



Bi-State Chapter Exchanger

Volume XXVII, Issue 2

Serving the Hudson Valley and Western Connecticut

October 2013

Inside this Issue

Historical Note	2
Officers and Governors	11
Employment Ads and Sponsorship	12
Upcoming Meetings	13

Upcoming Events

- **November 13** - IBM Chiller Plant Tour
- **December 11** - Holiday Event (tentative)
- **January 8** - Save the date
- **January 18 through 23** - ASHRAE 2014 Winter Conference New York City
- **February 12** - Environmental Air Quality
- **March 12** - Save the date
- **April 9** - Save the date
- **May 14** - Golf Outing
- **June 11** - Save the date
- **August 14 through 16** - ASHRAE Region 1 2014 CRC Hosted by Bi-State Chapter

Meeting Monday October 21, 2013

Joint meeting with AIA Westchester Hudson Valley Chapter at their Design and Technology Expo at the Westchester Marriott Hotel, Tarrytown

The Expo Show is from 4 p.m. to 8 p.m. Seminars are held all day from 9 a.m. to 9 p.m. as well. The Expo is free to attend. Bi-State Chapter Members are eligible for the AIA member rate of \$10 to attend the seminars. Note that the AIA continuing education units are acceptable for engineering PDH credits. A list of the seminar topics is available on the website:

<http://www.aiawhv.com/cde.cfm?event=401331>

Please register online at the AIAWHV website – use your ASHRAE member ID number in place of the AIA member number where prompted. You can pay for the seminars online as well.

We would like to encourage contractors, equipment vendors, engineers and the like to support this event by considering a display at the expo. You will reach builders, architects, engineers, and owners throughout the lower Hudson Valley area. A sponsorship form is available at:

http://www.aiawhv.com/associations/11790/files/2013%20EXPO%20Exhibitor-Agreement_AIA.pdf

The Westchester Marriot Hotel is located at 670 White Plains Road, Tarrytown

ASHRAE/IES Publish 2013 Energy Standard: Changes for Envelope, Lighting, Mechanical Sections

Major changes to requirements regarding building envelope, lighting, mechanical and the energy cost budget are contained in the newly published energy standard from ASHRAE and IES. ANSI/ASHRAE/IES Standard 90.1-2013, *Energy Standard for Buildings Except Low-Rise Residential Buildings*, incorporates 110 addenda, reflecting changes made through the public review process. Appendix F gives brief descriptions and publication dates of the addenda to 90.1-2010 reflected in this new edition.

“While many things have changed since the first version of Standard 90 was published in 1975, the need to reduce building energy use and cost has not,” Steve Skalko, chair of the committee that wrote the 2013 standard, said. “This standard represents many advances over the 2010 standard, as we worked toward our goal of making the standard 40 to 50 percent more stringent than the 2004 standard.”

“Achieving the stringency goals established for the 2013 standard presented a challenge in reducing the requirements for lighting,” Rita Harrold, director of technology for the Illuminating Engineering Society of North America, said. “While interior lighting power densities (LPD) were re-evaluated and most lowered, there continues to be an ongoing concern about maintaining quality of lighting installations for occupant satisfaction and comfort while achieving energy savings. The focus in the 2013 standard, therefore, was not just on lowering LPDs but on finding ways to achieve savings by adding more controls and daylighting requirements as well as including lighting limits for exterior applications based on jurisdictional zoning.”

The cost of ANSI/ASHRAE/IES Standard 90.1-2013, *Energy Standard for Buildings Except Low-Rise Residential Buildings*, is 135 (\$115, 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.

Historical Note — Bob Roston, Bi-State Historian Early Ventilation

In the ventilation of theaters by the upward system, the space under the auditorium is used as a plenum chamber, and there are openings under the seats or in perforated chair legs. In this way each person receives an individual air supply, which, after passing over him, ascends to the ceiling, where the vitiated air is drawn off by means of an exhaust fan. Such systems require only about twenty cubic feet of air per occupant per minute to give good results.

Particular attention must be paid to the exhaust ventilation of foyers and smoking-rooms, in order to insure an inward current of air into these rooms through doorways or other openings. It is practically impossible to secure proper ventilation of theaters without employing fans.

