiting proper heat transfer. A cleaning and re-tuning of the burner will in most cases alleviate this problem, bringing the boiler/burner package back to an acceptable fuel to steam efficiency.

The stack temperature may also indicate the boiler to be an excellent candidate for a feedwater economizer, reducing the stack temperature, adding to the boilers efficiency by transferring Btus in the stack to usable energy in the boiler's feedwater.

## Reducing operating pressure

An audit will also observe and determine if it's possible to reduce the boiler's operating pressure.

Auditors look at the process and the existing piping layout to determine if the diameter of the piping, controls, steam traps and control valves can tolerate lower pressure. If the pressure can be reduced, fewer Btus per hour will be used, cutting the customer's energy costs.

## Piping conditions

A complete facility audit will review steam piping for energy loss through radiation and steam leaks. Heat loss through radiation can be reduced by insulating the pipes and associated valving.

## Feedwater system

An auditor will investigate the feedwater supply to the boiler and condensate returns.

A main objective is to determine if water sent directly into the boiler is free of dissolved gases such as oxygen and carbon dioxide, which can cause destructive corrosion to the boiler and condensate lines. If such gases are present, the auditor may recommend installing a deaerator. Deaerators are an option if the boiler operates at 75 psig or greater, has limited standby capacity and is using 25 percent or more cold water make-up.

Auditors will examine the condensate return system, and how much (hot) condensate is being returned to (Turn to Steam Audits, page 122.)



*Audit customers will be provided with a report that details how the facility and its equipment use energy, along with costs and utility data affecting energy consumption.*

recommendations for energy conservation measures. Reducing fuel cost is the number-one reason for a steam audit. Money saved on fuel can be reinvested in the business or provide liquidity when cash flow is tight.

There are two types of steam audits: a simple boiler room audit and a complete facility audit. In a simple audit, a professional evaluates the boiler and accessory support equipment. In a complete facility audit, auditors evaluate the boiler, steam system and all the components throughout a plant, including steam traps, piping, valves, steam users, etc.

Audit customers will be provided with a report that details how the facility and its equipment use energy, along with costs and utility data affecting energy consumption. In addition, they'll be provided with an analysis that shows potential measures to make energy use more effi-

tional and safety issues.

The boiler, controls, and all connected systems for feedwater, fuel, etc., will be inspected to identify inefficiencies and inequities. The auditor will conduct an inventory of key equipment, looking for energy-saving methods, areas to improve engineering practices, and health and safety concerns.

In a complete facility audit, auditors also will focus on potential energy improvements throughout the facility. In addition to the boiler room, they'll audit steam flow, pressures, temperatures, air handling, steam trapping, piping ancillaries including, valving and insulation, condensate pumping, etc.; seeking energy savings along with identifying safety and reliability issues.

## Important steam audit findings

Both types of audits determine the condition of the current boiler system, looking beyond age at issues such as:

detail, providing the basis for an informed decision.

It's also important to investigate whether the boiler has been overheating. If so, there might be problems with either the boiler's insulation or gasketing which could lead to damaged and unsafe equipment. Repairs are relatively nominal to correct these issues. But it may indicate the boiler is seriously scaled on the water-side. If so it may have to be acid cleaned which could be costly or, it's time to replace the boiler.

During the efficiency analysis, the auditor is checking for specific elements in the flue gas, which indicate the effectiveness of the burner to efficiently oxidize the fuel. Additionally, the auditor is looking for the level of nitrogen oxides and the stack temperature above the saturated steam temperature within the pressure vessel. Results could lead to recommending an





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## Steam audits

(Continued from page 120.)

the boiler's feed tank. It takes less heat to turn condensate back into steam because it returns with much of its sensible energy. Result could mean thousands of dollars in savings annually.

### Steam trap audits

Steam trap audits are typically performed during a complete facility audit. Examiners look for traps that

If a steam trap audit is performed, audits gather information on the number of steam traps in the facility, test and tag the steam traps, record findings and then determine energy saving measures.

### Return on your investments

The last key component of a steam audit is what your customer can expect for ROI.

Balancing the recommended cost(s) with the budget and rate of



Steam audits often consist of a review of the pipe layout design. A complete facility audit will review steam piping for energy loss through radiation and steam leaks.

are “blowing through”—pressurizing the condensate line(s) and causing water logging and excessive flash steam venting.

Water hammer occurs when steam condenses in a horizontal section of the steam distribution piping—usually caused by a poor condensate drainage strategy. Steam picks up the water, forms a “slug” and hurls it at high velocity into a pipe elbow or other restrictive device, creating a loud hammering noise, stressing of the pipe, and possible fracture. This could be life threatening.

return against required timing is what the analysis is all about. Given this information, the customer has real hard data against which they can make a truly informed decision. ■

*Steve Connor is director of marketing/communications for Cleaver-Brooks Company, a producer of steam and hot water boilers. His background includes over 40 years of experience in the steam generating field spanning a broad scope of disciplines including engineering, service training and field application sales.*



It is important to determine if water sent directly into the boiler is free of dissolved gases such as oxygen and carbon dioxide, which can cause destructive corrosion to the boiler and condensate lines. If such gases are present, the auditor may recommend installing a deaerator like the one shown above.

