

Volume XXVII, Issue 7

Serving the Hudson Valley and Western Connecticut

March 2014

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Upcoming Events

- April 23 -Parks and Rec Tour
- May 14 -Golf Outing
- June 11 -Save the date
- August 14 through 16 -ASHRAE Region 1 2014 CRC Hosted by Bi-State Chapter

Meeting Wednesday March 12, 2014 1 PDH Credit Pending NYS Approval

Presentation: Design and Application Considerations for Steam Turbine Generators

Please join us on Wednesday, March 12th for an informative presentation on "Design and Application Considerations for Steam Turbine Generators" delivered by Philip Rutkowski from the Elliott Group. Phil is a graduate of West Point. After active duty, Phil went on to work in the Pentagon in the Army's strategic construction division, setting the stage for the modernization of U.S. Army bases worldwide. He then went to work in renewable energy, developing projects for 2.5MW wind turbines. Phil is now the North American Sales Manager for the Power Generation division of the Elliott Group in Jeannette, Pennsylvania.

Phil's presentation will discuss Steam Turbine basics, applications, construction, specifications, selections and design for Steam Turbine Generators.

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 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. Walk-ins welcome.

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 RSVP to Terry Connor if you plan on attending:

Email: Terry.Connor@jci.com

Phone: 914-593-5223

President's Message

By Terry Connor, LEED AP

Our chapter meeting for March will have us at our usual venue (the Casa Rina Restaurant in Thornwood, NY) for an informative presentation on "Design and Application Considerations for Steam Turbine Generators" delivered by Philip Rutkowski from the Elliott Group. Phil's presentation will discuss Steam Turbine basics, applications, construction, specifications, selections and design for Steam Turbine Generators.

Thank you to those Chapter Members who have volunteered to assist with the planning and execution of this year's CRC in August 2014. We will be meeting as a group in the near future to finalize the planning for this event. If you are interested in helping the Chapter successfully host this event – it's not too late to volunteer – please reach out to our CRC Committee co-chairs – Mike Circosta (email: mjcarmonk@optonline.net / Ph: 914-273-9173) or Cliff Konitz (email: c.konitz@verizon.net / Ph: 845-297-5864) for more details.

Terry Connor, LEED AP Bi-State Chapter President

Wavier Jet Stream May Drive Weather Shift

The main system that helps determine the weather over Northern Europe and North America may be changing, research suggests. A new study shows that the so-called jet stream has increasingly taken a longer, meandering path. This has resulted in weather remaining the same for more prolonged periods. The work was presented at the annual meeting of the American Association for the Advancement of Science (AAAS) in Chicago.

The observation could be as a result of the recent warming of the Arctic. Temperatures there have been rising two to three times faster than the rest of the globe. According to Professor Jennifer A. Francis, Research Scientist at the Institute of Marine and Coastal Sciences, Rutgers University, "This does seem to suggest that weather patterns are changing and people are noticing that the weather in their area is not what it used to be."

The meandering jet stream has accounted for the recent stormy weather over the UK and the bitter winter weather in the US Mid-West remaining longer than it otherwise would have. "We can expect more of the same and we can expect it to happen more frequently," says Professor Francis.

The jet stream, as its name suggests, is a high-speed air current in the atmosphere that brings with it the weather. It is fuelled partly by the temperature differential between the Arctic and the mid-latitudes. If the differential is large then the jet stream speeds up, and like a river flowing down a steep hill, it ploughs through any obstacles - such as areas of high pressure that might be in its way.

If the temperature differential reduces because of a warming Arctic then the jet stream weakens and, again, like a river on a flat bed, it will meander every time it comes across an obstacle. This results in weather patterns tending to becoming stuck over areas for weeks on end. It also drives cold weather further south and warm weather further north. Examples of the latter are Alaska and parts of Scandinavia, which have had exceptionally warm conditions this winter.

With the UK, the US and Australia experiencing prolonged, extreme weather, the question has been raised as to whether recent patterns are due to simple natural variations or the result of manmade climate change? According to Prof Francis, it is too soon to tell. "The Arctic has been warming rapidly only for the past 15 years," she says. "Our data to look at this effect is very short and so it is hard to get a very clear signal. But as we have more data I do think we will start to see the influence of climate change."

Prof Francis was taking part in a session on Arctic change involving Mark Serreze, the director of the U.S. National Snow and Ice Data Center in Colorado. He said the idea that changes in the polar north could influence the weather in middle latitudes - so-called "Santa's revenge" - was a new and lively area of research and somewhat controversial, with arguments for and against.