— *Ventilation of Buildings* by William Snow and Thomas Nolan, 1906

U.S. Reaches Settlement with Safeway to Reduce Emissions of Ozone-Depleting Substances

In a settlement agreement, Safeway, the second-largest grocery store chain in the U.S., has agreed to pay a \$600,000 civil penalty and implement a corporate-wide plan to significantly reduce its emissions of ozone-depleting substances from refrigeration equipment at 659 of its stores nationwide. The settlement with the U.S. Environmental Protection Agency (EPA) and Department of Justice involves the largest number of facilities ever under the federal Clean Air Act's (CAA) regulations governing refrigeration equipment. It resolves allegations that Safeway violated the CAA by failing to promptly repair leaks of HCFC-22, and failed to keep adequate service records of its refrigeration equipment. Safeway must now implement a corporate refrigerant compliance management system to comply with ozone regulations. In addition, Safeway must reduce its corporate-wide average leak rate from 25% in 2012 to 18% or below in 2015. The company is also required to reduce the aggregate refrigerant emissions at its highest-emission stores by 10% each year for three years.

Industry Reaps the Benefits of ASHRAE Scholarships

"The ASHRAE scholarship program is making a difference in the lives of the outstanding students that it touches." That is according to David Meredith, chair of the ASHRAE Scholarship Trustees on awarding \$106,000 in scholarship money for the 2013-2014 academic year.

"When I look at the global leadership that past scholarship recipients have demonstrated throughout their professional career, I am proud of what the ASHRAE Scholarship Program has been able to accomplish," Meredith said. "I can't wait to see how this year's recipients help shape our future."

The recipients of ASHRAE's scholarship assistance include the following:

- **Reuben Trane Scholarship:** \$10,000 to be awarded over two years, Richard Melo, Wentworth Institute of Technology, mechanical engineering. The scholarship was established by the Trane Co. in memory of its founder, an innovative engineer, inventor and business executive.
- **Willis H. Carrier Scholarships:** \$10,000 for one year, Breeann Foran, Montana State University, mechanical engineering; and Nicholas Rekstad, Pennsylvania State University, architectural engineering. The scholarship was established by the Carrier Corp. in memory of its founder, who installed the world's first scientifically designed air-conditioning system.
- **Lynn G. Bellenger Engineering Scholarship:** \$5,000 for one year, Tiffany Williams, North Carolina A&T State University, architectural engineering. The scholarship, which is being awarded for the first time this year, recognizes a female undergraduate engineering student. It is named in memory of the Presidential Member Lynn G. Bellenger, the Society's first female president.
- **Frank M. Coda Scholarship:** \$5,000 for one year, Travis Norris, East Carolina University, mechanical engineering. The scholarship was created in memory of ASHRAE's former executive vice president, who served from 1981-2004.
- **David C.J. Peters Scholarship:** \$5,000 for one year, Mei Yung Wong, Oklahoma State University, mechanical engineering. The scholarship is awarded to a third-year student in a four-year undergraduate mechanical engineering program or a fourth-year student in a five-year undergraduate mechanical engineering program at Pennsylvania State University, Virginia Tech, California State University, Oklahoma State University, University of Texas, Clemson University, North Carolina State University, University of Nebraska, Cal Poly State University and University of Nevada. The scholarship was created by Southland Industries to honor Peters, an advocate of recruiting quality.
- **General Scholarships:** \$5,000 for one year, Mitchell Hoelsing, South Dakota State University, mechanical engineering; and Peter Kohler, University of North Carolina, mechanical engineering.
- **Memorial Scholarship:** \$5,000 for one year, Nathan Stoltzfus, Ohio State University, agricultural engineering.

Over the course of 24 years ASHRAE has awarded over \$1.3 million to approximately 275 deserving undergraduate and graduate students. For more information on ASHRAE scholarships, visit www.ashrae.org/scholarships. Applications are now being accepted for the 2014-15 undergraduate, regional/chapter and university-specific scholarships. The deadline is Dec. 1, 2013.

