



# Bi-State Chapter Exchanger

Volume XXVII, Issue 8

Serving the Hudson Valley and Western Connecticut

April 2014

## LEED Platinum Building Tour Wednesday, April 23, 2014 noon — 3:00pm Office of Parks and Recreation, Staatsburg, NY

The 30,000 Square Foot Taconic Regional Headquarters was awarded Platinum-level LEED® certification by the U.S. Green Building Council. The adapted school building is the first public building in New York State to win LEED Platinum for new construction or major renovation projects – the highest level of certification for the design, construction and operation of high performance green buildings. The building consists primarily of offices and public spaces as well as the regional park police. The HVAC systems includes thirty-two closed loop geothermal heat pumps, two make-up air units with heat recovery, pumps, exhaust fans, and geothermal heat exchangers.

Reuse of an existing building, the 1930 Staatsburg School in Mills-Norrie State Park, was a significant factor in reaching the platinum level certification. Other factors included:

- Significant energy use savings through a ground coupled heat pump system to heat and cool the building; electricity-generating solar panel arrays, highly energy efficient windows, innovative insulation methods, and high efficiency lighting.
- Increased ventilation rates and use of low VOC-emitting products (such as glues, paints and carpets) to improve air quality.
- New materials such as carpet, demountable partitions, and ceilings made with a very high percentage of recycled content, and other finishes made with renewable materials such as cork.
- Low-flow sinks, dual-flow toilets, and waterless urinals to save water.
- Permeable pavement and parking as well as the removal of excessive site hardscape to reduce storm water runoff.
- "Daylighting" a nearby stream that had been diverted into a drainage pipe and restoring the stream bank.

Presentation by Lead Architect Patrick Kozakiewicz, RA LEED AP, who also works at the office of Parks, Recreation and Historic Preservation.

Additional presentation by OLA Consulting Engineers, Commissioning Authority for the Project.

Construction of the Taconic Region's new headquarters was supported by more than \$128,000 in incentives from the New York State Energy Research and Development Authority (NYSERDA). This funding helped offset the purchase and installation costs of the building's energy efficient and green building measurers, which are anticipated to reduce its energy costs by nearly \$40,000 annually.

State Parks also was awarded a NYSERDA High Performance Building Plaque in recognition of the energy saving measures installed in the building.

The New York State Office of Parks, Recreation and Historic Preservation oversees 178 state parks and 35 historic sites.

Where: Office of Parks and Recreation Staatsburg NY. 9 Old Post Road Staatsburg, NY 12580

Light Fare: (Sandwiches, soft drinks etc.) shall also be provided.

Space is limited so please register by end of day Friday April 18<sup>th</sup>, 2014, email Jim Dolan, [Jdolan@olace.com](mailto:Jdolan@olace.com)

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### Upcoming Events

- **May 14** - Golf Outing
- **June 11** - Save the date
- **August 14 through 16** - ASHRAE Region 1 2014 CRC Hosted by Bi-State Chapter

## **ASHRAE 2014 Annual Conference Announced for Seattle**

ASHRAE's 2014 Annual Conference takes place June 28-July 2 in Seattle, Washington. The Technical Program kicks off June 29, with interactive programs and a networking coffee break, and concludes July 2. The program addresses broad topics in the application of technology to practice, specific applications in ground source heat pumps, operations and maintenance and indoor environmental quality, as well as new reports on research taking place worldwide.

Featured is a track on Ground Source Heat Pumps State of the Art: Design, Performance and Research, which addresses all aspects of design that lead to optimally performing systems in addition to avoiding common pitfalls that lead to poorly performing systems. The Conference also features the second annual ASHRAE Research Summit, which presents innovations in HVAC&R research with particular emphasis on high performance building design and its role in a clean energy economy, and brings together researchers to present and discuss the latest research. Researchers present papers, seminars and forums or participate in panel discussions. Also, highlights on ongoing ASHRAE funded research are presented.

Attendees also can take part in courses offered by the ASHRAE Learning Institute, including two full-day professional development seminars and seven half-day short courses. New is a course on building demand response and the coming smart grid. ASHRAE also offers its Building Energy Assessment Professional (BEAP) and Building Energy Modeling Professional (BEMP) exams on July 1.