"Fundamentally, the strong warming that might drive this is tied in with the loss of sea-ice cover that we're seeing, because the sea-ice cover acts as this lid that separates the ocean from a colder atmosphere," Dr. Serreze explained. "If we remove that lid, we pump all this heat up into the atmosphere. That is a good part of the signal of warming that we're now seeing, and that could be driving some of these changes."

A research paper coauthored by Prof Francis can be found at: marine.rutgers.edu/~francis/pres/Francis_Vavrus_2012GL051000_pub.pdf

Research Promotion Contribution Form

PLEASE COMPLETE THE INFORMATION BELOW AND RETURN WITH YOUR CONTRIBUTION TO:

James Kolk 528 Middle Street North Babylon, NY 11703

Phone: 631-219-8502 Fax: 610-923-3352

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Credit Card #	Expiration Date
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ASHRAE/IES Energy Standard Gains 30 Percent Savings over 2004 Standard

The requirements of the 2013 revision of an energy standard recently published by ASHRAE and IES will result in buildings that could achieve six to eight percent more efficiency than buildings built to the 2010 standard. Published in October 2013, ANSI/ASHRAE/IES Standard 90.1-2013, *Energy Standard for Buildings Except Low-Rise Residential Buildings*, provides minimum requirements for the energy-efficient design of buildings except low-rise residential buildings.

Pacific Northwest National Laboratories (PNNL), in support of the Department of Energy's Building Energy Codes Program, conducted the energy savings analysis on 110 addenda included in the standard.

PNNL's analysis shows that the site and energy cost savings are 37.7 percent and 37.8 percent, respectively, by using the 2004 standard as baseline for the regulated loads only. For the whole building energy consumptions, national aggregated site energy savings are 29.5 percent and energy cost savings are 29.0 percent.

--On a nationally aggregated level, building-type energy savings range from 19.3 percent to 51.9 percent and energy-cost savings from 18.6 to 50.6 percent. These figures include energy use and cost from the whole building energy consumptions including plug and process loads.

"ASHRAE is committed to continually improving building energy performance, so we are pleased with this confirmation that the 2013 standard achieves significant energy savings over its predecessor," William Bahnfleth, ASHRAE president, said. "As we approach the 40th anniversary of the publication of the standard, these new savings underscore Standard 90.1's key role in promoting energy efficiency in buildings in the United States by establishing successively more stringent – but cost effective – minimum requirements and we look forward to further advances in future revisions."

"The Illuminating Engineering Society of North America (IES) has provided technical support on lighting related requirements in each iteration of the standard since 1975," Rita Harrold, director of technology, said. "IES continued that role in developing the energy efficiency provisions in the 2013 standard through modified LPDs and additional daylighting and controls strategies. The challenge to achieve higher energy efficiencies increases with each version of the standard and begins anew as we address targets for the 2016 edition."

Extensive analysis work was performed by a team from Pacific Northwest National Laboratories. Sixteen different building prototypes were modeled in 17 different climate locations for a total of 272 building types and climate zone combinations

The energy reduction was achieved through 33 addenda related to major changes to requirements regarding building envelope, lighting, mechanical and the energy cost budget. The most significant changes are:

- Building Envelope. Opaque elements and fenestration requirements have been revised to increase stringency while
 maintaining a reasonable level of cost-effectiveness. Opaque and fenestration assemblies in Tables 5.5-1 through 5.5
 -8 are revised in most climates. These changes include:
 - O Criteria requiring double glazed fenestration in many climates
 - O Minimum visible transmittance/solar heat gain coefficient (VT/SHGC) ratio to enable good daylighting with minimum solar gain, while not restricting triple- and quadruple-glazing.
 - O Simplification of the skylighting criteria.
- Lighting: These changes include improvements to daylighting and daylighting controls, space-by-space lighting power density limits, thresholds for toplighting and revised controls requirements and format.
- Mechanical: Equipment efficiencies are increased for heat pumps, packaged terminal air conditioners, single package vertical heat pumps, air conditioners and evaporative condensers. Also, fan efficiency requirements are introduced for the first time. Additional provisions address commercial refrigeration equipment, improved controls on heat rejection and boiler equipment, requirements for expanded use of energy recovery, small motor efficiencies and fan power control and credits. Control revision requirements have been added to the standard such as direct digital controls in many applications.

