



Upcoming Events

- **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

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Meeting Wednesday October 12, 2011

2 PDH Credits Approved

Presentation: Absorption vs. Electric Chiller Technologies

Evans J. Lizardos, P.E., LEED AP of Lizardos Engineering Associates, P.C. will be presenting on absorption vs. electric chiller technologies. He will introduce a simplified method of evaluating these two chiller technologies and thereby avoid a detailed time consuming analysis. Participants will receive 1 PDH credit.

Tech Session: Application of Mixed or Hybrid Boiler Systems for Energy Efficiency

Tom Neill, Supervisor of Project Engineering for Mestek, will be presenting on the application of mixed or hybrid boiler systems for energy efficiency. This presentation will consist of a review of traditional and modern boiler sizing methods as a function of building load and standby capacity. It includes a review of boiler efficiency definitions and measurement methodologies. The second segment discusses increasing boiler and system operating efficiency with reduced temperature operation and boiler base loading. The presentation includes information on the identification of boiler types, sensible and condensing, and the supporting control strategies for optimizing efficiency and energy reduction. The lecture concludes with selection and comparison of boiler equipment for hybrid systems, cost analysis and potential savings. Participants will receive 1 PDH credit.

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:

Nicholas Salomone ashraebistate@gmail.com
Carmen Yellen carmen.yellen@gmail.com

President's Message

By Nicholas Salomone

Last month we were privileged to have two outstanding speakers. Scott Springer gave the main presentation on current Con Edison rebate programs and Leon Shapiro from Vortex gave the technical session on non-chemical water treatment. We will continue our trend of outstanding speakers into October, when Evans Lizardos presents on Electric vs. Absorption Chiller technologies and Tom Neill of Mestek presents on Application of Mixed or Hybrid Boiler Systems for Energy Efficiency. I look forward to seeing you all there!

Nicholas Salomone
Bi-State Chapter President

Historical Notes — Bob Roston, Bistate Historian

About Committees

I think it should be a matter of importance to have standing committees, especially on standards. We find that often a dispute will arise in regard to what is

a proper standard of heating and ventilation, and I think if there was a standing committee on that subject that the opinion of that committee, as representing the Society, would have a good deal of weight in settling those questions.

“The value of all engineering societies, I think, depends on their tests... Our tests would be entirely in relation to heating. We can make tests, and if we have good committee I think it would be very valuable. I think that it is really the great work of the Society, the work it should do for the world.”

—David Quay and Hugh Barron discussing the “Value of Standing Committees of the Society On Tests And Standards” at the first ASHVE meeting in 1895.

'Artificial leaf' makes fuel from sunlight

Researchers led by MIT energy and chemistry professor Daniel Nocera have produced something they're calling an “artificial leaf”: Like living leaves, the device can turn the energy of sunlight directly into a chemical fuel that can be stored and used later as an energy source. The artificial leaf — a silicon solar cell with different catalytic materials bonded onto its two sides — needs no external wires or control circuits to operate. Simply placed in a container of water and exposed to sunlight, it quickly begins to generate streams of bubbles: oxygen bubbles from one side and hydrogen bubbles from the other. If placed in a container that has a barrier to separate the two sides, the two streams of bubbles can be collected and stored, and used later to deliver power: for example, by feeding them into a fuel cell that combines them once again into water while delivering an electric current.

The device, Nocera explains, is made entirely of earth-abundant, inexpensive materials — mostly silicon, cobalt and nickel — and works in ordinary water. Other attempts to produce devices that could use sunlight to split water have relied on corrosive solutions or on relatively rare and expensive materials such as platinum. The artificial leaf is a thin sheet of semiconducting silicon — the material most solar cells are made of — which turns the energy of sunlight into a flow of wireless electricity within the sheet. Bound onto the silicon is a layer of a cobalt-based catalyst, which releases oxygen, a material whose potential for generating fuel from sunlight was discovered by Nocera and his co-authors in 2008. The other side of the silicon sheet is coated with a layer of a nickel-molybdenum-zinc alloy, which releases hydrogen from the water molecules.

Professor James Barber, a biochemist from Imperial College London who was not involved in this research, says Nocera's 2008 finding of the cobalt-based catalyst was a “major discovery,” and these latest findings “are equally as important, since now the water-splitting reaction is powered entirely by visible light using tightly coupled systems comparable with that used in natural photosynthesis. This is a major achievement, which is one more step toward developing cheap and robust technology to harvest solar energy as chemical fuel.”

