Exchanger

Ashrae Bistate Chapter

Volume XXV, Issue 1 | Serving the Hudson Valley and Western Connecticut | September 2011

Upcoming Events

- ***October 12th*** - *Save the date*
- ***November 9th*** - *Save the date*
- ***December 14th*** - *Save the date*
- ***January 11th*** - *Save the date*
- ***February 8th*** - *Save the date*
- ***March 14th*** - *Save the date*
- ***April 11th*** - *Save the date*
- ***May 9th*** - *Save the date*
- ***June 13th*** - *Golf Outing*

Inside this issue:

Meeting Wednesday September 14, 2011

1 PDH Credit Approved

Presentation: Con Edison Rebate Programs

Scott Springer, Sr. Specialist, Commercial & Industrial Energy Efficiency Programs, will be presenting on Con Edison rebate programs.

Tech Session: Sustainable Cooling Water Treatment Through Non-Chemical Technologies

In his presentation Leon Shapiro will discuss viable non-chemical technologies that can be used as a means to treat cooling tower and evaporative condenser water without chemicals (or with greatly reduced chemical use) in order to achieve proper scale, corrosion and bacteria control. He will also discuss the potential to use the blow-down water from such systems for landscape irrigation. This program will also outline how the use of these technologies can generate LEED credits for the building owner/operator.

Place: Casa Rina, 886 Commerce Street, Thornwood, NY 10592

Program: 5:30 - 6:00 PM Attitude Adjustment Time
6:00 - 7:30 PM Buffet Dinner / Tech Session
7:30 - 8:30 PM Main Presentation

$25 Members, $30 Non-Members
Engineering students: complimentary admission

The general public is invited and encouraged to attend.

Directions to Casa Rina

From Saw Mill Parkway - North or South
Exit at Marble Avenue - Exit # 27
Make right - continue to second traffic light
Make right onto Commerce Street
Casa Rina is the second house on your left.
Parking is on your right.

Please make reservations by contacting:

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Carmen Yellen carmen.yellen@gmail.com

President's Message

By Nicholas Salomone

It is my pleasure to serve as the Chapter President and I intend to build upon the success of last year. On behalf of the Chapter, I would like to thank Enzo Carlesimo for all of his efforts last year as President. Last year we set a high standard of averaging 47 attendees per month for our monthly meetings, comprised of contractors, engineers, and students. We were able to award multiple scholarships to students at Manhattan College and Fairfield University, and made significant headway into starting a new student chapter at Fairfield University. Our monthly meetings provide excellent opportunities to network, gain new knowledge, and obtain PDH credits. I look forward to having another great year!

Nicholas Salomone
Bi-State Chapter President

Historical Notes — Bob Roston, Bistate Historian

Ice in 19th Century

"In workshops, composing rooms, counting houses, workmen, printers, clerks have their daily supply of ice. Every office, nook or cranny, illuminated by a human face, is also cooled by the presence of his crystal friend....

It is as good as oil to the wheel. It sets the whole human machinery in pleasant action, turns the wheels of commerce, and propels the energetic business engine.... It is considered by physicians as a tonic, but an excess, as in the use of intoxicating liquors, will, in all probability produce diarrhea."

—*From DeBow's Review, 1855.*

Oak Ridge National Laboratory Develops Natural-Gas-Powered Heat Pump

Engineers at Oak Ridge National Laboratory, Oak Ridge, Tenn., have developed a heat pump that does not rely on the electric grid for its power. The NextAire Packaged Gas Heat Pump (PGHP), recently commercialized with co-developers Southwest Gas, Las Vegas, and IntelliChoice Energy, Phoenix, Ariz., uses natural gas as its primary fuel, allowing users to avoid high kilowatt demands and time-of-use rates.

The PGHP uses both an internal-combustion engine to drive a vapor compression heat pump and the waste heat rejected by the engine for heating indoor air. The engine-compressor section features engine exhaust and waste heat recovery components and two belt-driven, scroll-type refrigeration compressors. Engine coolant is pumped through waste heat recovery components and the engine to remove and recover waste heat. Indoor and outdoor heat exchangers, as well as high-efficiency fans, comprise the rest of the system.

Because only 3% of the fuel energy is lost when transporting natural gas from a wellhead to a user, the PGHP represents a major efficiency improvement over traditional electricity, which sees losses of up 68%, as well as high levels of emissions and water use. Approximately the same size as traditional electric units, the PGHP runs at 74 decibels, about 12% quieter than a traditional electric air conditioning unit, and uses a small amount of electricity to run various subsystems.