The keynote speaker is Robert Bryce, one of America's most prominent energy journalists and a senior fellow at the Manhattan Institute. He serves as the keynote speaker at the opening Plenary Session, held Saturday, June 28. Registration is not required to attend the session, which also features the Honors and Awards program. Denis Hayes, president and CEO, Bullitt Center, serves as keynote speaker at the Technical Plenary, Sunday, June 29. Conference registration is required to attend. In his remarks, Hayes discusses the problems and opportunities associated with "net positive" commercial construction, using the Bullitt Center as an illustration of what is currently possible.

Technical tours at the Conference include Federal Center South Building 1202; The Fred Hutchinson Cancer Research Center 1100 Eastlake Facility; The Bullitt Center; the Bill and Melinda Gates Foundation Headquarters; the University of Washington Molecular Engineering & Sciences Building; and the University of Washington Power Plant. General tours include Tillicum Village; Show Me Seattle; Aircrafts, Airpark and Aviation Artifacts; Leisurely Lakes Cruise; Going Boeing; Cascades, Cabernets and Chocolates; and Museum of History and Industry (MOHAI).

The Conference takes place at the Sheraton Seattle and the Washington State Convention Center. To register or more information, visit [www.ashrae.org/seattle](http://www.ashrae.org/seattle).

## **U.S. Energy Use Increasing**

U.S. consumers used 2.3 quadrillion Btus (quads) more energy in 2013 than the previous year, according to a new report by Lawrence Livermore National Laboratory (LLNL). The report found that the majority of energy use in 2013 was for electricity generation (38.2 quads). Wind energy was found to be a growing source of energy generation. Wind energy increased 18% from 2012 to 2013 to a total of 1.6 quads. Along with the increase in energy use, the nation's energy-related carbon dioxide emissions increased to 5,390 million metric tons, the first annual increase since 2010.

## **LEED Reaches 3 Billion Square Feet of Certified Space**

The U.S. Green Building Council (USGBC) has announced that 3 billion ft<sup>2</sup> (280 million m<sup>2</sup>) of construction space has earned LEED certification globally. "Green" construction is growing rapidly. McGraw-Hill estimates that it will comprise half of U.S. construction and be worth up to \$248 billion by 2016. "More than 4.3 million people live and work in LEED buildings," said Rick Fedrizzi, president, CEO and founding chair of USGBC.



# ASHRAE Bi-State Chapter

## Annual Golf Outing



**Wednesday, May 14, 2014**  
**The Links at Union Vale**

**Schedule:**

- 11:30 am check-in/ 12:00 noon lunch
- 1:00 pm shotgun start
- 6:00 pm dinner/awards

**Costs:**

- \$200 per player
- \$750 per foursome
- \$65 for dinner only

**Return this form with payment by May 9, 2014**

**Note:** *If payment is not received prior to the golf outing, your reservation may not be accepted.*

Name: \_\_\_\_\_ Phone: \_\_\_\_\_

Company Name: \_\_\_\_\_

Company Address: \_\_\_\_\_

Email: \_\_\_\_\_

- |   |  |
|---|--|
| <input type="checkbox"/> Individual for lunch/golf/dinner ..... \$200 | <input type="checkbox"/> Tee Sponsor .....\$200            |
| <input type="checkbox"/> Individual for dinner only ..... \$65        | <input type="checkbox"/> Beverage Cart Sponsor .....\$1000 |
| <input type="checkbox"/> Foursome for lunch/golf/dinner ..... \$750   | <input type="checkbox"/> Lunch Sponsor .....\$1500         |

Please check off participation level above and make checks payable to: *ASHRAE Bi-State Chapter.*

**List names of golfers below.** *(If less than four, the golf committee will complete pairings.)*

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

2. \_\_\_\_\_ 4. \_\_\_\_\_

Mail completed reservation form and check to:  
ASHRAE Bi-State Golf c/o OLA Consulting Engineers, 50 Broadway, Hawthorne, NY 10532



# ASHRAE Bi-State Chapter

## Annual Golf Outing



### Directions to The Links at Union Vale

153 North Parlman Road, Union Vale, NY 12540 (845)223-1002

[www.thelinksatunionvale.com](http://www.thelinksatunionvale.com)



#### *From New York City and South:*

- Take the Taconic State Parkway north to Route 82 North.
- Travel 4-1/2 miles and make a right onto County Route 89
- Take the first right onto North Parlman Road (1 mile).
- Golf Course is 1/2 mile on right.