Barber cautions that “there will be much work required to optimize the system, particularly in relation to the basic problem of efficiently using protons generated from the water-splitting reaction for hydrogen production.” But, he says, “there is no doubt that their achievement is a major breakthrough which will have a significant impact on the work of others dedicated to constructing light-driven catalytic systems to produce hydrogen and other solar fuels from water. This technology will advance side by side with new initiatives to improve and lower the cost of photovoltaics.”

ASHRAE Introduces New Liquid Cooled Datacom Environmental Classes

A new whitepaper that serves as the first vendor neutral thermal guideline for liquid cooled data processing environments is available for free download from ASHRAE. "2011 Thermal Guidelines for Liquid Cooled Data Processing Environments" creates data center classes for liquid cooling that can enable fulltime economizers for a number of applications in many climates, according to Don Beaty, chair of the Publications Subcommittee of ASHRAE's Technical Committee (TC) 9.9, Mission Critical Facilities, Technology Spaces and Electronic Equipment. The whitepaper can be downloaded for free from the ASHRAE TC9.9 website at www.tc99.ashraetcs.org.

The increasing heat density of modern electronics is stretching the ability of air to adequately cool the electronic components within servers as well as the data center facilities that house these servers. To meet this challenge, the use of direct water or refrigerant cooling at the rack or board level is now being deployed. This trend of increasing heat densities combined with the interest in energy and waste heat recovery created the need for liquid cooling guidelines to help bridge the gap between IT equipment design and data center facility design, according to Beaty.

Five liquid cooling classes have been created:

- W1 – Facility Water Supply Temperature of 2 to 17 C
- W2 – Facility Water Supply Temperature of 2 to 27 C
- W3 – Facility Water Supply Temperature of 2 to 32 C
- W4 – Facility Water Supply Temperature of 2 to 45 C
- W5 – Facility Water Supply Temperature of > 45 C

In addition to the classes, the whitepaper provides insight into other considerations for liquid cooling including condensation, operation, water flow rates, pressure, velocity and quality as well as information on interface connections and infrastructure heat rejection devices. This whitepaper follows an earlier whitepaper released in May 2011, "2011 Thermal Guidelines for Data Processing Environments – Expanded Data Center Classes and Usage Guidance," which addresses air cooling in data centers and created new data center environmental classes which expanded the opportunity for chiller-less data centers (fulltime economizers).

Schools Tapping A/C Condensate to Conserve Water

Two Houston universities are tapping into one of the city's defining features - air conditioning - to conserve water in the midst of a historic drought. Rice University is recycling 12 million gallons of water per year, 5 percent to 6 percent of its annual water consumption, by harvesting condensate water, or gray water, from air-conditioning units on campus. The initiative will save the university about \$80,000 to \$100,000 per year. Across town at the University of Houston, officials started recycling water for three science buildings five years ago and plan to expand the initiative to new buildings being constructed.

"In a typical year, adding water to the cooling tower is our biggest portion of our water consumption," said Richard Johnson, director of energy and sustainability at Rice. "So, to the extent to which we can find ways to find water to recycle to use in our cooling tower, it means that we need less water from the city of Houston."

Rice began the initiative in fall 2008 in its BioScience Research Collaborative building, a 10-story, science-intensive building that requires a lot of cooling and creates a lot of condensate. "The great thing about this condensate water (is) it's pure, you don't need to treat it," Johnson said. "It's distilled water, and it's cold." The condensate is used to replace water lost to evaporation without having to get it all from the city water supply.

Another project that collects condensate from eight buildings on campus was finished this summer. "It (was) real easy to complete that project because the buildings were already designed to accommodate that collection of water," said Erik Knezevich, project manager and engineer at Rice.

Such projects work best in buildings designed for recapturing water. Capturing condensate in older buildings can require costly steps such as pumping water through pipes with a lot of turns and slopes, Johnson said. "The pumps we use don't require a lot of energy," Johnson said. "The amount of water saved would more than offset the electricity we use."

At the University of Houston, water recycling began when officials noticed a large amount of water being wasted from the cooling towers. "We noticed so much water was just going down the drain," said Sameer Kapileshwari, director for facilities operations and maintenance. "We were losing about 8,000 gallons of water a day." Kapileshwari said the recycling project has reduced the university's water and energy costs.

The concept is catching on slowly around the country, said Rice's Knezevich. "It's usually referred to as gray water recovery, which is a big environmental movement across the country. There are different variations of how you collect your water and ways in which you reuse it," Knezevich said. "It's certainly a great opportunity for buildings that use a lot of air conditioning."

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.



Complying with Standard 90.1-2010: Envelope/Lighting
Mon, October 3, 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/DPH credits. Archiving is available.