Nonresidential Architecture Activity Continues Steady Growth, According to AIA

Continued increases in billings at U.S. architecture firms occurred in August, according to the American Institute of Architects (AIA). AIA's Architecture Billings Index (ABI) score for the month reflected the strongest growth in activity in six months, and marked the twelfth time in the last 13 months that design activity has increased nationally. The ABI assigns a score to the level of construction spending over time. AIA says that the strength of recent readings in the ABI, coupled with the extended period that architecture firms have been reporting generally favorable conditions, points to an impending healthy upturn in nonresidential activity. This matches the recently released results from the AIA's "Consensus Construction Forecast Survey," which forecasts nonresidential construction spending picking up in the fourth quarter of 2013 and accelerating through 2014.



ASHRAE IAQ 2013

Environmental Health in Low Energy Buildings

October 15–18, 2013

www.ashrae.org/iaq2013



Renaissance Vancouver Hotel Harbourside | Vancouver, British Columbia, Canada

IAQ 2013 reviews the state of knowledge on the balance between environmental health and energy efficiency in the pursuit of low energy buildings.

The conference covers a broad range of topics including residential and commercial buildings, new construction and retrofit, active and passive approaches, design and operation.

IAQ 2013 will help define future design, education, policy and research directions to re-emphasize the importance of environmental health in buildings.

Some 145 conference papers and extended abstracts have been invited. Tracks are as follows:

- Track 1 - Environmental Health in Low Energy Buildings
- Track 2 - Moisture and Health
- Track 3 - Sources and Chemistry
- Track 4 - IEQ Factor Interactions
- Track 5 - Residential Buildings
- Track 6 - Commercial and Institutional Buildings
- Track 7 - Air Cleaning and Filtration
- Track 8 - Microorganisms and Infection
- Track 9 - Tools (models, measurements and more)

A complete listing of accepted conference papers and extended abstracts can be found at www.ashrae.org/iaq2013.

Plenary Lectures will be given by four distinguished international authorities:

- William Bahnfleth, Ph.D., P.E., Fellow ASHRAE, ASME Fellow, Pennsylvania State University, 2013–14 ASHRAE president, “Are We Putting Enough Energy into Making Buildings Healthy?”
- Richard Corsi, Ph.D., P.E. University of Texas, Austin, Indoor Air 2011 president, “Building Energy and Reactivity.”
- Mark J. Mendell, Ph.D., Lawrence Berkeley National Laboratory and California Department of Public Health, “Do We Know Much about Low Energy Buildings and Health?”
- Pawel Wargocki, Ph.D., Danish Technical University, ISIAQ president, “What Can Europe Teach Us?”

Registration	Member	Non-member	Speaker
Early bird through Aug. 30	\$550	\$600	\$400
Regular fee through Sept. 30	\$600	\$650	\$400
Onsite fee beginning Oct. 1	\$650	\$700	\$400

Conference proceedings and breaks, lunches and a reception included in registration fee.

Co-organized by ISIAQ.

IAQ2013 is the 17th in the ASHRAE IAQ conference series.

Surrounded by water on three sides and nestled alongside the Coast Mountain Range, Vancouver is the largest city in the province of British Columbia with over half a million residents and one of the mildest climates in Canada. Home to spectacular natural scenery and a bustling metropolitan core, Vancouver was Host City to the Olympic and Paralympic Winter Games in 2010.



www.ashrae.org/iaq2013

ASHRAE Learning Institute 2013 Fall Online Course Series

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Note: You may register up to 24 hours prior to an online course. Courses are in US Eastern Time.

Energy Management in New & Existing Buildings

Wed, October 2, 2013 – 1:00 pm to 4:00 pm EDT

High-Performance Building Design: Applications & Future Trends

Wed, October 9, 2013 – 1:00 pm to 4:00 pm EDT

Commissioning for High-Performance Buildings

Wed, October 16, 2013 – 1:00 pm to 4:00 pm EDT

Fundamentals Requirements of Standard 62.1-2010

Mon, October 21, 2013 – 1:00 pm to 4:00 pm EDT

Air-to-Air Energy Recovery Fundamentals

Wed, October 23, 2013 – 1:00 pm to 4:00 pm EDT

Data Center Energy Efficiency

Mon, October 28, 2013 – 1:00 pm to 4:00 pm EDT

Air-to-Air Energy Recovery Applications: Best Practices

Wed, October 30, 2013 – 1:00 pm to 4:00 pm EDT

IAQ Best Practices for Design, Construction & Commissioning

Wed, November 13, 2013 – 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.