## State-of-the-art heating equipment keeps resort guests in hot water for 55¢ a day

Imagine you are the plant manager for a 125-room resort with two very old boilers that badly need to be replaced. The job may well involve building riggers, taking out a doorway and opening up the floor in several guest rooms to lower new, replacement boilers into the basement with a crane — in short, a potentially mas-

Looking for energy savings, a quality product and an installation that did not entail a massive construction project, Gilligan turned once again to Heat Transfer Products (HTP) and its then-regional sales manager [now technical training manager] John Sawyer. The two had worked together on a number of heating equipment-



Open six months of the year, April through October, the Cape Cod-based Riviera Beach is a family-oriented resort, boasting 500 feet of private sandy beach along with three pools, a restaurant and a lounge.

sive project for a building of this size.

That was the scenario facing John E. Gilligan, III, vice president and general manager for the Riviera Beach Resort on Cape Cod in Bass River, Mass. Open six months of the year, April through October, Riviera Beach is a family-oriented resort, boasting 500 feet of private sandy beach along with three pools, a restaurant and a lounge.

Facing the Inevitable: It was January 2007 when Gilligan decided the time was right to replace the two boilers, with inputs of 400,000 Btu per hour and 550,000 Btu/h, respectively. Originally, the units provided domestic hot water and baseboard heat during the two “shoulder” seasons each year (April and May; September and October). But for the past five years, they were used strictly for domestic hot water during the height of the resort season, which runs from June through August.

“They were old — one was installed 40 years ago,” said Gilligan. “They were costing a lot, and they weren’t in good condition. They were running all-out 24/7 for half the year, and there was no way to modulate them to meet the fluctuations in demand.”

replacement projects over the previous five years.

“Right at the outset, John took the



Riviera Beach Resort general manager John Gilligan with his facility's new Phoenix gas fired water heater: “I’m enormously pleased with the energy efficiency of the new Phoenix, as well as all of the other Heat Transfer equipment we’ve installed over the years.”



time and energy to educate me on high-efficiency products, their capabilities and what I could expect as a return," said Gilligan. "He went above and beyond the call."

As a result, by 2007, Gilligan was a seasoned user of HTP products, having made several purchases to replace outdated heating equipment at Riviera over the previous half decade:

- In 2002, he purchased a Munchkin 199M with a 120-gallon storage tank, which replaced a 400,000 Btu/h boiler used to heat domestic hot water. "I did a lot of research during the off-season," he recalls, "including attending a presentation by John on the Munchkin. The control board's ability to show a malfunction to aid in diagnosing a problem was very convincing."

- The following winter, Gilligan made his second HTP purchase when he replaced another 400,000 BTU/h boiler with a Voyager Storage Type Stainless Steel Water Heater, Model SSV199-45S (199,000 Btu/h with 45 gallons of internal storage), and an 80-gallon SuperStor Ultra storage tank. Together, they provide 16 guest rooms with domestic hot water.

- In January 2005, Gilligan purchased a Munchkin 399M and two 120-gallon storage tanks to upgrade a setup that serves 40 guest rooms, a 50-seat lounge, and a 100-seat restaurant, including a kitchen whose dishwasher needs 180°F rinse water.

- In January 2006, Gilligan eliminated a third 400,000 Btu/h boiler that served 10 guest rooms by reinforcing the Voyager SSV199-45S with a second SuperStor 80-gallon storage tank.

Given this history, Gilligan had no hesitation in jettisoning the next two antiquated boilers in line for replacement with one of the newest HTP products: a Phoenix Gas Fired Water Heater with 119 gallons of built-in storage. In addition, Gilligan equipped the Phoenix with a separate 119-gallon storage tank.

The sealed combustion, direct-vent Phoenix delivers domestic hot water – and even space heating when connected to an air handler – at a combustion efficiency of 96%. "Our unit raises 240 gallons of 55°F water to 140°F in 45 minutes," said Gilligan.

Opting for the Phoenix enabled the resort to avoid the nightmare scenario of opening up floors in several guest rooms to drop replacement equipment into the facility. The new water heater was compact enough that "the installers just walked in the basement door with it and did the installation without a glitch. Overnight, we went from two boilers and million Btus, to a single water heater with a supplemental storage tank that did the job more effectively."

More importantly, guest complaints about "no hot water" went from daily occurrence to nonevent, even during the busy season. Featuring all-stainless-steel construction and a spark ignition system, the fully modulating, ultra-low NOx Phoenix burner is "load-matching," modulating its firing up or down to meet fluctuating demand. As the call for hot water rises, the unit's fan accelerates; as demand decreases, so does fan speed.

As a result, the Phoenix is not only able to meet high-volume demand the Riviera encounters during the peak season, but it also cuts back proportionately when demand is no longer



*Voyager stainless steel water heater, with an input of 199,000 Btu/h and 45 gallons of internal storage (background), is coupled with an 80-gallon SuperStor Ultra storage tank (foreground) to provide hot water to 16 guest rooms.*

there. That saves substantial amounts of energy. This is in sharp contrast to a conventional burner, which always fires to the maximum, regardless of demand. The load-matching capability of the Phoenix also reduces on/off cycling, resulting in longer component life and overall reliability.