Committee Reports

Membership Promotion — Terry Connor, Chairman

As the Chapter's new Membership Promotion Chairperson for 2011-12, I would like to summarize some of the many benefits that go along with being a member of ASHRAE:

- **ASHRAE Journal:** as a member, you will receive our monthly magazine, which reviews current HVACR technology of broad interest through publication of application-oriented articles.
- **ASHRAE Handbooks:** members receive the annual ASHRAE Handbook – the most widely cited reference source for HVACR technology in the world.
- **ASHRAE Website**: members have access to website with technical and research data bank.
- **Leadership & Networking:** members have access to a membership of industry leaders where they can network, improve communication and leadership skills, and become a leader in their own right. Opportunities exist locally at chapters and regions, and at Society, and range from leadership to technical opportunities. Members can also network in online forums with the ASHRAE Society Connections eNewsletter.
- **The International Journal of Heating, Ventilating, Air-Conditioning and Refrigerating Research**: members can subscribe to this quarterly journal at member price – it reports significant research from ASHRAE and the international HVACR research communities.
- **IAQ Applications:** members can subscribe to this quarterly magazine at member price – it provides practical, applicable information on indoor air quality, and also provide a platform for debate on issues that surround IAQ.
- **ASHRAE Publications:** members receive a 15% discount on over 300 titles.
- **ASHRAE Education & Certification:** members receive discounts on courses at Society's annual and winter conferences, as well as self study courses. Get PDHs and CEUs.
- **ASHRAE Standards & Guidelines:** members receive a 15% discount on design and application guidance for their projects with more than 100 Standards and Guidelines currently in print.
- **ASHRAE's Insights Newsletter:** members receive this monthly publication with news about ASHRAE at the chapter, region and Society levels.
- **HVAC Industry eNewsletter:** members receive this weekly newsletter that provides up-to-date industry news.
- **ASHRAE Chapter Meetings:** attend local meetings with monthly technical sessions. Most members can get PDHs or CEUs when attending ASHRAE meetings and events.

If you are already a member, please consider inviting a colleague or co-worker to attend an upcoming Chapter Meeting. ASHRAE is a volunteer organization and encourages your participation and involvement.

Research Promotion — Terry Connor, Chairman

The Bi-State Chapter exceeded our 2010-11 Research Promotion fund-raising goal – and thanks to your generosity, we helped ASHRAE Society set a new yearly fund-raising record. That's quite an accomplishment, given the miserable state of our economy! The money that we raised goes directly to funding research projects that impact all of us in many ways. For example, results from the research program help shape and revise the ASHRAE Handbook, used by professionals like us all around the world. Research project results are incorporated into ASHRAE standards, ensuring more efficient buildings, business practices and a better quality of life for people from New York to Hong Kong. And, to make this data readily able to be found and used, the results are available in multiple formats to best suit the needs of ASHRAE Members and HVAC&R companies. A sincere thank you to all of our members who contributed to the 2010-11 Research Promotion campaign!

Standard 990.1-2007 Established as National Reference Standard for Federal, Commercial Buildings by DOE

Commercial and high-rise residential buildings, including federal buildings, must now meet requirements in ASHRAE/IESNA's 2007 energy efficiency standard, under recent rulings issued by the United States Department of Energy (DOE) that finds the standard saves more energy than the 2004 version. ANSI/ASHRAE/IESNA Standard 90.1-2007, Energy Standard for Buildings Except Low-Rise Residential Buildings, has been established by the DOE as the commercial building reference standard for state building energy codes under the federal Energy Conservation and Production Act. As a result, states are required to certify by July 20, 2013, that they have reviewed and updated the provisions of their commercial building code regarding energy efficiency, including a demonstration that the provisions of their commercial building codes regarding energy efficiency meet or exceed 90.1-2007. The DOE also has issued a rule that requires new federal buildings, for which the design for construction begins on or after Oct. 11, 2012, to meet the requirements of 90.1-2007. Prior to the new rules, federal and commercial buildings had to meet requirements in the 2004 standard.

"We are pleased with this recognition that the 2007 standard saves more energy than the 2004 standard, thereby pushing the marketplace toward more energy-efficient buildings," ASHRAE President Ron Jarnagin said. "ASHRAE continues to build on the foundation of efficiency contained in Standard 90.1. We recently published the 2010 version of the standard, which results in more than 30 percent energy savings over the 2004 version. We currently are working on the 2013 standard, with a renewed focus on increasing the stringency to achieve a significant reduction in energy consumption."