Commercial Building Energy Audits

Part 1 - Mon, November 4, 2013 – 1:00 pm to 4:00 pm EST

Part 2 - Wed, November 6, 2013 – 1:00 pm to 4:00 pm EST

HVAC Design Training

2 Courses, 5 Days of Intense Instruction

Oct 28 – Nov 1, 2013

HVAC Design: Level I - Essentials

ASHRAE's *HVAC Design: Level I - Essentials* provides intensive, practical training for HVAC designers and others involved in delivery of HVAC services. Gain practical skills and knowledge in designing, installing and maintaining HVAC systems that can be put to immediate use. The training provides real-world examples of HVAC systems, including calculations of heating and cooling loads, ventilation and diffuser selection using the newly renovated ASHRAE Headquarters building as a living lab.

Registration is \$1,239, \$989 (ASHRAE Member)

Enroll 3 or more participants from the same company and save!

HVAC Design: Level II - Applications

ASHRAE's *HVAC Design: Level II – Applications* provides advanced instruction on HVAC system design for experienced HVAC designers and those who complete the *HVAC Design: Level I – Essentials* training. In two days, gain an in-depth look into *Standards 55, 62.1, 90.1, and 189.1* and the *Advanced Energy Design Guides*. Training will focus on a range of topics including: HVAC equipment and systems; energy modeling; designing mechanical spaces; designing a chiller plant; and BAS controls.

Registration is \$829, \$679 (ASHRAE Member)

Enroll 3 or more participants from the same company and save!

Visit www.ashrae.org/hvacdesign to register

ASHRAE/IES Publish First Standard Focused on Commissioning Process

A newly published standard focused on the commissioning process will help ensure a fully functional, fine-tuned facility. ANSI/ASHRAE/IES Standard 202, *Commissioning Process for Buildings and Systems*, identifies the minimum acceptable commissioning process for buildings and systems as described in ASHRAE's Guideline 0-2005, *The Commissioning Process*. Standard 202 is ASHRAE's first standard focused on the commissioning process. The commissioning process as detailed in Standard 202 applies to all construction projects and systems and is an industry consensus document.

"Given the integration and interdependency of facility systems, a performance deficiency in one system can result in less than optimal performance by other systems," Gerald Kettler, P.E., chair of the committee that wrote the standard, said. "Implementing the Commissioning Process is intended to reduce the project capital cost through the warranty period and also reduce the life-cycle cost of the facility. Using this integrated process results in a fully functional, fine-tuned facility, with complete documentation of its systems and assemblies and trained operations and maintenance personnel."

The commissioning process assumes that owners, programmers, designers, contractors and operations and maintenance entities are fully accountable for the quality of their work. The process begins at project inception and continues for the life of a facility. The process includes specific tasks to be conducted to verify that design, construction, verification, testing, documentation and training meet the owner's project requirements, according to Kettler.

The standard defines the commissioning process through 13 functional steps, each of which contains deliverables. The commissioning activities and deliverable are as follows:

- Initiate the Commissioning Process, including defining roles and responsibilities
- Define the project requirements, which results in the Owner's Project Requirements (OPR) document
- Develop commissioning plan – produces a written Commissioning Process Plan
- Plan design approach to Owners Project Requirements – defines the basis of design
- Set contractor commissioning requirement, which are included in the commissioning specifications
- Design review by the commissioning authority provides feedback and a design review report
- Submittals review verifies compliance with the OPR in a submittal review report
- Observation & Testing verifies system performance with results documented in construction checklists and reports
- Issues resolution coordination is done with an issues and resolution log
- Systems manual assembly results in a systems manual for building operation
- Conduct training for building operations with training plans and records
- Post occupancy operation commissioning provides an end of warranty commissioning report
- Assembly of a commissioning report captures all the project commissioning documentation

Other commissioning guidance from ASHRAE includes Guideline 0-2005, *The Commissioning Process*; Guideline 1.1-2007, *HVAC&R Technical Requirements for the Commissioning Process*; and Guideline 1.5-2012, *The Commissioning Process for Smoke Control Systems*.