When the resort closed for the 2007 summer season, Gilligan put pen to paper to calculate just how much all this hot water was costing the Riviera. From the time the new Phoenix unit was installed in May until the resort's closing in October, the facility consumed approximately 1,567 cubic feet of natural gas, at a cost of \$1,723.70. The building sold a total of 3,127 guest rooms during that six-month period, so Gilligan was able to supply hot water to each of those rooms for approximately 55 cents per night (1,724/3,127).

"Many of our rooms are rented by entire families, yet I spend well under a dollar a day to give them all the water they need for showers and baths. It's very economical," said Gilligan. ■

## Global warming is happening; Is man the cause?

A few years ago, I posed this question on an Internet forum. I stood by the theory and debated all comers. The thread ran to over 400 posts, the most posts per thread in this particular forum's long history. The monitor/owner of the forum was forced to close the thread because the website became overloaded with posts. I was banned from the site. After many months, the owner invited me back, and he has since fully supported the green movement.

After the global warming war of words, I noticed there appeared to be an increased talk of geothermal, solar and energy efficiency. I believe my website chat made a positive impact and motivated people.

So now I write this to address people that want to do something about global warming. For all the doubters, please stop reading now. I am interested in connecting with people that are willing to act to change the world and make it a better place for our children. Advances in technology will not only reduce global warming, but it will make our economy much stronger. The country with the best green technology will be able to sell it both at home and overseas.

There are many very intelligent people involved in the solar and geothermal arena; I take courses from some of them, and so far I have learned a lot. However, I have found a huge hole in hydronic energy efficiency, and I would like to advance my technical knowledge in this area.

The goal of energy efficiency is to get the most energy from the fuel that enters a burner. If you have 1,000 Btus/h entering the burner, and 1,000 Btus heat loss through the conditioned space, you have 100% energy efficiency. In some cases, it is possible to have better than 100% efficiency. When using a ground source heat pump, you may have a coefficient of 4, which would be equivalent to 400% efficiency. For every 1,000 Btus/h in, you get 4,000 Btus/h of heat. In a solar project, the solar cells cannot provide 100% of the heat, but they can supplement the existing supply. If the existing heating system is running at 50% efficiency and the solar system is able to heat the building 50% of the load, you end up with a system that is 100% efficient. Fifty percent is lost by way of heat loss, but 50% is gained by way of free energy.

For now, let's leave alternate fuel methods aside. Heat from fuel is lost in three ways. One way is out of the flue pipe. The second is lost to unconditioned spaces or lost directly to the outside. The final way is overheating conditioned spaces. When looking at the efficiency of a heating system, it can be divided into two parts — boiler side and system side. The most neglected form of energy loss is system side. Many experts today totally ignore system side efficiency. Currently, there is no



**BY JOHN RUHNKE,**  
*contributing writer*

real accurate way to measure it. So, some of the great scientists ignore it like it's not even happening. Presently, the best way to measure changes in efficiency is a before and after heating degree day (HDD) analysis. Modified bin and other methods work just as well. A HDD analysis will show improvements made on both the boiler and system side efficiency. The government standard AFUE misses a lot of real world efficiency losses. A HDD study by Tom Durkin, PE, showed how a mod-con boiler can save roughly 50% in fuel bills on average. The AFUE numbers between the mod-con boilers and old boilers shows a savings of only 10%. The AFUE efficiency of the old boilers was rated at 85%. The actual overall efficiency of the systems were much less!

Looking at some old coal fired converted boilers makes me think that overall efficiency of some of these systems can be as low as 10% in the worst cases. That is a possible improvement of 1,000%. A great example of system side efficiency abuse is from the installation of hot air systems in attics. The ducts are huge and give off 16 times more Btus than a pipe per equivalent capacity. They also leak air into the attic. The attic is extremely cold in the winter and hot in the summer. Moreover, the contractors don't insulate in the rafter bays above the equipment. Instead, they insulate under the equipment in the ceiling joist bays. The carpenters then, according to code, cut two big holes on either side of the attic to increase ventilation. This dramatically increases the energy loss!

I have been viewing several new studies on energy efficiency — some are being done with the Department of Energy at Brookhaven Laboratories. The information coming out of these studies will help us pick the right designs and equipment when installing hydronic heating systems. Also, if any of you have documented heating degree day analysis before and after, please feel free to send it to me. The more information we collect, the better for all of us. Together, we can design more efficient heating systems and reduce the CO<sub>2</sub> impact on the world, while saving our clients money in fuel bills as well. ■

*John Ruhnke is owner of JR's Comfortable Heat. Email him at JR@ComfortableHeat.com.*



## Charlotte Pipe's Quiet House good for green

CHARLOTTE, N.C. — Charlotte Pipe's Quiet House is a unique plumbing system that uses both cast iron and PVC products. As the only manufacturer of both products, Charlotte Pipe

has created the system that uses cast iron for the stacks. By using cast iron strategically, the system eliminates the sound of water from fixtures on floors above flowing down behind the

walls. It is twice as quiet as an all-PVC system.