The Illuminating Engineering Society (IES), cosponsor of the 90.1 standard, is also pleased with the DOE's favorable determination on the energy savings achieved in 90.1-2007, according to Rita Harrold, IES director of technology. "As ASHRAE President Ron Jarnagin indicates, the work is ongoing through the dedication and expertise of voluntary consensus committee members from both organizations who continue to meet the challenge of developing additional requirements for energy efficient buildings," Harrold said. "The DOE has determined that the quantitative analysis of the energy consumption of buildings built to Standard 90.1-2007, as compared to buildings built to Standard 90.1-2004, indicates national source energy savings of approximately 3.9 percent of commercial building consumption," according to the DOE. "Additionally, DOE has determined site energy savings are estimated to be approximately 4.6 percent."

The DOE noted that the newer version of the standard contained 11 positive impacts on energy efficiency. These impacts included changes made through the public review process in which users of the standard comment and offer guidance on proposed requirements. The positive impacts include:

- Increased requirements for building vestibules;
- Removal of data processing centers and hotel rooms from exceptions to HVAC
- Modification of requirements regarding demand controlled ventilation, fan power limitations, retail display lighting requirements, cooling tower testing requirements, commercial boiler requirements, part load fan requirements, opaque envelope requirements and fenestration envelope requirements.

ASHRAE and IES currently are working on the 2013 standard, having published the 2010 last year. Some 30 percent energy savings can be achieved using the 2010 version of Standard 90.1 vs. the 2004 standard. Without plug loads, site energy savings are 32.6 percent and energy cost savings 30.1 percent. Including plug loads, the site energy savings are estimated at 25.5 percent and energy cost savings 24 percent.

Since being developed in response to the energy crisis in the 1970s, Standard 90.1 now influences building designs worldwide. It has become the basis for building codes, and the standard for building design and construction throughout the United States. ASHRAE and IES publish a revised version of the standard every three years.

ASHRAE Learning Institute
2011 Fall Online Course Series

2 WAYS TO REGISTER

Internet: www.ashrae.org/onlinecourses
Phone: Call toll-free at 1-800-527-4723 (US and Canada) or 404-636-8400 (worldwide)
Note: You may register up to 24 hours prior to an online seminar. Courses are in US Eastern Standard Time.

CEU/PDH Credits Available!

Basics of High-Performance Building Design
Mon, September 19, 2011 – 1:00 pm to 4:00 pm EST

Advanced High-Performance Building Design
Wed, September 21, 2011 – 1:00 pm to 4:00 pm EST

Fundamental Requirements of ASHRAE Standard 62.1-2010
Mon, September 26, 2011 – 1:00 pm to 4:00 pm EST

Complying with Standard 90.1-2010: HVAC/Mechanical
Thurs, September 29, 2011 – 1:00 pm to 4:00 pm EST

Complying with Standard 90.1-2010: Envelope/Lighting
Mon, October 3, 2011 – 1:00 pm to 4:00 pm EST

Healthcare Facilities: Best Practice Design
Mon, October 31, 2011 – 1:00 pm to 4:00 pm EST

Healthcare Facilities: Best Practice Application
Wed, November 2, 2011 – 1:00 pm to 4:00 pm EST

Evaluating the Performance of LEED-Certified Buildings
Mon, November 7, 2011 – 1:00 pm to 4:00 pm EST

Project Management for Improved IAQ NEW
Wed, November 9, 2011 – 1:00 pm to 4:00 pm EST

The following courses are comprised of two parts. Registrants must attend both parts in order to receive CEU/PDH credits. Archiving is available.

Data Center Energy Efficiency – Part 1
Mon, October 10, 2011 – 1:00 pm to 4:00 pm EST

Data Center Energy Efficiency – Part 2
Wed, October 12, 2011 – 1:00 pm to 4:00 pm EST

ASHRAE LEARNING INSTITUTE

Using Standard 90.1 to Meet LEED Requirements – Part 1
Mon, October 17, 2011 – 1:00 pm to 4:00 pm EST

Using Standard 90.1 to Meet LEED Requirements – Part 2
Wed, October 19, 2011 – 1:00 pm to 4:00 pm EST

Implementing Standard 189.1 for High-Performance Green Buildings – Part 1
Mon, October 24, 2011 – 1:00 pm to 4:00 pm EST

Implementing Standard 189.1 for High-Performance Green Buildings – Part 2
Wed, October 26, 2011 – 1:00 pm to 4:00 pm EST

ASHRAE HVAC Design Essential Workshop

January 11-13, 2012 • ASHRAE Foundation Learning Center • Atlanta, GA

Obtain the skills needed to:

- Improve overall building performance
- Design high-performance HVAC systems
- Effectively collaborate on an integrated design team

ASHRAE has created the HVAC Design Essentials to provide intensive, practical education for designers and others involved in delivery of HVAC services. Developed by industry-leading professionals, this workshop provides participants with training design to accelerate their evolution into effective member on a design, construction or facilities maintenance team.