#### *From East or West:*

- Take Interstate 84 (east or west) to the Taconic State Parkway north (6-3/4 miles) to Route 82 North.
- Travel 4-1/2 miles and make a right onto County Route 89.
- Take the first right onto North Parlman Road (1 mile).
- Golf course is 1/2 mile on right.

#### *From the North:*

- Take the Taconic State Parkway south to Route 55 east towards Pawling.
- Take a left at the first light (Route 82 north).
- Make a right onto County Route 89
- Take the first right onto North Parlman Road (1 mile).
- Golf Course is 1/2 mile on right.

# 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

Please accept my research investment in the amount of \$\_\_\_\_\_

Make checks out to **ASHRAE Research**.

Name\_\_\_\_\_Member #\_\_\_\_\_

Company\_\_\_\_\_Chapter Bi-State

Address\_\_\_\_\_

City\_\_\_\_\_State\_\_\_\_\_Zip\_\_\_\_\_

Please check one:           ( ) Personal contribution  
                                  ( ) Company contribution

Charge my gift to:   ( ) Visa   ( ) Master Card   ( ) American Express

Credit Card #\_\_\_\_\_Expiration Date\_\_\_\_\_

Signature\_\_\_\_\_

Donors are recognized for their contributions as follows:

**Honor Roll** contributors are listed in the October ASRHAE Journal and receive the commemorative coin recognizing Giants in HVAC&R invention or innovation.

Individual Honor Roll beginning at \$100  
Corporate Honor Roll beginning at \$150

**Investors** with contributions of \$250 or more receive a wall plaque that can display six commemorative coins.

*Contributions in any amount are gratefully received and 100% of the contribution goes directly to research. All contributions are tax deductible.*

## Using the Energy of the Sun to Make Solar Energy Materials

In a recent advance in solar energy, researchers have discovered a way to tap the sun not only as a source of power, but also to directly produce the solar energy materials that make this possible. This breakthrough by chemical engineers at Oregon State University could reduce the cost of solar energy, speed production processes, use environmentally benign materials, and make the sun almost a “one-stop shop” that produces both the materials for solar devices and the eternal energy to power them. The findings were recently published in *RSC Advances*, a journal of the Royal Society of Chemistry, in work supported by the National Science Foundation.

“This approach should work and is very environmentally conscious,” said Chih-Hung Chang, a professor of chemical engineering at Oregon State University, and lead author on the study.

“Several aspects of this system should continue to reduce the cost of solar energy, and when widely used, our carbon footprint,” Chang said. “It could produce solar energy materials anywhere there's an adequate solar resource, and in this chemical manufacturing process, there would be zero energy impact.”

The work is based on the use of a “continuous flow” microreactor to produce nanoparticle inks that make solar cells by printing. Existing approaches based mostly on batch operations are more time-consuming and costly. In this process, simulated sunlight is focused on the solar microreactor to rapidly heat it, while allowing precise control of temperature to aid the quality of the finished product. The light in these experiments was produced artificially, but the process could be done with direct sunlight, and at a fraction of the cost of current approaches.

“Our system can synthesize solar energy materials in minutes compared to other processes that might take 30 minutes to two hours,” Chang said. “This gain in operation speed can lower cost.”

In these experiments, the solar materials were made with copper indium diselenide, but to lower material costs it might also be possible to use a compound such as copper zinc tin sulfide, Chang said. And to make the process something that could work 24 hours a day, sunlight might initially be used to create molten salts that could later be used as an energy source for the manufacturing. This could provide more precise control of the processing temperature needed to create the solar energy materials.

State-of-the-art chalcogenide-based, thin film solar cells have already reached a fairly high solar energy conversion efficiency of about 20 percent in the laboratory, researchers said, while costing less than silicon technology. Further improvements in efficiency should be possible, they said.

Another advantage of these thin-film approaches to solar energy is that the solar absorbing layers are, in fact, very thin -- about 1-2 microns, instead of the 50-100 microns of more conventional silicon cells. This could ease the incorporation of solar energy into structures, by coating thin films onto windows, roof shingles or other possibilities.

Additional support for this work was provided by the Oregon Nanoscience and Microtechnologies Institute, or ONAMI, and the Oregon Built Environment and Sustainable Technologies Center, or Oregon BEST.



Join us at ASHRAE's 2014 Annual Conference  
June 28–July 2 | Seattle, Washington | [www.ashrae.org/seattle](http://www.ashrae.org/seattle)

Special first  
time attendee  
registration fee  
available!