Typically, the noise in plumbing systems results from a combination of the vibration of the system and of air-

borne noise passing through the pipe wall. A study by MJM Acoustical Consultants, Inc. of Canada has shown that cast iron soil pipe and fittings, because of their dense molecular structure and rubber gasket joints, are 750% more effective in reducing plumbing noise over other plumbing materials.

This unique acoustic feature makes Quiet House a great choice for green building projects, as it is an asset to indoor environmental quality (IEQ). IEQ is one of the criteria of the USGBC's LEED-H rating system, addressing the subtle issues that influence how occupants feel in a space.

IEQ is also addressed by the Environments for Living Certified Green program optional acoustical package. Builders choosing this option can elect to install an acoustical package that is intended to result in a sound transmission coefficient performance of 37 to 39. Some counties have also included a section in the healthy indoor environments section of their Green Building Guidelines regarding noise pollution.

## Mestek steps up boiler training

WESTFIELD, MASS. — Mestek announced that it is taking training to a new level through a partnership between the Mestek Institute and Pipeline Development Company.

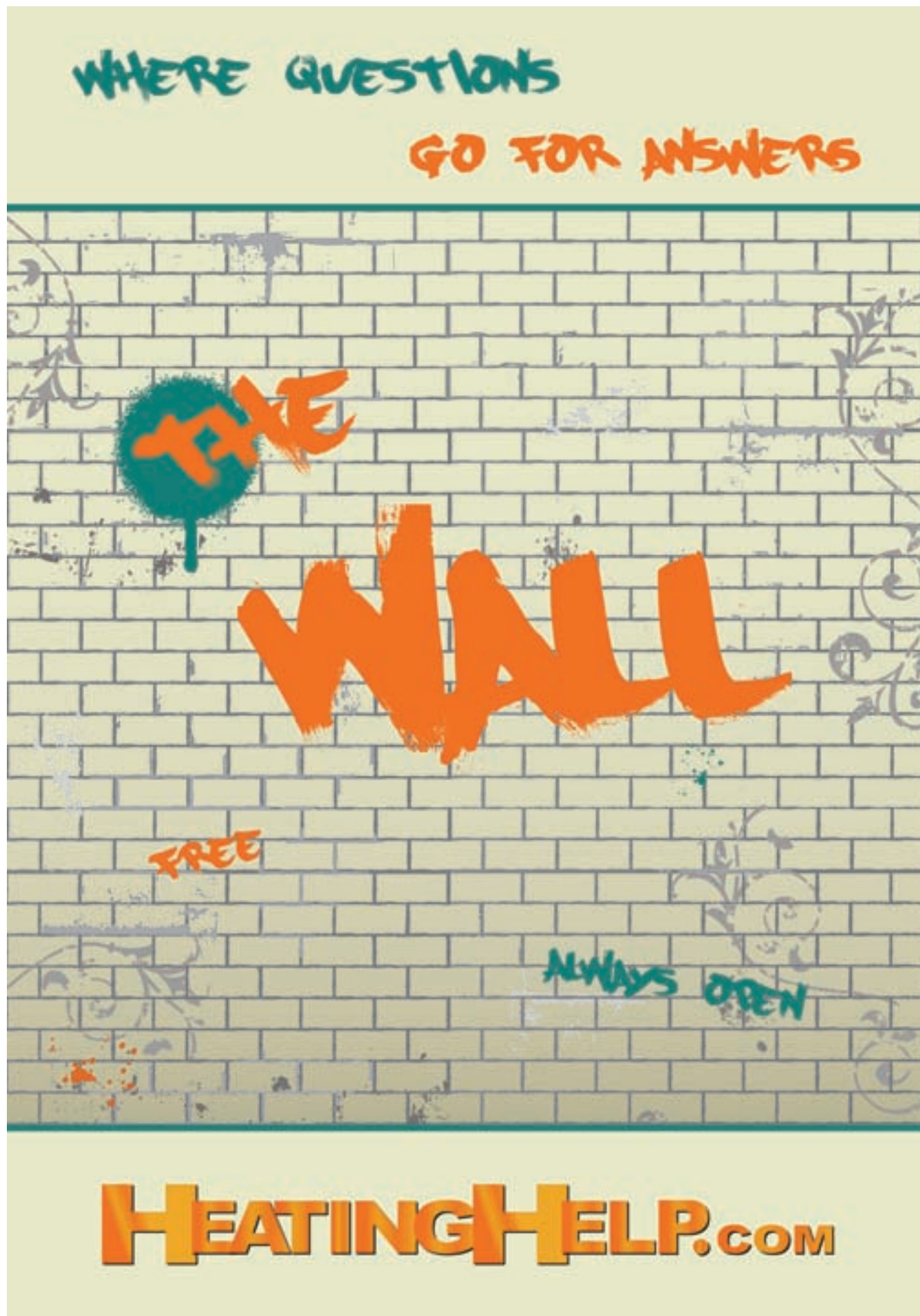
These free seminars will include three days of training with some of the industries most knowledgeable instructors. A full day of training with Pipeline Development Company on non-biased system design and operation will provide attendees eight continuing education (CE) credits at no cost.