Another important change for the 2013 standard is the first alternate compliance path in Chapter 6. Section 6.6 was added to the 2010 edition to provide a location for alternate methods of compliance with the standard. The first such alternate path has been developed for computer room systems and was formulated with the assistance of ASHRAE technical committee 9.9, Mission Critical Facilities, Data Centers, Technology Spaces and Electronic Equipment. This path uses the Power Usage Effectiveness (PUE) metric established by the datacom industry. This alternate efficiency path format provides a framework that could be considered for other energy using facets of buildings not easily covered in the prescriptive provisions of the standard.

The standard is written in mandatory code language and offers code bodies the opportunity to make a significant improvement in the energy efficiency of new buildings, additions and major renovations.

Brought to you by the ASHRAE Chapter Technology Transfer Committee





Buildings in Balance: IEQ and Energy Efficiency

Online Archive April 18, 2014 — May 2, 2014

Presenters



2013-14 ASHRAE President William R "Bill" Bahnfleth, Ph.D., RE., Fellow ASHRAE, ASME Fellow



James W. Bochat, LEED-AP, NEBB Cx, Tim McGinn, REng., LEED-AP, HBDP NEBB TAB





The webcast archive allows participants to view all or part of the program, at any time, during the two week archive period. The archived program is great for:

- Professors and ASHRAE Student Branches
 Viewing the program on your schedule

ASHRAE Chapter Programs

· Re-watching sections of interest

EARN PDHs!

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www.ashrae.org/ieqwebcast

ASHRAE Conferences 2013-2014

Attend to See What's New, Learn New Skills, Earn PDHs, Network with Peers

ASHRAE IAQ 2013: Environmental Health in Low Energy Buildings

Oct. 15-18, 2013 | Vancouver, BC, Canada www.ashrae.org/IAQ2013

Comprehensive overview presented via papers.

Co-organizer:



ASHRAE 2014 Winter Conference

Jan. 18-22, 2014 | New York, NY Jan. 21-23, 2014 | AHR Expo www.ashrae.org/newyork

Bookstore Sponsor:



First International Conference on Energy and Indoor Environment for Hot Climates

Feb. 24-26, 2014 | Doha, Qatar www.ashrae.org/hotclimates

Papers focused on arid and humid hot climates.

Organized by:



Qatar Oryx Chapter



Qatar Environment & Energy Research Institute

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High Performance Buildings Conference

April 7-8, 2014 | San Francisco, Calif. www.hpbmagazine.org/hpb2014 State-of-the-industry presentations



Efficient, High Performance Buildings for Developing Economies

April 24-25, 2014 | Manila, Philippines www.ashrae.org/Developing2014 First ASHRAE conference on this topic.

Organized by: ASHRAE





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ASHRAE 2014 Annual Conference

June 28-July 2, 2014 | Seattle, Wash. www.ashrae.org/seattle

2nd Annual Research Summit presented.

2014 ASHRAE/IBPSA-USA Building Simulation Conference

Sept. 10-12, 2014 | Atlanta, Ga. www.ashrae.org/Simulation2014 Single collaboration of Energy Modeling and SimBuild Conferences.

Organized by: ASHRA





Get Updated on Current Trends and Make Industry Connections at an ASHRAE Conference!

www.ashrae.org/conferences



New ASHRAE, Green Grid Publication Provides Background on Data Center Metrics

Power usage effectiveness (PUETM) has become the industry-preferred and globally adopted metric for measuring the energy efficiency of data centers. In response to this demand, ASHRAE and The Green Grid have published "PUETM: A Comprehensive Examination of the Metric." This is the 11th book in the Datacom Series of publications from ASHRAE Technical Committee (TC) 9.9, Mission Critical Facilities, Data Centers, Technology Spaces and Electronic Equipment. ASHRAE TC 9.9 collaborated with The Green Grid on the book.

"Our primary goal is to provide the data center industry with unbiased, vendor neutral data in an understandable and actionable way and this latest publication on the PUE metric does exactly that," Don Beaty, publication subcommittee chair of TC 9.9, said. "We want to ensure that data center designers, owners and operators have access to information that enables them to make informed and educated decisions based on their business needs and value systems."

