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VOLUME 8, ISSUE

MARCH 2014



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SAVE THE DATE

ASHRAE	ASHRAE 2013-2014 Meeting Schedule														
Date	Event	pdh / Theme	Location	Schedule											
03/10/14	Jerry M. Sipes, Ph.D., P.E. Fundamentals of Displacement Ventilation	Available	Mario's	12:00 PM											
04/07/14	Refrigeration Tour Wegmans East Ave CO2 Refrigeration System		1750 East Avenue	TBD											
05/12/14	Annual ASHRAE Golf Outing and Picnic		Ravenwood Golf Club	9:30 AM Golf 4:30 - 8:00 Picnic											

Mission Statement

ASHRAE will advance the arts and sciences of heating, ventilation, air conditioning, refrigeration and related human factors to serve the evolving needs of the public and ASHRAE members.



Shaping Tomorrow's Built Environment Today

Vision Statement

- will be the global leader in the arts and sciences of heating, ventilation, air conditioning and refrigeration.
- will be the foremost, authoritative, timely and responsive source of technical and educational information, standards and guidelines.
- will be the primary provider of opportunity for professional growth, recognizing and adapting to changing demographics, and embracing diversity.

President's Message

Jody McGarry once again organized a beautiful evening at the Colgate Divinity School for the ASHRAE Valentine's Dance this year. The event was held on February 7th and I am happy to report that the weather, although cold, cooperated this year. For those of you that braved the blizzard last year to attend, you can attest that the weather was better this year. The food was delicious, the band was great, and the desserts were divine. Fun was had by one and all.

The Rochester Chapter Board has decided to make a change to the number of board officers this year. We will no longer have a separate Vice President and President Elect. I will explain the board's rationale for this change. Years ago when we were having dinner meetings, there was two presentations made at the meeting, a technical session before dinner and the main program after dinner. The technical sessions were set up by the Vice President and the main programs were set up by the President Elect. Since we have switched to a single program at lunch meetings, there is only one presentation to set up each month. The Vice President position has had limited responsibilities because of this. Starting next year, there will be a combined Vice President / President Elect position and, as such, there will not be an addition of another person to the officer level next year.

In addition, the board has decided to switch the progression order of Secretary and Treasurer. The order of progression has been Treasurer, Secretary, Vice President, President Elect, and then President. The board has long felt that the Treasurer position would be benefitted by not being first so the Secretary and Treasurer positions have been swapped. This will allow the Secretary to observe the Treasurer position for a full year knowing that they will take over the following year.

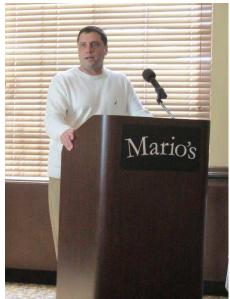
This month we will be visited by our ASHRAE Regional Representative at our monthly meeting. Please consider attending to show your support for the chapter and here about some ASHRAE news around the region.

Rob Wind, PE, 2013-2014 President

Rochester ASHRAE's February Meeting

Monday February 10th featured a discussion on Electronically Commutated Motor (ECM) technology, led by Chris Bove (pictured below) at Mario's Restaurant. Chris bravely stepped in at the last minute to outline different control strategies and case studies that showed empirical data proving the Kilowatt savings as well as return on investment figures for comparison to standard AC motors including AC motors equipped with Variable Frequency Drives. A question and answer session followed.

March's Meeting will be on Fundamentals of Displacement Ventilation, presented by Jerry Snipes, Vice



President of Engineering for Price Industries. He is a PE with more than 20 years of experience in the HVAC field. He has a Mechanical Engineering degree from Kansas State University. The meeting will be held on Monday March 10th, also at Mario's, 12pm.

A brief history on the application of displacement ventilation (DV) will be presented followed by the theory of how displacement ventilation works and a comparison of DV to overhead air distribution (mixing systems). The benefits of DV including energy saving, air cleanliness – indoor air quality (IAQ), thermal comfort, and humidity control will be discussed. Using DV as the basis of building HVAC system design for points in the LEED (Leadership in Energy Efficiency Design) program and the CHPS (Collaborative for High Performance Schools) program will be explored. The potential issues with heating of occupied spaces as well as several proposed solutions are presented. The basic steps for engineering calculation of the air volume, supply air temperature and return air temperature are highlighted and examples given. To allow the attendee to

see these devices are often incorporated into the building esthetics, a series of installations will be shown and discussed. Building types include: office spaces; atriums; airports; school classrooms; and hospital patient rooms. Availability of design tools will be discussed as well as space mock-ups and computational fluid mechanics (CFD).

Remember, as an option, we now have on-line payments available via PayPal. << Pay for Meeting Registration online via PayPal (no PayPal account required) >>

Use the following link: http://rochester.ashraechapters.org/meetings.html

Cash or check payment still accepted at the door with your reservation.

Please RSVP no later than noon Friday, March 7th to Tim Duprey

Phone: 585.205.0073 or e-Mail ... dupreyt@ifsinc.net ... tduprey@rochester.rr.com

Respectfully, Tim

Attention Members:

Just a reminder that all members that reserve a spot for the monthly meeting will be responsible for that reserved space.

Members have until 12:00 pm the day of the RSVP deadline to cancel their meeting reservation.