The Mestek Institute in conjunction with Hydrotherm Boilers, RBI Water Heaters and Smith Cast Iron Boilers will provide system specific hands-on and classroom training on topics including system design, venting, controls, combustion and start-up procedures. Attendees will leave the seminar with the knowledge to ensure higher system efficiency and lower operating costs.

Seminars will be held in one of two Mestek Institute sites located in Boyertown, Pa. and Mississauga, Canada. Classes for 2009 are being offered on the following dates:

- June 6 – 4 (Mississauga, Canada)
- June 23 – 25 (Boyertown, Pa.)
- July 1 – 3 (Mississauga, Canada)
- August 25 – 27 (Boyertown, Pa.)
- September 22 – 24 (Mississauga, Canada)
- October 20 – 22 (Boyertown, Pa.)

For more information, contact Matt Kleszczynski at 413/564-5885.





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# 10 ways to extend tire life

Today's tires are tough — almost too tough. They can take an enormous amount of abuse and still survive. But according to tire experts, neglecting tires can be quite costly.

"Paying attention to tires in 10 key areas can add thousands of dollars annually to a contractor's bottom line," said Tim Miller, Goodyear's marketing communications manager. "This isn't rocket science. It's just a set of basic tire maintenance procedures that are easy to follow with organization and discipline."

"Following these procedures will lower your per-mile tire costs through extended tread life, fewer premature removals, and better retreadability."

**1. Determine proper inflation levels for your application.** The biggest influence on tire life is inflation pressure. At normal speeds, running tires at 20% under recommended pressure reduces tire mileage by 16% and fuel mileage by 2%. "Tires are designed to run at specific pressures based on the total load," Miller said. "To determine the correct air pressure for your tires, gather information on your actual axle loads and refer to tire load charts." Standard load charts are available at [www.goodyear.com/truck](http://www.goodyear.com/truck). If you operate at higher or lower speeds, use the listed formulas to make the adjustments. In general, pressures need to be higher if the truck is operated at highway speed.

**2. Establish a good inflation maintenance program.** Tire pressure is difficult to maintain because tires naturally lose air over time. The leakage can occur through valve caps or through small punctures. To stay on top of "normal" leakage and watch for any rapid leaks, drivers or mechanics using a calibrated air

gauge should ideally check air pressure at least once a week. A growing number of plumbing and hydronic contracting companies are using flow-through valve caps that make it easier to check pressure and add air without removing the valve cap. Other companies give their contractors an incentive to check pressures by conducting random checks on trucks and rewarding contractors if the pressures are correct. Also, note that changes in ambient temperature will affect tire pressures. For every 10°F decrease in temperature, the pressure will drop 2 psi. So, during the colder months of the year, tires will need to be checked and inflated more often.

**3. Keep vehicles properly aligned.** Irregular tire wear is most commonly caused by poor vehicle alignment. It's simple physics. If tires are not running straight ahead, accelerated tread wear occurs on parts of the tire. For example, steer axle toe-out will cause excessive wear on the inside of both tires while toe-in will cause wear on the outside shoulders of the tires. Ideally, most steer tires should have a small amount of toe-in. To maintain this, as well as stay on top of other types of irregular wear, the vehicle should be aligned regularly. "Starting a periodic alignment program after having none can increase tire mileage by as much as 30%," Miller said. More information on effective alignment schedules is available in Guidelines for Total Vehicle Alignment, SKU No. T0477A, from the Technology and Maintenance Council. TMC also offers information on the causes of irregular wear in its Radial Tire Conditions Analysis Guide, SKU No. T0121A. Both publications are available online at [www.atabusinesssolutions.com](http://www.atabusinesssolutions.com).



Your truck's tires are the window to its soul. A damaged or misaligned front end, worn shocks, bent wheels, loose bearings or skewed axle often will show up first in abnormal tire wear. Treat your tires right and they'll treat you right.

**4. Mount tires correctly.** The rounder or more concentric the tire, the better it will wear. To keep tire run out to a minimum, they should always be mounted on the wheel correctly. Ideally, the tires should be match-mounted to the wheel. Wheels are usually marked to show the low spot and tires are marked to show their high spot. How the high spot is marked will vary from one tire to another. Check with the tire manufacturer to see how they mark their tires. "The idea is to take the high spot of the tire and match it to the low spot of the wheel," said Goodyear's Miller. "If you mount properly, you may not need to balance the tire/wheel assembly."

**5. Learn to "read" tires.** Drivers typically don't check tread wear unless they are having ride problems or the truck is pulling one way or

another. By then, it's often too late to prevent premature wear. Regular inspections of tires can provide a lot of useful information and catch wear trends before they have done too much damage. Problems can be diagnosed by visual inspection or by running a hand over the tread and feeling for abnormalities. Items to check for include distortion in the tread, feathering, or cupping. If corrected early enough, bad wear patterns can be countered and tire life can be extended. "Rib edge feathering is a good early indicator of misalignment," said Miller. "At the first sign of it, the vehicle should go in for an alignment." While a person is feeling the tread, the entire tire should also be inspected for safety-related damage such as cuts, cracks, blisters, or bulges. If the damage is severe enough, the tire will need to be removed.