For this book, all previously published material related to PUE was consolidated and augmented with new material. The content includes detailed information on procedures for calculating, reporting and analyzing PUE measurements, plus quick references to other resources in print and online. The intention is that a broad audience—from those implementing and reporting data center metrics seeking in-depth application knowledge and resources to executives hoping to gain a higher level of understanding of the concepts surrounding PUE—can easily grasp the guidance offered.

"Data centers are complex systems for which power and cooling remain key issues facing IT organizations today," John Tuccillo, chairman of the board for The Green Grid Association, said. "The Green Grid Association's PUE metric has been instrumental in helping data center owners and operators better understand and improve the energy efficiency of their existing data centers, as well as helping them make better decisions on new data center deployments."

PUE was first defined by The Green Grid, a non-profit, open industry consortium of end users, policy makers, technology providers, facility architects and utility companies working to improve the resource efficiency of information technology and data centers throughout the world.



APPLY

Each year the ASHRAE Foundation awards scholarships of up to \$10,000 each to qualified students.

DONATE

Help support ASHRAE's student scholarship programs.

www.ashrae.org/scholarships

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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.

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

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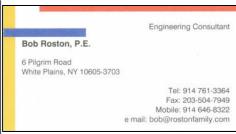
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Employment Opportunities

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

- 1. \$100.000 from companies placing ad for one (1) month.
- 2. \$150.00 from companies placing ad for two (2) months.
- 3. No charge for members looking for employment.

ARPA-E Projects Attrack More Than \$625 Million in Private Funding

The Department of Energy's Advanced Research Projects Agency – Energy (ARPA-E) announced that the Agency's innovative projects are making great strides towards transforming the way Americans use and produce energy. 22 ARPA-E projects have attracted more than \$625 million in private-sector follow-on funding after ARPA-E's investment of approximately \$95 million. In addition, at least 24 ARPA-E project teams have formed new companies to advance their technologies, and more than 16 ARPA-E projects have partnered with other government agencies for further development.

The annual ARPA-E Energy Innovation Summit brings together over 2,000 leaders from academic, business, and government to discuss cutting-edge energy issues, share knowledge, network, and cultivate relationships that can help advance innovative energy technologies into the marketplace. Summit keynote speeches and panel presentations span the course of three days and range from high-level policy overviews to focused discussions on developing and deploying specific technologies. For more information about the ARPA-E Energy Innovation Summit, please visit www.arpae-summit.com.



ASHRAE, founded in 1894, is a building technology society with more than 50,000 members worldwide. The Society and its members focus on building systems, energy efficiency, indoor air quality and sustainability within the industry. Through research, standards writing, publishing and continuing education, ASHRAE shapes tomorrow's built environment today.

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
March	3/12/2014	Sustainability	Steam Turbine Generators	
April	4/23/2014	Membership Promotion	Parks and Rec tour	
May	5/14/2014	Student Scholarships	Golf Outing	
June	6/11/2014	Refrigeration	Save the date	
August	8/14/2004 through 8/16/2014		ASHRAE Region 1 2014 CRC hosted by Bi-State Chapter	

NYSERDA Launches Networking Website to Spur Commercialization of Clean Energy Technology

The New York State Energy Research and Development Authority (NYSERDA) has launched a networking website, <u>cleantechNYconnect.com</u>, dedicated to helping cleantech business leaders, investors, entrepreneurs and researchers access information and resources that can speed innovation and commercialization.

The site is a free professional networking tool that only requires registration to access the site. The purpose is to encourage collaboration between individuals and businesses in New York's cleantech sector and to connect them with resources to help establish and grow their businesses. Once registered, users can create or participate in discussion forums, review industry news, seek funding opportunities, connect with investors, profile themselves or their companies, and learn about industry events. The site is intended to stimulate conversation and encourage the exchange of clean energy business ideas and expertise. The site is also expected to foster greater interest in member companies from investors, and will help to build relationships between industry groups, government and utilities.

"With this initiative, entrepreneurs and start-ups throughout New York's cleantech sector have a clearinghouse to connect with each other, to access valuable resources, share best practices and build businesses that can provide benefits to all New Yorkers," said John B. Rhodes, President and CEO, NYSERDA. "This web site is another example of an innovative initiative under Governor Cuomo that is fostering public-private partnerships to stimulate the economy, create jobs and protect the environment." CleantechNYconnect joins an expanding portfolio of NYSERDA programs that create public-private partnerships to grow the state's economy. Other NYSERDA clean-energy business development programs include statewide business incubators, the Entrepreneurs-in-Residence program and three Proof-of-Concept Centers.