Failure to comply with this rule will result in the attendee being responsible for the payment of that reservation.

ASHRAE Rochester Chapter Officers

Job Postings & Help Wanted



Although there are no job posting for this month's newsletter, this section of the newsletter is reserved for those firms wishing to advertise their desires to hire from the Chapters Membership.

If you are interested in utilizing this FREE service provided by the Rochester Chapter, please contact our Chapter President, Rob Wind (585.341.3172) or by email rwind@ibceng.com.

This service is available to ASHRAE members for any local firm in our industry looking for knowledgeable persons in the HVAC&R industry.

2013-2014 Presidential Award of Excellence Summary

Chapter #	Chapter Name	Chapter Members	Member Promotion	Student Activities	Research Promotion	Chapter Technology Transfer	History	Chapter Operations	Chapter PAOE Totals
11	Rochester	239	275	0	335	0	0	0	610

Like us on Facebook!



Visit our new Facebook page by searching for "ASHARE Rochester" on Facebook. Any ideas for additions or improvements email to Mark Kukla at mark@airsystemsbalancing.com. Keep up to date with current events and photos from recent meetings.

Rochester Chapter

Committee Chairs Updates

Young Engineers in ASHRAE

YEA Group Learning 2014

Please send recommendations for group learning topics to Matt Kremers at mkremers@mcsmms.com.

Refrigeration

ASHRAE Rochester Chapter

Refrigeration Night Program

April 7, 2014

6:00 PM Dinner and technical presentation 7:00 PM Tour Cost of Dinner is \$25.00

This year we will be visiting the Wegman's East Avenue Store for a dinner, technical presentation, and tour. The East Avenue store has a new technology, low temperature, CO2 secondary coolant system along with the medium temperature glycol secondary coolant system that Wegman's has incorporated in their stores for several years now. This system is described as a Modular CO2 Secondary and Second Nature Glycol Secondary System manufactured by Hill Phoenix. The systems utilize CO2 and glycol as secondary fluids and each system has a HFC refrigerant on the high side of the system. The CO2 is pumped to low temperature Reach-in cases and low temperature walk-in boxes and the Glycol is pumped to medium temperature case and walk in cooler boxes.

This program is limited to forty people. Reservations are a must and will be considered on a first come, first served basis.

Michael Nohle Refrigeration Chairman ASHRAE Rochester Chapter

Technology Awards

Technology Awards

The deadline for Chapter level ASHRAE Technology Awards is fast approaching. ASHRAE Technology Awards recognize outstanding achievements by members who have successfully applied innovative building design in the areas of occupant comfort, indoor air quality and energy conservation.

Awards are presented in six categories for new and existing facilities and are judged on the merits of Energy Efficiency, IAQ and Thermal Comfort, Innovation, Operation and Maintenance, Cost Effectiveness, Environmental Impact and Quality of Presentation.

Chapter level award applications require only a one page application, a schematic and a short narrative.

First place winners in each of the six categories at the chapter level will be submitted for judging in the regional awards competition.

Awards are intended for built projects and as such must have been occupied prior to September 1st, 2013 to be eligible.

The following link includes additional details about the awards program:

https://www.ashrae.org/membership--conferences/honors--awards/technology-awards-program-overview

Please consider representing the Rochester Chapter of ASHRAE by submitting your project to the chapter for consideration before **April 1, 2014**. Email jwiedrick@bergmannpc.com with any questions, to receive an application form, for a sample application or any other concerns.

Student Activities

STUDENT ACTIVITIES



Do you know the benefits of being an ASHRAE Student Member?

- Monthly ASHRAE Journal exploring issues such as indoor air quality, energy management, solar developments, and more.
- ASHRAE Insights monthly newspaper devoted to news and information about the Society at every level including news of special interest to students.
- The HVAC&R Industry eNewsletter for weekly industry news and information.
- SmartStart Program to ease into full membership dues over a three year period after graduation.
- Opportunities to participate in the Student Design Project Competition, Grants-in-Aid, Society and Local Scholarships, and Student Branch Activities.
- Access to The Student Zone web page which offers valuable career and educational resources.
- ASHRAE Publication Discounts at the ASHRAE Student Store including ASHRAE books, standards, reports, charts, and more.

Do you know anyone that could benefit from being an ASHRAE Student Member?

 Join over 5,000 other students taking advantage of ASHRAE benefits today at https://ashrae.org/membership-conferences/join-now.

Visit the Student Zone at https://ashrae.org/membership-conferences/student-zone to learn about:

- Design Competition
- Scholarships and Grants
- New Faces of Engineering College Edition
- K-12 Activities
- Membership Benefits and Meetings
- Educational Resources
- Student Activities
- Student News
- Student Branches
- ASHRAE's SmartStart Program

Thank you to the sponsors of the 57th Annual Valentine Dinner Dance

ABR Wholesalers, Inc.

Air Systems Balancing & Testing Service, Inc.

American Metal Products

Bergmann Associates

Cogenic Mechanical

Crosby-Brownlie, Inc.

Day Automation Systems, Inc.

Gray Metal Products, Inc.

Herman HVAC

IBC Engineering, P.C.

Isaac Heating & Air Conditioning

M/E Engineering, P.C.

Mech Tech HVAC, Inc.