Measuring tire tread for wear is only part of proper tire maintenance. Matching tire wear and circumference between duals and across axles is another aspect of getting the most out of your tires.



6. Rotate tires. "Moving tires around takes time and effort," Goodyear's Miller said. "The temptation is to leave them in one position for the life of the tread. But intelligent tire rotation promotes even tread wear and can net a lot of extra miles in tread life." Some contractors will run new steer tires in the drive position and take off  $1/32$ " to  $2/32$ " in tread depth to establish a good wear pattern. Drive tires should be rotated between forward and back positions at least once to even out wear. Rear tires of a tandem typically will wear quicker than the forward positions. Some drive tires will also develop heel and toe wear. This can be evened out by reversing their direction.

7. Protect sidewalls from curb damage. In-city driving and pick up-and-delivery routes present many opportunities for potential sidewall damage. Alert drivers to the importance of avoiding sidewall impact and suggest driving maneuvers to reduce sidewall

**Problems can be diagnosed by visual inspection or by running a hand over the tread and feeling for abnormalities. Items to check for include distortion in the tread, feathering, or cupping.**

contact. Encourage drivers and technicians to inspect tires regularly for sidewall wear and damage.

8. Replace tires with matching ones. For optimum tread wear, tires should be as alike as possible across the same positions. If a tire must be pulled due to irregular wear or a road hazard, it should be replaced with a tire that matches the existing one. "The more you can do to eliminate variation, the better your tread wear will be," said Miller. "On dual assemblies, the outside diameters and tread depths should be as close as possible. A good rule of thumb is no more than  $2/32$ " tread depth difference between duals. It's also wise to have the same tread design on both positions of an axle."

9. Check and replace worn wheel and suspension components. These can be the hidden enemies of tire life. A wheel bearing that is not properly torqued can cause irregular tire wear. Worn shock absorbers can create depression wear on treads and an early trip to the retreader or scrap pile. "Contractors will often wait until suspension components are obviously broken or are leaking before they replace them," Miller said. "By then,

the tire damage has already occurred." To prevent irregular tire wear, you should be replacing shock absorbers and other suspension components on a set schedule rather than waiting until they fail.

10. Keep good tire records and use the data wisely. Because every contractor's operation is different, there are no hard and fast formulas for tire

management. In fact, copying another contractor's practices may do more harm than good. To manage most efficiently, regular collection of data on your tires is critical. You should be recording information including tire inflation pressures, wear trends, and tire mileage at removal. Using software, such as Goodyear's TVTRACK, allows you to analyze tire perfor-

mance and make comparisons with different vehicle configurations and tire types. By changing specifications, you may be able to realize significant gains in total tire mileage and other performance goals. "It all starts with good data," Miller concluded. "The more consistent and accurate you are with data gathering, the better the information generated." ■



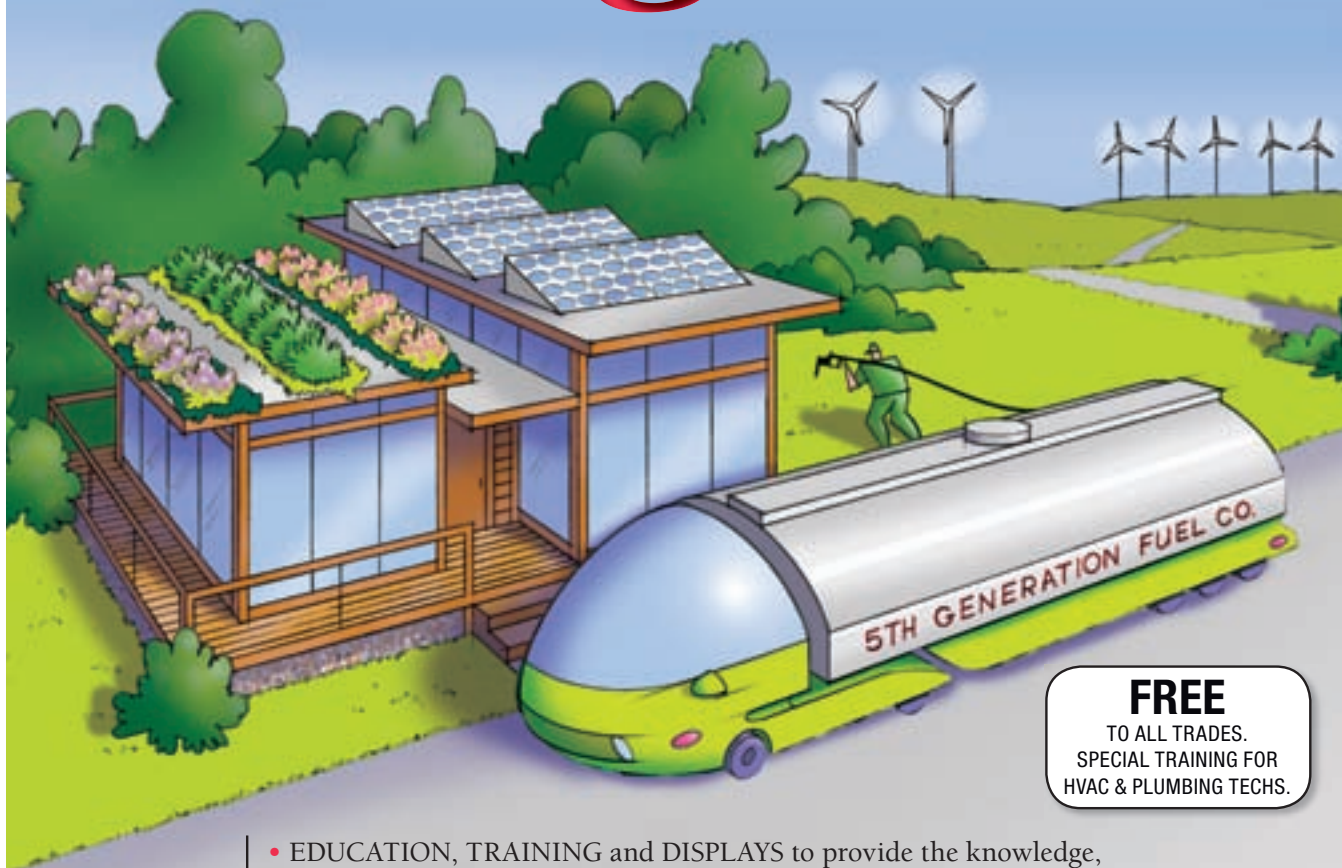
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## Solar hot water