ASHRAE also is working on several other guidelines related to commissioning: Guideline 0.2P, *The Commissioning Process for Existing Systems and Assemblies*; Guideline 1.2P, *The Commissioning Process for Existing HVAC&R Systems*; Guideline 1.3P, *Building Operation and Maintenance Training for the HVAC&R Commissioning Process*; and Guideline 1.4P, *Procedures for Preparing Facility Systems Manuals*.

The cost of ANSI/ASHRAE/IES Standard 202-2013, *Commissioning Process for Buildings and Systems*, is \$72 (\$61, 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.

ASHRAE Certification Programs

Receive the recognition you deserve by earning an ASHRAE Certification at the 2014 ASHRAE Winter Conference and AHR Expo.

Take advantage of ASHRAE's special administration of the certification examinations on January 23, 2014. All exams will begin at 9:00 a.m. (candidates must report to the testing room at 8:30 a.m.). These exams are being offered in conjunction with the 2014 ASHRAE Winter Conference and AHR Expo in New York City. Refresh your knowledge in preparation of earning an ASHRAE certification with learning opportunities at the show and conference.

For more information, visit www.ashrae.org/NYCExams



Hot Products from ASHRAE

A leader in HVAC&R technology, ASHRAE publications cover topics that impact every facet of the environment, both indoors and out.

Commissioning Essentials Provided in New Standard



New ASHRAE Standard 202-2013, *Commissioning Process for Buildings and Systems*, describes how to plan, conduct, and document this vital part of a successful project. Informative appendices provide sample documentation, including checklists, systems manual, reports, training plans, and more. Supplementary ASHRAE Guidelines 0, 1.1 and 1.5 provide specific and detailed information on how to implement the commissioning process for each major building/facility, system or assembly, and for various stages of facility development and operation.

\$72 (\$61 ASHRAE Member) / 50 pages / 2013

Comprehensive Coverage of All Aspects of District System Design



The *District Heating Guide* and *District Cooling Guide*, now bundled for one low price, fulfill a worldwide need for modern and complete design guidance for district systems. Expanded from the District Heating and Cooling chapter in the *2012 ASHRAE Handbook*, these guides provide in-depth coverage, additional topics, and case studies. The *District Heating and Cooling Guides* draw on the expertise of an extremely diverse international team with current involvement in the industry and hundreds of years of combined experience.

\$179 (\$152 ASHRAE Member) / Softcover Bundle / 2013

Visit www.ashrae.org/bookstore to learn more about these and other outstanding ASHRAE publications!

Energy Secretary Moniz Dedicates Clean Energy Research Center, New Supercomputer

During a visit to the National Renewable Energy Laboratory (NREL) in Golden, Colorado, Energy Secretary Ernest Moniz dedicated the nation's first major research facility focused on clean energy grid integration and wide-scale deployment. The new Energy Systems Integration Facility (ESIF) will help manufacturers, utilities and public and private sector researchers overcome the challenges of integrating clean energy and energy efficiency technologies into today's energy infrastructure.

"Strong partnerships between our national laboratories and America's private industry, academia and entrepreneurs will help reduce the effects of climate change, increase the production of clean energy and accelerate the development of new technologies," said Moniz. "The Energy Department has been at the forefront of large scale computation and modeling, and new NREL supercomputing capabilities will support the groundbreaking science and innovation we need to address the effects of global climate change and pave the way to a cleaner, more sustainable energy future."

The Energy Department, NREL and Toyota Motor Engineering & Manufacturing, North America announced a collaborative research effort on integrating plug-in electric vehicles into the power grid. Scientists and engineers at ESIF and NREL's Vehicle Testing and Integration Facility will use 20 Prius plug-in hybrid electric vehicles from Toyota to develop and explore ways to prepare grid operators and energy infrastructure that accommodate the growing U.S. electric vehicle fleet.