Pathfinder Engineers & Architects, LLP

Postler & Jaeckle Corp

PRES Energy

R.F. Peck Co., Inc.

R.L. Kistler, Inc.

R.P. Fedder Corporation

Sheet Metal Workers Local 46

Trane

Upstate Systems, Inc.



Save the Date!

2014 Annual Engineering Symposium in Rochester

Earn up to 7 PDHs!

sponsored by Rochester's Technical and Engineering Societies and RIT

Tuesday, April 8, 2014

Time: 7:30 am to 6:30 pm

Schedule posted on www.roceng.org under Calendar.

Courses available in: Civil, Electrical, Lighting, Mechanical, HVAC, Plumbing

Radisson Hotel Rochester Riverside

120 East Main Street, Rochester, NY

\$120 Advance Registration (before March 25th) \$20 Student Registration \$150 after March 25, 2014 and at the door

Registration online at www.roceng.org open soon

OR

<u>mail registration form</u> from RES website (check payable to RES) to: The Rochester Engineering Society, 657 East Avenue, Rochester, NY 14607



2014 ASHRAE PICNIC SPONSORSHIP FORM

Monday, May 12, 2014



Ravenwood Golf Course 929 Lynaugh Road Victor, NY 14564

11:00 AM - 4:30 PM - Golf 4:30 PM - 8:00 PM - Picnic



Picnic: 4:30 PM-8:00 PM
4:30 PM - 6:00 PM
Cocktails and Hors d'oeuvres
6:00 PM - 8:00 PM
Dinner Catered By:
Dinosaur Barbeque
at Ravenwood Golf Club

Thank you in advanced for supporting this long standing Rochester ASHRAE Chapter tradition.



Please include check (on notes put what sponsorship you made) and make payable to:

<u>ASHRAE Rochester Chapter</u>
and mail to:

Attention: Kacie Hoffman RF Peck Company, Inc. 889 Atlantic Ave. Rochester, NY 14609

Any questions, call Kacie at (585) 697-0836 ext. 105 Email: khoffman@rfpeck.com

Please fi	ill out so	we can	correctly	recognize	vou or v	vour d	company	•

OR	
Address:	
City:	State: Zip:
Phone: (Work)	(Home)

Sponsorship Form										
Sponsorship Name	X here for Sponsorship	Sponsorship Amt.								
Major Door Prize Sponsor – Gift/Item or Cash Donation- \$200 or more.										
Gold - \$250.00 - Hole Sponsorship and Recognition at Picnic		\$250.00								
Silver - \$150.00 - Hole Sponsorship		\$150.00								
Bronze - \$100.00 - Recognition at Picnic		\$100.00								
Prize Sponsor - \$175.00 - Longest Drive		\$175.00								
Prize Sponsor - \$175.00 - Closest to Pin		\$175.00								
Total Check Amount:										



MONDAY, MAY 12, 2014 ASHRAE Picnic / Golf Tournament

To be held at Ravenwood Golf Course

Reservation Deadline is... May 2nd, 2014
(There is a limited amount of tickets this year on a first come basis)



Ravenwood Golf Course 929 Lynaugh Road Victor, NY 14564

Golf Registration 9:30 – 10:45 Juice, Scones and Coffee Served 11:00 am - Shotgun Start



Picnic: 4:30 PM-8:00 PM
4:30 PM - 6:00 PM
Cocktails and Hors d'oeuvres
6:00 PM - 8:00 PM
Dinner Catered By:

Dinner Catered By: Dinosaur Barbeque at Ravenwood Golf Club Four Man Scramble and Optional Skins Game.

Golf includes:

- > Golf
- Cart
- Driving Range
- Prizes
- On course beverages and food at the turn



NO TICKETS WILL BE SOLD OR DISTRIBUTED AT THE DOOR! TICKETS WILL BE MAILED TO YOU OR CAN BE PICKED UP AT THE R.F. PECK CO., INC.

Please include check and make payable to:

"ASHRAE – Rochester Chapter"

Return this form....
Mail prior to May 2, 2014 to:
Attention: Kacie Hoffman
R.F. Peck Co., Inc.
889 Atlantic Avenue
Rochester, New York 14609
Any questions, call (585) 697-0839 ext. 105

Email: khoffman@rfpeck.com

Address where you would like your picnic tickets sent to: $ \\$										
Company:										
Contact Name:										
Address:										
City: State: Zip:										
Phone: (Work) (Home)										

Entry Form Ticket Request Form												
											Event Fee Amount No. Attending Total	
Golf	\$90.00		\$									
Picnic	\$50.00		\$									
	OR:											
Golf and Picnic (SAVE \$10.00)	\$130.00		\$									

2014 ASHRAE Annual Conference

Registration

General Info Hotel Visa Letter

Keynote Speaker Sightseeing Social Events

Education Tech Program Research Summit

Technical Tours

General Tours



ASHRAE 2014 Annual Conference June 28-July 2 Seattle, Washington

https://www.ashrae.org/membership--conferences/conferences/2014-ashrae-annual-conference

Registration

Early bird (through April 27)

- \$540, member/\$730, non-member
- \$515, first-time member attendee/\$705, first-time non-member attendee
- \$155, Life Member

Advance (through June 8)

- \$565, member/\$ 755, non-member
- \$540, first-time member attendee/\$735, first time non-member attendee
- \$160, Life Members

Fees beginning June 9

- \$695, member/\$885, non-member
- \$675, first-time member attendee/\$860, first-time non-member attendee
- · \$165, Life Member
- · \$285, member one-day fee/\$340, non-member one-day fee

Registration fees for speakers, student branch advisors and students:

- \$130, speaker
- · \$55, student branch advisor
- · \$55, student member/\$80, full-time student non-member

Hotel Information

The Conference Headquarters Hotel is the Sheraton Seattle, 1400 Sixth Avenue.