(Continued from page 116.)

be designed as buffer tanks or solar heat transfer tanks. As a precaution during periods of servicing the hot water system, these systems would require heat dissipaters.

The second type of application is for apartments and multi-family dwellings. In this case, solar storage should be sized to store the full capacity of hot water produced by the solar collector array. Most of these loads are drawn during early morning hours or late in the day for showers or cooking. Some buildings are mixed use, such as hotels that have daytime laundry loads. The same strategy applies. Solar storage should be sized to store the solar energy collected throughout the day. Typical sizing requirements for solar hot water storage are to include one to two gallons of hot water storage capacity per day for every square foot of collector aperture.

Solar energy is a dynamic fuel, so expect the hottest storage temperatures in the summer and the lowest in the winter months. You should never expect design temperature from a solar tank to be the same all year round. In the winter, or during periods of cloud cover, a solar hot water system should be recognized as a preheating hot water system.

Office buildings are different in that they usually have no hot water load throughout the weekend. In this case, the solar storage volume could be increased and solar tanks staged to save the solar heat during the two days that no load would be accounted for and then used during the occupied cycle. The collector array could also be sized down for a seven-day collection cycle for five days of actual use.

The last application would be for buildings that are intermittently occupied. These include schools, dormitories and seasonal resorts, where the hot water systems serve a building that may not be used for weeks or months at a time. These hot water systems are best served by drainback solar design. Using drainback design, the solar collectors are empty for freeze protection and are filled only when there is solar hot water to collect. All the solar working fluid is drained out of the collectors into a reservoir tank after the collection cycle is complete. Drainback solar systems are appropriate for buildings with intermittent use, because the collectors are empty when solar collection is not in use and, therefore, do not pose the problem of stagnation.

Pay particular attention to drainback design. Not all solar collectors can be drained to slope, so the appropriate collectors must be chosen. Also, all collectors and piping must be sloped to drain and empty to the reservoir when circulation is off. It is important to note that a drainback may not be possible, for example, when collectors are on a ground mount or when the distance from the collectors to the reservoir poses obstacles for slope to drain.

Solar closed loop systems may be the only choice for schools or seasonal resorts. When choosing closed loops for these buildings, find an auxiliary load, such as a pool, during periods of inactivity. If that is

not possible, have the solar loop drained during unoccupied cycles. The other option, installing heat dissipaters, such as rooftop fan coils or buried pipe, may be the easiest solution and should be included for closed loop systems on buildings that are regularly unoccupied.

### Hot water recirculation and solar storage tanks

If there is anything to avoid with hot water recirculation and solar storage it is piping the recirculation hot water loop directly back into the solar storage tank, which uses solar energy to preheat the cold water supply then feeds the heated water to the thermostat-controlled hot water heater. Solar tank temperatures are very dynamic and can fluctuate widely throughout the day. Directing return recirculation piping into the solar tank is a mistake. When this happens, the hot water feed from the water heater through the recirculation hot water loop raises the temperature of the solar tank to the thermostat setting in the water heater. This must be avoided so that the solar collector can do all the work in its designated tank to raise the temperature of the cold water supply.

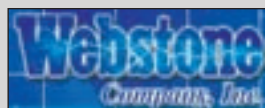
Hot water recirculation can only be diverted into the solar tank with the addition of a three-way valve and a differential control. This allows recirculation into the solar tank only as the water in the tank increases in temperature over the returning hot water, adding temperature to the recirculation hot water loop with solar. Without this control, pipe recirculation hot water loops into the back-up hot water heater.