NREL is also working with the U.S. Army to develop the Consolidated Utility Base Energy (CUBE) System – a solar, battery and generator hybrid power system that provides electricity to forward operating bases. Under a research agreement with Wyle Labs, the Army's Rapid Equipping Force is funding NREL to complete a prototype CUBE system and validate its performance, reliability, and projected fuel savings through a fully integrated test at ESIF. "The research at ESIF will help refine the pathways for the successful integration of high penetration distributed resources including renewables and energy efficiency across a wide spectrum of technologies," NREL's Director Dan Arvizu said. "We're looking forward to working side-by-side with industry, academia, and other agencies, to have a transformative impact on our energy systems."


Energy Secretary Moniz and NREL Director Arvizu also unveiled Peregrine – the newest Energy Department supercomputer. NREL collaborated with HP and Intel to develop an innovative warm-water, liquid-cooled supercomputer. Peregrine will reside in the new ESIF data center, designed to be the world's most energy-efficient high performance computing data center. Additionally, Peregrine's petascale computing capability (1.2 quadrillion calculations per second peak performance) represents the world's largest computing capability dedicated solely to renewable energy and energy efficiency research. The new supercomputer will further strengthen NREL's modeling and simulation capabilities to support fully integrated energy systems research that would otherwise be too expensive or even impossible, to conduct. By pairing this capability with the facility's interactive hardware-in-the-loop system, researchers and manufacturers can test their products at full power and real grid load levels – helping increase reliability and efficiency as well as lower cost clean energy technologies.

Join
ASHRAE
at its

2014 Winter Conference and AHR Expo in New York!

Conference Jan. 18–22 | AHR Expo Jan. 21–23

www.ashrae.org/newyork






Special first timer registration fee available!


Technical Program—features a building-oriented theme, featuring tracks on building information systems; environmental health; international design; and, featured for this Conference, tall building performance.

AHR Expo—The ASHRAE co-sponsored AHR Expo takes place Jan. 21–23 (NOTE DAY CHANGE: Tuesday, Wednesday, Thursday) at Javits Convention Center. www.ahrexpo.com

ASHRAE Certification—all six certification programs are being offered: Building Energy Assessment Professional; Building Energy Modeling Professional; Commissioning Process Management Professional; High-Performance Building Design Professional; Healthcare Facility Design Professional; and Operations & Performance Management Professional.

ASHRAE Learning Institute—23 Professional Development Seminars and Short Courses are offered, including 11 new courses that include Standards 55 and 90.1, electric rates and regulations, health care facilities, building energy audits and ground source heat pumps.



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

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www.hpbmagazine.org/hpb2014

State-of-the-industry presentations



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www.ashrae.org/Developing2014

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Philippines Chapter

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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:



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

www.ashrae.org/conferences



Droplets Get a Charge Out of Jumping

MIT researchers have discovered that tiny water droplets that form on a superhydrophobic surface, and then “jump” away from that surface, carrying an electric charge. The finding could lead to more efficient power plants and a new way of drawing power from the atmosphere, according to the researchers. The finding is reported in a paper in the journal *Nature Communications* written by MIT postdoc Nenad Miljkovic, mechanical engineering professor Evelyn Wang, and two others.

Miljkovic says this was an extension of previous work by the MIT team. That work showed that under certain conditions, rather than simply sliding down and separating from a surface due to gravity, droplets can actually leap away from it. This occurs when droplets of water condense onto a metal surface with a specific kind of superhydrophobic coating and at least two of the droplets coalesce. They can then spontaneously jump from the surface, as a result of a release of excess surface energy. In the new work, “We found that when these droplets jump, through analysis of high-speed video, we saw that they repel one another midflight,” Miljkovic says. “Previous studies have shown no such effect. When we first saw that, we were intrigued.”

The initial finding that droplets could jump from a condenser surface — a component at the heart of most of the world’s electricity-generating power plants — provided a mechanism for enhancing the efficiency of heat transfer on those condensers, and thus improving power plants’ overall efficiency. The new finding now provides a way of enhancing that efficiency even more: By applying the appropriate charge to a nearby metal plate, jumping droplets can be pulled away from the surface, reducing the likelihood of their being pushed back onto the condenser either by gravity or by the drag created by the flow of the surrounding vapor toward the surface, Miljkovic says. “Now we can use an external electric field to mitigate” any tendency of the droplets to return to the condenser, “and enhance the heat transfer,” he says.