Rates

\$185 single or double

Reservations

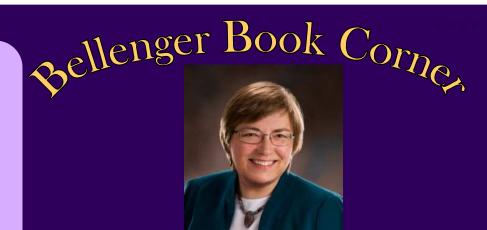
Make reservations online

Conference Location

The Conference takes place at the Sheraton Seattle, 1400 Sixth Avenue, and the Washington State Convention Center.

Stay Tuned for more details!

WELCOME
TO THE
BELLENGER
BOOK CORNER



Mrs. Lynn G. Bellenger was an avid reader and supporter of continuing education. She encouraged local firms to create internship opportunities for aspiring engineers in order for them to gain more experience.

Lynn had an extensive library collection of books ranging from introductory HVAC and hydronic systems to controls and energy efficiency manuals written by colleagues and friends that she had met through ASHRAE.

This section is dedicated in Lynn's honor to provide additional reading materials relevant to the ever-changing technology in the HVAC field. We hope this will be an especially valuable section for young engineers who are just starting their careers.

IN THIS ISSUE:





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In order to view these documents, the Adobe Acrobat reader needs to be installed on this machine. Click on the logo at left to download a free Adobe Acrobat reader.

Compressed files containing the 570 individual Symbols found in the SMACNA CAD Standard, 2nd edition, are available for download. One contains the full set of Symbols in DWG format, mainly for use by AutoCAD® systems; and the other, in DXF format suitable for use by all other drafting systems.

In addition to the symbol files the SMACNA CAD Standard, located further down on this page, must also be downloaded for a complete description and listing of the symbols package.

SMACNA CAD Symbols - DWG Format SMACNA CAD Symbols - DXF Format

HTTP://WWW.SMACNA.ORG/TECHNICAL/INDEX.CFM?FUSEACTION=PAPERS

If you know of a good manual that you would like to share with us, please send it to the news letter editor Jaimee Wilson at jwilson@pathfinder-ea.com. In order to keep with ASHRAE's goal of supporting continuing education without commercialization, we ask all reading materials recommended for this section be either ASHRAE sponsored or non-vendor specific.

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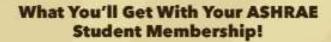


- You read the application carefully and answer all questions completely and honestly.
- The application and all required documents are submitted or postmarked on or before the applicable deadline.
- Your application is NEAT, legible (typed or handwritten clearly), and proper English (correct grammar and spelling) is used when responding to essay questions.
- To take time to submit a brief, non-required introductory cover letter
- You are clear and thorough when stating goals and financial need.
- You contact the nearest ASHRAE chapter for an interview with the Student Activities Chair or other officer to learn more about the Society.
- You find out if your school hosts an ASHRAE student branch.
- You contact ASHRAE headquarters if you have any questions and to ensure your application has been completed and submitted properly.

More information on the scholarship and details on how to apply can be found at www.ashrae.org/scholarships.



Student Membership Application



What's "Cool" In ASHRAE

- ASHRAE maintains standards for indoor air quality.
- ASHRAE promotes energy efficiency, savings and recovery
- ASHRAE reports on building controls, automation and integration
- ASHRAE focuses on green building issues and green technology
- ASHRAE promotes solar and other alternative energy sources
- ASHRAE offers certification programs, online learning opportunities and courses and seminars at ASHRAE Conferences

How Can ASHRAE Help You?

- Provide access to new technology
- · Offer professional development opportunities
- · Create opportunities for networking
- Offer online continuing education programs and eLearning programs

Student Member Benefits

- Access to members-only web pages
- Discounts on ASHRAE Handbooks
- . Monthly ASHRAE Journal print and digital
- HVAC&R Industry and Society Connections eNewsletters
- Discounted ASHRAE Annual and Winter Conference registration (AHR Expo, Student Program, Technical Sessions)
- Virtual online HVAC&R resume posting, job and internship searching program

ASHRAE Student Member Opportunities

- Society and chapter-level scholarships for both undergraduate and graduate engineering students
- Discounts for student members on select publications, go to www.ashrae.org/studentbookstore for more information
- Student Design Competition
- Networking with local ASHRAE Chapters
- Senior Undergraduate Project Grant Program
- At the student branch level, you'll enjoy meeting other students with similar interests - if your school hasn't yet started a student branch, take charge and contact a faculty member and ask for help on getting started!

You can continue your student membership after college with the SmartStart Program. The SmartStart program locks in the price of student dues for the first year of membership after graduation.

Visit www.ashrae.org/students to join online!