I hope that this article provides additional perspective on solar design considerations for commercial hot water applications. One thing is certain: Solar hot water technology requires a different approach to designing hot water systems. The primary difference is the emphasis on "collecting" hot water. Once the concept is understood, the principles of design will fall into place. The sun's energy is not concentrated fuel stored in a gallon or a therm of energy, ready for hot water heating at any time. Instead, solar energy is very consistent and reliable and can be creatively delivered into our job market and the U.S. renewable energy infrastructure. ■

*Peter Biondo is the technical sales coordinator for Oventrop Corp.*

## Industry Calendar

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- 16 — PHCC-GLA, Long Beach, Calif.
- 17-21 — NAOHSM, Hershey, Pa.
- 29-30 — RPA Conference, Utica, N.Y.

### JULY

- 16-18 — QSC Power Meeting XXXI, Colorado Springs, Colo.

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## Internet killed the print media star?

BY JOHN MEISENBRINK,  
editor

Not so fast! Remember the birth of the MTV generation? It is hard to believe — 28 years ago, back in August of 1981 — the music television station revolutionized the music industry when its first video, The Buggles' *Video Killed the Radio Star*, debuted. And the rest was history, right? Radio stations became extinct and music only was enjoyed through the video experience. Well, not entirely. The ironic thing here is that nowadays you'll be hard-pressed to find any videos on MTV, and the radio industry is still going strong — by continuing on the success of providing a medium for great music and information.

And I would like to think that this is the same thing happening within our industry. Trade publications still provide the reader a wealth of information — from news to topical features to product information — and it is easily accessible and a magazine is transportable. For example, *Phc News's* sister publication, *The Wholesaler*, conducted a Purchasing Decision-Makers Survey in its February 2009 issue, and it revealed that nearly two-thirds of wholesalers/contractors still view trade pubs as the top source for news, technical features and product information.

By no means am I considering myself the "star" of the media, but I will say that for all of those in the print media industry, collectively we are. Recently, we have learned of newspapers in turmoil. For

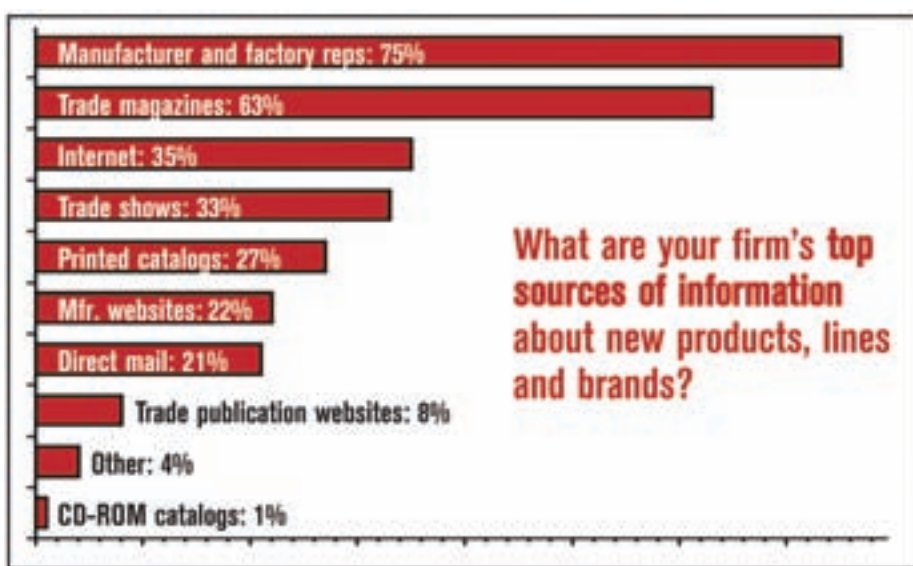
example, the *Seattle Post-Intelligencer* has stopped its print medium after 146 years of delivering the news, and has put its resources online. And *The Christian Science Monitor* has stopped printing daily but continues a weekly print version, with daily news updates online. *Phc News* does offer resources online at [www.phcnews.com](http://www.phcnews.com), and I think that the print and online resources can coexist. I am a firm believer that our products and services, in the print format, still provide an invaluable source of information for our readers; and people still take the time to read the magazine and are able to take it wherever needed. And really, are we at the point where we will take our iPhones into the stall with us and catch up on industry news?

To those who put together a final print product — from the publishers to the editors to the graphics people to the salespeople — we all work/will work diligently to bring you a quality product with the best information possible. And as long as the trade publication industry continues, that is our promise.

I am interested to know what you think. Email me at [editor@phcnews.com](mailto:editor@phcnews.com).

### Next issue...

- Piping Report
- Tankless Report
- Drainage Systems



There is no doubting the power, magnitude and convenience of the Internet, but according to a survey conducted by *Phc News's* sister publication, *The Wholesaler*, nearly two-thirds of wholesalers and contractors polled still view trade publications as a top viable choice for industry topics, news and product information.

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