In addition to gaining in-depth knowledge and understanding, attendees will receive real-world examples of HVAC systems based on the newly renovated ASHRAE Headquarters building. The workshop teaches a systematic approach to guide a design team to a solution that optimally meets the client's expectations.

Who Should Attend

- Engineers new to the HVAC industry
- Facilities managers involved in new construction or major renovation projects
- Technicians who would like to gain design knowledge
- Architects who want to understand HVAC design
- Construction project managers involved with mechanical systems

Visit www.ashrae.org/hvacdesign to register

ASHRAE Certification Programs

- Building Energy Assessment Professional (BEAP)
- Building Energy Modeling Professional (BEMP)
- Commissioning Process Management Professional (CPMP)
- Healthcare Facility Design Professional (HFDP)
- High-Performance Building Design Professional (HBDP)
- Operations & Performance Management Professional (OPMP)

For more info, visit www.ashrae.org/certification

Officers and Governors 2011—2012

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Why Be Involved in a Local Chapter?

- Learn about the latest technologies presented in the program sessions
- Attain continuing education credits
- Meet industry associates and discuss local concerns
- Network amongst designers, installers, vendors, educators, in your local area to help improve business for all
- Share experiences with others
- Enjoy a social hour
- Carry out ASHRAE's mission on a local level

"To advance the arts and sciences of heating, ventilating, air conditioning and refrigerating to serve humanity and promote a sustainable world."

ASHRAE Region I Roster

2011-12 Executive Committee

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ASHRAE Region I Roster

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Regional Young Engineers in ASHRAE
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ASHRAE 2011 Student Design Competition

ASHRAE's 2011 Student Design Competition drilled students on their knowledge of HVAC&R system selection and design as well as integrated building design to encourage practical design. This year's Competition featured a mock design of the Drake Well Museum located in Titusville, Pa., the site where Edwin L. Drake drilled the world's first oil well in 1859 and launched the modern petroleum industry. Among the 20-plus entries from around the world, three were awarded first place in the three categories that the Competition offers.

First place in HVAC System Design is awarded to Holly Brink, Michael Crabb, James Dougherty Jr., Andrew Gilliam and Gina Halbom of the University of Nebraska. Their faculty advisor is Grenville Yuil, Ph.D. After analyzing three system designs, the team chose a variable air volume system with heat and ground cooled geothermal heat recovery chiller/heater. The higher initial cost of the system is countered by its overall efficiency, low maintenance and federal tax incentives. The final system design outperformed baseline case energy by 33 percent.

The team noted that, "sustainability is a difficult achievement when considering the design for museum buildings. For HVAC design, the strict temperature and humidity requirements increase the amount of energy needed for tempering outdoor air. Also, the additional MERV filters that protect air quality increase the ductwork's static pressure and thus increase the amount of fan energy needed for maintaining airflow. It is the team's opinion that the positive aspects of the design outweigh the higher cost. These positive aspects help preserve the history of the nation's oil industry while reducing the museum's impact on the environment."

First place in HVAC System Selection is awarded to Lynn Gualtieri, Evan Oda, Kristin Porter, Navid Saiidnia, Jeffrey Wong and Cameron Young of California Polytechnic State University, San Luis Obispo, Calif. Their faculty advisor is Jesse Maddren. The team chose a water-source variable refrigerant volume (VRV) system, which includes a ground-source water loop, a dedicated outdoor air (DOA) unit and humidifiers, as well as addition of a solar array. The VRV is split into two systems: a constant environmental control system for the collections areas and galleries, and a standard environmental control system for the offices, education center, auditorium and lobby. In each separate system the latent and sensible load were decoupled – the VRV fan coils handle the sensible load while a DOA unit with humidifiers handles the latent load. This setup allows the entire VRV system to control the indoor environment to specified conditions. The advantage of having two systems is the standard environmental control system can be completely shut off during non-occupied hours, which saves energy when compared to running a single large DOA at very low part load.