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Board of Governors Meeting Minutes



BOARD OF GOVERNORS MEETING MINUTES

Meeting Date: Wednesday, February 5, 2014
Location: Trane Office, Rochester, NY

President / CRC Alternate	Rob Wind	X
President Elect / Program	Ed Burns	X
Vice President /Tech Session	Christina Walter	Х
Secretary	Jeff Close	X
Treasurer	Bill Clark	
Immediate Past President / CRC Delegate	Michelle Sommerman	
Board of Gov. (1)	Mike Benedict	X
Board of Gov. (1)	Scott Edwards	Х
Board of Gov. (2)	Eric Smith	X
Board of Gov. (2)	Paul Kenna	X
Board of Gov. (3)	Jim Browe	8
Board of Gov. (3)	Michelle Sommerman	
Attendance	Tim Duprey	X
Historian	Lee Loomis	
Membership Promotion	Jake Hall	X
Newsletter Editor	Scott Edwards	Х
Research Promotion	Paul Kenna	X
Awards	Al Rodgers	
CTTC	Jeff Wiedrick	
Education	Bill Murray	
Publicity	Mark Kukla	
Website	Kevin Wind	
YEA Chair	Matt Kremers	Х
Student Activities	Chris Lukasiewicz	
Nominating (2 nd Past President)	Jeff Ellis	Х
Picnic/Golf Chair	Jim Browe	
Buyers Guide	Stephanie Dempsey	
Valentine's Dinner Dance	Jody M. McGarry	
Refrigeration	Mike Nohle	

Board of Governors Meeting Minutes

Roll Call: The above noted individuals were present.

Call to Order: 7:40 am

Minutes:

- Previous Meeting Minutes Minutes were distributed electronically and comments received were incorporated. FYI, no copies will be available at the BOG meetings.
- > Treasurer's Report : Bill Clark (not present)
 - See attached Treasurer's report dated 02/01/2014.
 - Bill to look into pulling funds for scholarship.
- Program/ Tech Session: Ed Burns
 - Joint Meeting w/AEE = February
 - Refrigeration Tour = tentative for Wegmans, max. 40 people.
- Refrigeration: Mike Nohle (not present) no report.
- > Tech Awards: Jeff Wiedrick (not present)
 - · The deadline for the tech awards is in the spring.
- > Attendance: Tim Duprey
 - January Meeting = 58 RSVP / 66 attended
- Membership: Jake Hall
 - Current membership: 238, Student members: ~3
 - March = Membership Promotion Night
 - (x) new members joined
- Awards: Al Rodgers (not present)
 - · Recommendations for the Realto P. Cherne Award due ASAP.
- Student Activities: Chris Lukasiewicz (not present) no report
- YEA: Matt Kremers
 - Psychometrics class by Bill Murray = 3/11 @ 6:00pm
- Research: Paul Kenna
 - · Current contributions behind schedule
 - March = Research Promotion Night
- > Newsletter: Scott Edwards
 - RES deadline = 02/10/2014
 - Electronic Newsletter deadline = 18th of each month

Board of Governors Meeting Minutes

- Buyer's Guide: Stephanie Dempsey / Chuck White (not present) no report
 - · Agreed to keep the price the same this year
 - Looking into setting up payment system with paypal
- Historian: Lee Loomis (not present) no report
- Website: Kevin Wind (not present) no report.
- Nominating: Jeff Ellis
 - Nominations for (2) BOG members to be presented at February Meeting.
- Publicity: Mark Kukla (not present) no report.
- Valentine's Dinner Dance: Jody McGarry (not present)
 - Scheduled for 02/07/2014 @ Colgate Rochester Crozer Divinity School
- CRC2016: Jim Browe (not present)
 - In the process of reviewing the guidelines
 - · Will be setting up initial meeting with Visit Rochester
- Old Business:
 - Regional visit, Steve Stil (Regional Membership Chair = scheduled for 03/10/2014 Meeting
 - Scholarship = board approved unanimously to pursue a one year \$1,000 trial scholarship out of the Charles Lynch Fund.
 - Rochester Engineering Symposium = scheduled for 04/08/2014 @ Radisson.
- New Business:
 - Board approved unanimously (11) to eliminate VP and flip Treasurer with Secretary positions. Rob to update MOPS.
- Next Meeting: Monday, March 10th @ 11:00am Marios
- The meeting was adjourned at 8:03 am

ASHRAE's HVAC Design Training Coming to Toronto

HVAC Design: Level I-Essentials at CMPX 2014

In conjunction with the 2014 CMPX Show, ASHRAE is offering the *HVAC Design: Level I – Essentials* training to provide intensive, practical training for HVAC designers and others involved in the delivery of HVAC services. Developed by industry-leading professionals, this training provides the fundamental and technical aspects of HVAC design in commercial buildings.

In three days, 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.

Training Topics:

- Fundamentals
- Heating/cooling load calculation
- System selections
- Common system and components
- Cooling system
- Basic design of hydronic systems
- · Basic design of air systems
- Control/BAS commissioning
- Sustainable design
- Project management and other soft skills
- · Introduction to technical sales

Who Should Attend:

- Graduates who are new to consulting practices and engineering teams
- Engineers, technicians and building operating personnel in career transition
- Experienced engineers who would benefit from a review of the basics and the new technology options to save energy
- Facilities engineers with assigned HVAC responsibilities
- · Architects who want to understand HVAC systems

HVAC Design: Level I—Essentials

When: March 17-19, 2014

Where: Metro Toronto Covention Centre

Toronto, Canada

Cost: \$1,239 (ASHRAE Member: \$989)

Company Discount: Enroll 3 or more participants from the same company at the same time and save.