But the finding also suggests another possible new application, Miljkovic says: By placing two parallel metal plates out in the open, with “one surface that has droplets jumping, and another that collects them ... you could generate some power” just from condensation from the ambient air. All that would be needed is a way of keeping the condenser surface cool, such as water from a nearby lake or river. “You just need a cold surface in a moist environment,” he says. “We’re working on demonstrating this concept.”



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

Bi-State Chapter Officers and Governors 2013—2014

Position	First Name	Last Name	Email	Phone	Fax
Officers					
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
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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
BOG (term ends June 2014)	Joseph	Trongone	jatrong@optonline.net	(914) 332-7658	
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
Committee Chairs					
CTTC	Terry	Connor	Terry.Connor@jci.com	(914) 593-5223	(914) 593-5201
Research Promotion	James	Kolk	jkolk@victaulic.com	(631) 219-8502	
Student Activities	Nicholas	Salomone	nicksalomone@gmail.com		
Young Engineers in ASHRAE	TJ	Kieper	kiepertj@gmail.com	(518) 928-6965	
Membership Promotion	James	Dolan	jdolan@olace.com	(914) 919-3106	(914) 747-0453
Refrigeration	John	Fusco	jfusco@olace.com	(914) 919-3178	(914) 747-0453
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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:

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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.

Study Finds Humidity Reduces Airborne Flu Virus

A recent study by the U.S. National Institute for Occupational Safety & Health (NIOSH) found that airborne transmission of the influenza virus is significantly reduced by maintaining an environment of 43% relative humidity (RH) and above. To test the effects of humidity on airborne influenza, aerosols of flu virus were "coughed" into a room's atmosphere by a mechanical manikin at humidity ranging from 7% RH to 73% RH, while the air intake from a "breathing" manikin in the room was monitored. The air inhaled by the breathing manikin showed that at ≤23% RH the airborne flu virus retained 71% to 77% infectivity, while at ≥43% RH infectivity dropped to just 15% to 22%. The study showed that inactivation of the virus at the higher humidity occurred rapidly after coughing, with most of the decline occurring in the first 15 minutes.



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
November	11/13/2013	Sustainability	IBM Chiller Plant Tour	
December	12/11/2013	Membership Promotion	Holiday Event (tentative)	
January	1/8/2014	Student Activities	Save the date	
January	1/18/2014 through 1/23/2014		ASHRAE 2014 Winter Conference New York City	
February	2/12/2014	Research Promotion	Environmental Air Quality	
March	3/12/2014	Sustainability	Save the date	
April	4/9/2014	Membership Promotion	Save the date	
May	5/14/2014	Student Scholarships	Golf Outing	
June	6/11/2014	Refrigeration	Save the date	
August	8/14/2014 through 8/16/2014		ASHRAE Region 1 2014 CRC hosted by Bi-State Chapter	

Nuclear Fusion Milestone Passed at Lawrence Livermore National Laboratory

Harnessing fusion - the process that powers the sun - could provide an unlimited and cheap source of energy. But to be viable, fusion power plants would have to produce more energy than they consume, which has proven elusive. Now, a breakthrough by scientists at the National Ignition Facility (NIF) could boost hopes of scaling up fusion.

NIF, based at the Lawrence Livermore National Laboratory in California, uses 192 beams from the world’s most powerful laser to heat and compress a small pellet of hydrogen fuel to the point where nuclear fusion reactions take place. During an experiment in late September, the amount of energy released through the fusion reaction exceeded the amount of energy being absorbed by the fuel - the first time this had been achieved at any fusion facility in the world.

This is a step short of the lab's stated goal of “ignition,” where nuclear fusion generates as much energy as the lasers supply. This is because known inefficiencies in different parts of the system mean not all the energy supplied through the laser is delivered to the fuel. But the latest achievement has been described as the single most meaningful step for fusion in recent years, and demonstrates NIF is on its way towards the coveted target of ignition and self-sustaining fusion.

NIF is one of several projects around the world aimed at harnessing fusion. They include the multi-billion-euro ITER facility, currently under construction in Cadarache, France. However, ITER will take a different approach to the laser-driven fusion at NIF; the Cadarache facility will use magnetic fields to contain the hot fusion fuel - a concept known as magnetic confinement.

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