First place in Integrated Sustainable Building Design is awarded to Te Qi, Zhang Qiqi and Chen Yuanyi of Tianjin University, China. Their advisors are Liu Junjie and Long Zhengwei. The students integrated a ground-source heat pump for space conditioning and domestic hot water; optimized the fenestration (quantity, location and type of windows); added a solar heat storage system with thermal solar collector; changed the building orientation to 5 degrees south to the east for more efficient orientation; and used thermal mass in walls to reduce heating and cooling loads. The team had to build detailed energy simulation models, and they demonstrated they understood synergy and compromise when they noted "as for modeling and simulation research, it is essential to integrate different modeling strategy to evaluate a building performance. Through this process, we find sometimes they contradict each other. However, they sometimes support each other. "

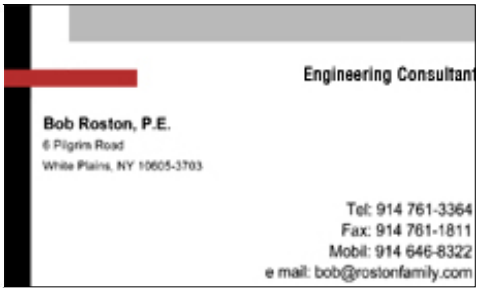
The competition recognizes outstanding student design projects, encourages undergraduate students to become involved in the profession, promotes teamwork and allows students to apply their knowledge of practical design. The first place teams are given 10-15 minutes to present their projects at the 2012 Winter Conference in Chicago, Jan. 21-25.

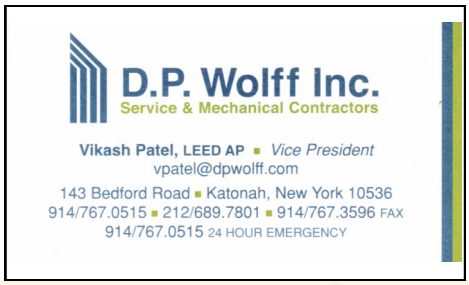
Notice to business card advertisers:

We are currently accepting business card advertisements for this year's newsletters. The cost of a business card ad is $125.00. The newsletter is published monthly, September through June (ten issues). That means for $125.00 ($12.50 an issue), your business card ad will circulate to approximately 300 recipients a month or an advertising cost of approximately 4 cents/recipient.

If you are interested in placing an ad, please forward a business card and check (payable to ASHRAE Bi-State) to:

ASHRAE Bi-State Chapter
DL Flow Tech
2421 Route 52
Hopewell Junction, NY 12533





Employment Opportunities

Employment ads may be submitted for inclusion in **The Exchanger** as follows:

1. $100.000 from companies placing ad for one (1) month.

The American Society of Heating, Refrigerating and Air-Conditioning Engineers advances the arts and sciences of heating, ventilation, air conditioning and refrigeration to serve humanity and promote a sustainable world. Membership is open to any person associated with the field including indoor air quality, building design and operation, and environmental control for food processing and industry.

ASHRAE will be the global leader, the foremost source of technical and educational information, and the primary provider of opportunity for professional growth in the arts and sciences of heating, ventilating, air conditioning and refrigerating.

Upcoming Meetings

Month	Date	Promotion	Main Presentation	Tech Session
September	9/14/2011	1st chapter meeting of the 2011-2012 year	Con Edison Rebate Programs	Sustainable Cooling Water Treatment Through Non-Chemical Technologies
October	10/12/2011	Research Promotion		
November	11/9/2011	Membership Promotion		
December	12/14/2011	Sustainability		
January	1/11/2012	Student Activities		
February	2/8/2012	Research Promotion		
March	3/14/2012	Membership Promotion		
April	4/11/2012	Sustainability		
May	5/9/2012	Student Activities		
June	6/13/2012	Student Scholarships	Golf Outing	

Renewable Energy Benefits From Recovery Act Funding, Says Report

Renewable energy generation in the United States has benefited greatly from the federal stimulus bill's $100 billion investment in energy innovation, according to a report released recently by U.S. Vice President Joe Biden. According to "The Recovery Act: Transforming the American Economy Through Innovation," the United States is now on track to achieve three major breakthroughs due to Recovery Act investments: cutting the cost of solar power in half by 2015; reducing the cost of batteries for electric vehicles by 70% between 2009 and 2015; and doubling U.S. renewable energy generation and renewable manufacturing capacity by 2012.