BONUS!

Get a FREE copy of Standard 189.1-2011 and User's Manual A \$200 value.

REGISTER



Your technical training provider presents...

Air Conditioning Fundamentals 2014

Target Audience: Essentially anyone who wants to broaden their base in fundamentals will greatly benefit.

- Any Direct or Indirect AM who has not had the opportunity to attend GTP
 - a Perhaps a local new hire salesperson that can't commit to 6-months at GTP
 - Someone who was promoted from within
 - A new hire that came from outside our industry
- Any BAS AE, PM, PA, Application Specialist or Estimator who wants to broaden their base in the fundamentals

<u>Primary Benefit:</u> Students will enjoy learning as much practical knowledge as possible about Air Conditioning Fundamentals. Students won't waste a great deal of time in theory. The typical student can immediately apply what he/she learns upon returning to their office. Past attendees have enhanced their overall confidence and found many ways to apply their recently acquired knowledge.

C	ourse Offe	erings (Rochester, NY): (these classes are 3-days; Tuesday - Thursday)
ſ] Jun 17-19	'Airside Fundamentals-II' (Duct Design, Fans & Fan Laws & Acoustics)
ſ] Aug 19-21	'Systems Fundamentals' (HVAC Systems, Dehumidification, IceStorage-LowTempAir, Bldg Pressurization)

Course Offerings (Harrisburg, PA): (these classes are 3-days; Tuesday - Thursday)									
[] Feb 18-20	'Airside Fundamentals-I' (Load Design and Psychrometrics)								
[] Mar 18-20	'Refrigeration Fundamentals' (Refrig Basics, Refrig Piping, Refrig & Our Environment)								
[] Apr 15-17	'Energy Efficient Design Fundamentals' (Chiller-Side, Air-Side, System Controls, Energy Recovery, VRF)								
[] May 20-22	'Product Fundamentals' (AHU, WSHP, RTU, Chillers, Fan Coils, UV, VRF)								

Note: For more information about each of these classes, log onto BeckerLearning.com

Registration Deadline: Each course will be filled on a first-come-first-reserved basis (established by receipt of payment).

Contact: Joe Becker, Becker Learning / 106 Needlewood Drive / Harrisburg, PA 17112

Phone: (585) 317-0000 Email: Joe@BeckerLearning.com

More Details for 3-day courses:

Where: We will hold the 3-day classes at the local hotels listed below. These hotels will hold a block of rooms at the Becker Learning discounted price up until 15-days before the class - so please make your reservations right away. All you need to do is let them know that you are part of the Becker Learning group.

- * Rochester, NY (Greece): Homewood Suites at 400 Center Place Drive, Rochester, NY 14615 (585) 865-8534 at the Becker Learning rate of\$114/night
- * Harrisburg, PA: The Holiday Inn Express at 4021 Union Deposit Road, Harrisburg, PA 17109 ~ (717) 561-8100 at the Becker Learning rate of \$103/night

Time: We will start each morning at 8:00 AM and end by 5:00 PM (except Thursday when we end by 4:00 PM for travelers)

Food: Lunch, mid-morning and mid-afternoon snacks & drinks are provided.

What is not included: Transportation, other meals & lodging.

Travel: Arrival: Since the seminar starts at 8:00 a.m., plan to arrive the night before.

Departure: You can book flights out of Rochester as early as 5:30 p.m. on Thursday since our Hotel is less than 10-miles from the airport. Harrisburg flights should be booked after 6:00 pm as the hotel is a bit farther (about 30-minutes) from the airport.

Registration: Please fill out this form for each person attending, and mail it along with a Check or Purchase Order (made out to 'Becker Learning') to:

Becker Learning / 106 Needlewood Drive, Harrisburg, PA 17112

Payment Deadline: Complete Payment must be received prior to the start of the class.

				[] Systems []Refrigeratio	n []Ene	rgy	[] Products				
Name:				Title:							
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Address:											
Phone:()		Emai	l :							
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3-day		\$1,100									
Authorizing Person											
	Printed Name			Signature			Date				
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Cancellation Policy:

- If someone cancels 60-days prior to the start of the class => no cancellation charge.
- If someone cancels 30-60 days prior to the start of class => 50% cancellation charge
- If someone cancels less than 30-days before the start of class, or simply doesn't show up => charged the full amount

Teaching Methodology:

Similar to the way Joe taught nine classes in the Graduate Training Program of The Trane Company, students will learn a concept and then immediately apply this new knowledge with an application problem. Quiz/testing will also be used to measure the overall effectiveness of the teaching. In this way, the program receives continual improvement through direct feedback.

About the Instructor:

Joe Becker is a graduate of the University of Wisconsin-Madison with degrees in Naval Science and Industrial Engineering (1979). He is also a Graduate from the U.S. Naval Nuclear Power School at Mare Island, California (1975). Joe is a registered Professional Engineer (Wisconsin 1990).