Join ASHRAE in Seattle! Take advantage of the opportunity to discuss and examine the latest topics in the building industry, such as high performing buildings and integrated design, through the technical program; participate in technical tours; attend ASHRAE Learning Institute courses; and earn professional credits.

**Research Summit** – held in conjunction with the 2014 Annual Conference. The summit addresses the latest research results, innovative research techniques and forecasts future research directions.

**Technical Program** – presentations and papers focus on current research worldwide; core HVAC&R applications and systems; and Integrated Project Design, Energy Modeling and Building Efficiency Performance.

**Networking** – share ideas and learn from fellow members from your hometown and around the world.

**ASHRAE Learning Institute** – choose from two full-day professional development seminars and seven half-day short courses to stay current on new HVAC technologies.





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 P. "Bill" Bahnfleth, Ph.D.,  
PE., Fellow ASHRAE, ASME Fellow



James W. Bochat, LEED-AP, NEBB Cx,  
NEBB TAB



Tim McGinn, REng., LEED-AP, HBDP



Jerry M. Sipes, Ph.D., RE.

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!

Attend this FREE webcast program and you may be awarded three Professional Development Hours (PDHs) or three AIA Learning Units (LUs).

[www.ashrae.org/ieqwebcast](http://www.ashrae.org/ieqwebcast)

## Revised ASHRAE Standard Helps to Compare Building Energy Performance

When it comes to the how-to of measuring a building's energy use, there is much to take into consideration. Are the measurements of a building's area—used in the equation to derive energy use per square foot—to be taken from the exterior dimensions or to the centerline of the wall? Since they are normally unoccupied, are storage spaces to be included or not? The newly revised ANSI/ASHRAE Standard 105-2014, *Standard Methods of Determining, Expressing, and Comparing Building Energy Performance and Greenhouse Gas Emissions*, supports commonality in reporting the energy performance of existing or proposed buildings to provide a consistent method of measuring, expressing and comparing the energy performance of buildings.

“A standard method of measurement is needed in order to be able to compare one building's energy use to another,” Keith Emerson chair of the Standard 105 committee, said. “For instance, comparing one building's summer energy use to another building's winter use would be comparing apples and oranges.” According to Emerson, the new edition of Standard 105 now includes procedures for going beyond site energy to calculate the impact of building energy use on primary (source) energy and greenhouse gasses.

It also provides a common basis for reporting building energy use in terms of delivered energy forms and expressions of energy performance; for comparing design options; and for comparing energy performance in terms of energy resources used and greenhouse gas emissions created, both across buildings and for energy efficiency measures within buildings. “To keep the standard flexible, a number of decisions are left to those who adopt it, including what should be calculated beyond site energy and the multipliers for those additional calculations,” Emerson said.

Primary energy and greenhouse gas equivalence conversion factors have been left to the discretion of the adopting agencies and authorities, which are available from a number of sources, including an informative appendix in the standard. The standard has also been upgraded to code enforceable language.

The cost of Standard 105-2014, *Standard Methods of Determining, Expressing, and Comparing Building Energy Performance and Greenhouse Gas Emissions*, is \$58 (\$48 ASHRAE members). To order, contact ASHRAE Customer Contact Center at 1-800-527-4723 (United States and Canada) or 404-636-8400 (worldwide), fax 678-539-2129, or visit [www.ashrae.org/bookstore](http://www.ashrae.org/bookstore).