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


Data Center Energy Efficiency – Part 1
Mon, October 10, 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

Data Center Energy Efficiency – Part 2
Wed, October 12, 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

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

Project Management for Improved IAQ 
Wed, November 9, 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

ASHRAE Certification Programs

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



- 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](http://www.ashrae.org/certification)

Visit www.ashrae.org/hvacdesign to register

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, AHR Expo Return to Chicago for 2012 Winter Conference

Registration is open for ASHRAE's 2012 Winter Conference in Chicago where attendees have the chance to discuss and examine the latest topics in the building industry, such as high performing buildings and integrated design, as well as participate in technical tours; attend ASHRAE Learning Institute courses; earn professional credits; and obtain ASHRAE certifications. The 2012 Winter Conference takes place Jan. 21-25 at the Palmer House Hilton. The International Air-Conditioning, Heating, Refrigerating Expo®, held in conjunction with the Winter Conference, will run Jan. 23-25. The Expo, www.ahrexpo.com, is held at the McCormick Place. In keeping with ASHRAE's goal of continuing education the Conference offers over 200 Professional Development Hours, as well as Continuing Education Units, which can be applied toward a Professional Engineering license.

The technical program features more than 90 programs and 300 speakers addressing energy modeling applications; integrated design; healthcare, laboratories and data center applications, among others; operations and maintenance; high performance buildings; as well as refrigeration and systems and equipment sessions. Additionally, there is a new "mini-conference" on Installation, Operation & Maintenance of HVAC Systems built within the Technical Program. The O&M mini-conference is scheduled on Jan. 22-23. The full Technical Program, which will be announced later this month, offers the opportunity to earn a year's worth of PDHs, NY PDHs, AIA LUs and LEED AP credits.

The Chicago Virtual Conference is included with a paid Conference registration—comp and single day registration excluded—and includes on-demand access to all speakers' audio presentations synced to their presentations. Attendees and speakers can post comments on the presentations for a two-week period. Those not attending the Chicago Winter Conference in person may register for the Virtual Conference only. Register at www.ashrae.org/chicagovirtual.

Five Professional Development Seminars and 15 Short Courses are offered to help industry professionals stay current on HVAC technology, including how to apply the newest ASHRAE standards. The ASHRAE Learning Institute (ALI) is offering a new half-day short course on the basics of combined heating and power systems, as well as updates to the full-day professional development seminars focusing on Standards 62.1, Ventilation for Acceptable Indoor Air Quality, and 90.1, Energy Standard for Buildings Except Low-Rise Residential Buildings. ALI courses are approved for renewal of professional engineer and professional architect licenses, as well as for industry certification programs.

Additionally, ASHRAE offers a special administration of all six certification examinations on Jan. 25: Building Energy Assessment Professional (BEAP), Building Energy Modeling Professional (BEMP), Commissioning Process Management Professional (CPMP), High-Performance Building Design Professional (HBDP), Healthcare Facility Design Professional (HFDP) and Operations & Performance Management Professional (OPMP). ASHRAE's certification program recognizes industry professionals who have mastered knowledge and skills reflecting best practices in certain aspects of building design and operations. More information on each certification can be found at www.ashrae.org/chicagoexams.

ASHRAE Conference technical tours give you a first-hand look at technology developed by members to further the industry. Tours include the North Central College Residential and Recreation Center, Loyola University Information Commons, the University of Chicago Mansueto Library and Rush University Medical Center Central Energy Plant.

The Winter Conference also includes a program designed for students of the Society. Highlights of the program, held on Sunday, Jan. 22, include speakers, a professional development session and presentations by the recipients of the Student Design Competition and a technical tour of the University of Chicago library. To register and for complete Conference information, visit www.ashrae.org/chicago.

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:

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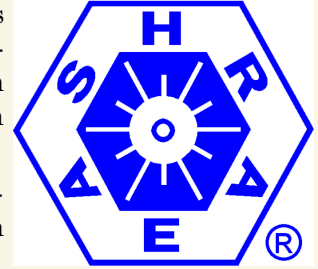
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Employment Opportunities

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
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	

Empire State Building Certified LEED Gold

The Empire State Building has been awarded LEED Gold for Existing Buildings certification as a result of its recent \$550 million renovation. According to the U.S. Green Building Council (USGBC), it is the tallest building in the U.S. to receive LEED certification. The renovation is designed to reduce the building's energy consumption by more than 38%, yielding a \$4.4 million savings in energy costs annually. The improvements also reduce carbon emissions by an estimated 105,000 metric tons over 15 years. Sustainable measures implemented include retrofitting all 6,514 windows, upgrades to the building management system, and installation of reflective insulation behind all of the building's radiative barriers to redirect heat inward.

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