After nine years in the Navy, Joe resigned his Commission in the Civil Engineer Corps. Since graduating from Trane's GTP class of 83-II, he worked as a Systems Engineer in C.D.S., Marketing Engineer in the Variable Air Volume Product Group, Manager of Technical Training in GTP, Sales Engineer, Sales Manager in Rochester/Syracuse & Regional Sales Manager for the NE Territory.

Joe currently works part-time for Trane's East Territory & provides technical training through Becker Learning.

^{***}If a PO is given, full payment must be received prior to the first day of class.





1791 Tullie Cir. NE | Atlanta, Ga. 30329-2305 | 404-636-8400 | www.ashrae.org

For Release: Feb. 10, 2014

Contact: Jodi Scott Public Relations 678-539-1140 jscott@ashrae.org

ASHRAE Spring Online Courses Cover Significant Updates to 90.1-2010, Career Enhancement

ATLANTA – Expert knowledge of sustainable techniques is in demand and the 13 online courses being offere this spring through the ASHRAE Learning Institute (ALI) allow professionals to keep up with the latest industrictends.

Participants can access these instructor-led courses from anywhere with an Internet connection, and earn continuing education units/professional development hours for each course completed.

New this spring is the short course "Significant Changes to Standard 90.1-2010," on May 14. This course provides an in-depth overview of the standard and answers questions about changes from previous editions i envelope, lighting and mechanical sections.

"90.1-2010 represents the biggest change in the standard since it became a code document in 1999," Mack Wallace, course instructor, said. "The 2010 standard contains over 100 changes from the 2007 version and decreases energy use in buildings by around 30 percent as compared to buildings built to the 2004 standard."

Additionally, 90.1-2010 was recognized by the Department of Energy as the new national energy standard, meaning that the numerous jurisdictions are beginning to adopt the standard.

"Each of the states will be required to adopt some form of 90.1 for use on commercial buildings" Wallace said "The focus of these government organizations will now move to compliance with the standard. All building design professionals will need to be familiar with the new standard as it becomes law."

The course also is part of ASHRAE's Career Enhancement Curriculum, which focuses on IAQ Practices and Energy Savings (ES) Practices. The program is a new way to help professionals expand their knowledge in specific areas of HVAC&R and advance their careers.

The courses offered this spring cover a variety of topics relevant to today's built environment, including:

- Commissioning
 - o "Commissioning Process in New and Existing Buildings, Parts 1 & 2" (March 26, April 2)



Continued from previous page

- Environmental Quality
 - "IAQ Best Practices for Design, Construction and Commissioning" IAQ Practices (May 1)
 - "Troubleshooting Humidity Control Problems" IAQ Practices (March 24)
- Energy Efficiency
 - "Commercial Building Energy Audits, Parts 1 & 2" (April 28, 30)
 - o "Basics of High-Performance Building Design" (May 8, 2014)
 - o "Energy Modeling: Best Practices and Applications, Parts 1 & 2" (May 5, 12)
 - NEW "Evaluation Methods for High-Performance Green Buildings" (May 7)
- HVAC Applications
 - o "Introduction to BACnet®" (April 14)
 - o "Designing High-Performance Healthcare Facilities" (April 23)
- · Standards & Guidelines
 - o "Complying with Standard 90.1-2013, Parts 1 & 2" ES Practices (April 7, 9)
 - "Fundamentals and Application of Standard 55" IAQ Practices (March 31)
 - o "Fundamental Requirements of Standard 62.1-2013" IAQ Practices (March 12)
 - o NEW "Significant Changes to Standard 90.1-2010" ES Practices (May 14)

ALI courses provide professional development through in-depth information that is timely, practical and advanced beyond a fundamental level. Courses are offered every spring and fall.

For pricing or to register, visit www.ashrae.org/onlinecourses.



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For Release: Feb. 11, 2014

Contact: Jodi Scott Public Relations 678-539-1140 jscott@ashrae.org

Proposed Addendum to Green Standard Seeks to Ensure Sustainability Through Biodiversity

ATLANTA – Ensuring sustainability of ecosystems through protection of plants, soil and water and increased habitat for native birds and insects is the goal of proposed requirements to the green building standard from ASHRAE, the U.S. Green Building Council (USGBC) and the Illuminating Engineering Society (IES).

"The intent of the proposal is to maintain or restore a minimum level of biodiversity including bio-diverse plantings, native plants and limited turfgrass," Anthony Floyd, a member of the Standard 189.1 committee, said. "Supporting and maintaining the biodiversity is critical to the long term health and sustainability of ecosystems of which humans and all life depend on for existence. Sustainable development recognizes and attempts to account for the interdependencies of ecosystems in the human built environment. Hence, Standard 189.1 addresses biodiversity at the building site level in recognition of these interdependencies."

ANSI/ASHRAE/USGBC/IES Standard 189.1-2011, Standard for the Design of High-Performance, Green Buildings Except Low-Rise Residential Buildings, covers key topical areas of site sustainability, water-use efficiency, energy efficiency, indoor environmental quality and the building's impact on the atmosphere, materials and resources.

Proposed addendum *bg* revises the Native Plant definition, clarifies the Plants section by renaming it Landscape Design, and requires a minimum area of the landscape to be native plants. Overall addendum *bg* is a clean up to the existing section, according to Floyd.

Addendum *bg* is open for public comment, along with four other addenda, until March 9, 2014. To comment or learn more, visit www.ashrae.org/publicreviews.