### 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](http://www.ashrae.org/scholarships)



## Bi-State Chapter Officers and Governors 2013—2014

Position	First Name	Last Name	Email	Phone	Fax
<b>Officers</b>					
President	Terry	Connor	Terry.Connor@jci.com	(914) 593-5223	(914) 593-5201
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Vice President	Cliff	Konitz	c.konitz@verizon.net	(845) 297-5864	(845) 297-5864
Secretary	Brendan	Smith	bsmith@lynstaar.com	(914) 741-1290 ext 17	
Treasurer	Dennis	LaVopa	dlavopa@dIFlowTech.com	(845) 265-2828	(845) 265-2745
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BOG (term ends June 2016)	Michael	Circosta	mjcarmonk@optonline.net	(914) 273-9173	(914) 273-4097
BOG (term ends June 2016)	Dennis	LaVopa	dlavopa@dIFlowTech.com	(845) 265-2828	(845) 265-2745
BOG (term ends June 2016)	Robert	Roston	bob@rostonfamily.com	(914) 761-3364	(203) 504-7949
BOG (term ends June 2015)	Terry	Connor	Terry.Connor@jci.com	(914) 593-5223	(914) 593-5201
BOG (term ends June 2015)	Brendan	Smith	bsmith@lynstaar.com	(914) 741-1290 ext 17	(845) 297-5864
BOG (term ends June 2015)	James	Dolan	jdolan@olace.com	(914) 919-3106	(914) 747-0453
BOG (term ends June 2014)	Steven	Abbattista	sabbattista@olace.com	(914) 919-3102	(914) 747-0453
BOG (term ends June 2014)	Cliff	Konitz	c.konitz@verizon.net	(845) 297-5864	(845) 297-5864
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Chapter Delegate	Brendan	Smith	bsmith@lynstaar.com	(914) 741-1290 ext 17	
Chapter Alternate	Terry	Connor	Terry.Connor@jci.com	(914) 593-5223	(914) 593-5201
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Student Activities	Stephanie	O'Dea	Stephanie.L.Odea@jci.com	(914) 593-5245	
Young Engineers in ASHRAE	TJ	Kieper	kiepertj@gmail.com	(917) 993-1023	
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Reception	Joseph	Trongone	jatrong@optonline.net	(914) 332-7658	
Administrator	Cliff	Konitz	c.konitz@verizon.net	(845) 297-5864	(845) 297-5864
Golf	Steven	Abbattista	sabbattista@olace.com	(914) 919-3102	(914) 747-0453

### 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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## 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.

### The Next Heat Source: Data Centers

The city of Seattle is working on a project to make use of the heat that data centers produce. The city plans to route heat from two local data centers to help warm 10 million ft<sup>2</sup> (930 000 m<sup>2</sup>) of building space in the surrounding area. The project is still in the conceptual phase, and the city hopes to have it under way "within the next year," said Jill Simmons, director of Seattle's Office of Sustainability and Environment. The construction cost will be borne by private utility Corix, which will recover its investment through rates paid by customers over a 30-year period. Seattle is following the lead of other cities around the world, including Munich and Vancouver, small portions of which also use heat from data centers. Meanwhile, a team of researchers from Microsoft and the University of Virginia envisions small servers they call "data furnaces" being installed directly at homes and office buildings. This solution, they say, would offer increased computing power to users along with a smaller carbon footprint. In addition, if the servers are connected to home or office furnace systems, they could serve as the primary heating source.



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
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	

### ASHRAE Publishes 2013 Version of MOT for BACnet Conformance

New tests and test improvements are included in the newly published ANSI/ASHRAE Standard 135.1-2013, *Method of Test for Conformance to BACnet*. The standard was published recently by ASHRAE. The standard defines a standard method for verifying that an implementation of the BACnet protocol provides each capability claimed in its Protocol Implementation Conformance Statement (PICS) in conformance with Standard 135, *BACnet® -- A Data Communication Protocol for Building Automation and Control Networks*.

Standard 135.1 provides a comprehensive set of procedures for verifying the correct implementation of each claimed capability, including BACnet services (as initiators, executors, or both), BACnet object-types (including both required properties and optional properties), the BACnet network layer protocol, data link options and all special functionalities.

The newly published standard includes new tests for new extensions to the BACnet standard; numerous test improvements developed in cooperation with the BACnet Testing Laboratories; and references the latest version of Standard 135, published in 2012, according to Carl Neilson, chair of the Standard 135 and Standard 135.1 Committees. “The new tests are significant and wide sweeping across the standard,” he said. “The new tests cover new functionality that has been added to the BACnet standard over the past six to 10 years. We are continuing to work on advancing the test standard to ensure it continues to have coverage as the BACnet standard is extended / maintained.”

The cost of ANSI/ASHRAE Standard 135.1-2013, *Method of Test for Conformance to BACnet*, is \$119 (\$101, ASHRAE members). To order, contact ASHRAE Customer Contact Center at 1-800-527-4723 (United States and Canada) or 404-636-8400 (worldwide), fax 678-539-2129, or visit [www.ashrae.org/bookstore](http://www.ashrae.org/bookstore).

### Lessons Learned from ASHRAE HQ Renovation

The ASHRAE Journal article “Lessons Learned from ASHRAE HQ Renovation” is available for reading at: [www.nxtbook.com/nxtbooks/ashrae/ashraejournal\\_201404](http://www.nxtbook.com/nxtbooks/ashrae/ashraejournal_201404)