"Native plants provide habitat (food and protection) for animals (pollinating insects, birds, mammals, etc.) that non-native plants have not evolved to provide," Susan Gitlin, also a member of the Standard 189.1 committee, said. "The benefits that native plants provide are irreplaceable and essential in our ecological systems. The vast majority of human-built landscapes use lawns and other plants that have been sourced and cultivated in such a way that they have minimal benefits for any wildlife, e.g., the leaves are not those that caterpillars have evolved to eat, and without the caterpillars, birds are not provided with that essential protein source."

The other addenda open for review are:

- Addendum al, which will match requirements for opaque wall assemblies in Climate Zones 1 through 3 to ANSI/ASHRAE/IES 90.1-2013, Energy Standard for Buildings Except Low-Rise Residential Buildings.
- Addendum w, which provides bicycle parking design requirements.
- Addendum bk, which adds a fan-efficiency requirement that is slightly more stringent than the fan-efficiency section in ANSI/ASHRAE/IES 90.1-2013, Energy Standard for Buildings Except Low-Rise Residential Buildings.
- Addendum bm, which adds more building components and clarifies salvaged material requirements in Section 9.4.1.1 Recycled Content.



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For Release: Feb 14, 2014

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

ATLANTA— Power usage effectiveness (PUE™) 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 "PUE™: 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.

The cost of "PUE: A Comprehensive Examination of the Metric" is \$59 (\$50 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 click here.

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News

1791 Tullie Cir. NE | Atlanta, Ga. 30329-2305 | 404-636-8400 | www.ashrae.org

For Release: Feb. 19, 2014

Contact: Jodi Scott Public Relations 678-539-1140 jscott@ashrae.org

ASHRAE/IES Energy Standard Gains 30 Percent Savings over 2004 Standard

ATLANTA – 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,



Continued from previous page

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
 - 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.
 - Simplification of the skylighting criteria.
- Lighting: These changes include improvements to daylighting and daylighting controls, space-byspace 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.

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, refrigeration and sustainability. Through research, standards writing, publishing, certification and continuing education, ASHRAE shapes tomorrow's built environment today.

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News

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For Release: Feb. 20, 2014

Contact: Jodi Scott Public Relations 678-539-1140 jscott@ashrae.org

Conference Program Announced for ASHRAE's High Performance Buildings Conference

ATLANTA – From changing occupant energy use to exploring radical innovations in buildings, ASHRAE's third High Performance Buildings Conference highlights innovation; proven methods for improving building operation resulting in deep energy efficiency and indoor environmental quality; measured performance; and HPB case studies demonstrating new technologies.

The High Performance Buildings Conference takes place April 7-8, 2014, Hyatt Fisherman's Wharf, San Francisco, Calif. Building upon the 2012 High Performance Buildings Conference and 2009 Net-Zero Energy Conference, the Conference seeks to advance the industry's efforts to accomplish a true high-performance built environment.

To register or for more information visit www.hpbmagazine.org/hpb2014.

"The conference aims to help decision makers in the building community learn about the benefits of innovative solutions and energy-efficient design and operation," Kent Peterson, conference chair, said. "Through a comprehensive range of sessions, the conference will provide the building community with design and operational guidance to improve building performance."

New subject areas include water efficiency, building occupant behavior, new building technologies, indoor environmental quality and an increased emphasis on lighting/daylighting and the building envelope.

In addition, the conference features several invited speakers and keynote speakers. Keynote speakers include:

- Peter Rumsey, Rumsey Engineers, Inc., presents "The Process of Radical Innovation in Buildings"
- Jerry Yudelson, author of "The World's Greenest Buildings: Promise vs. Performance in Sustainable Design," leads an interactive session on "Design with the End in Mind"
- Gail Brager, associate director, Center for the Built Environment at the University of California Berkeley.



Continued from previous page

Sessions include:

- HPB Case Studies and Lessons Learned
- Market Valuation for Green
- The Next "Greenest" Building: An Interactive Session
- Measuring Up Building Performance
- Benchmarking and Retrocommissioning: Driving Existing Building Performance
- Operating for High Performance
- Beyond the Energy Model: From Precision Control to Connect Communities

A poster session on "Measured Performance" and "Modeled Performance" featuring project case studies will be is presented. Poster proposals are being accepted through Feb. 21. Submit online at www.hpbmagazine.org/hpb2014.

The conference is being presented by ASHRAE's High Performing Buildings magazine, the industry's premier source for measured performance of practices and technologies to promote better buildings.

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For Release: Feb. 21, 2014

Contact: Amanda Dean Public Relations 678-539-1216 adean@ashrae.org

ASHRAE Honors Rising Star in the Building Industry

ATLANTA – Young engineers, whether just out of school, establishing their early careers or achieving engineering milestones are building up the industry. As part of Engineers Week (Feb. 16-22), ASHRAE is proud to recognize its 2014 New Face of Engineering: Rebecca Delaney, P.E.

New Faces of Engineering, introduced by ASHRAE in 2003 during National Engineers Week, highlights the exciting and often unique work of young engineers and the resulting impact on society.

Delaney is mechanical engineer, Primera Engineers, Chicago, III. She holds both a Bachelor and Master of Architectural Engineering from Penn State University.

"I am honored to be ASHRAE's 2014 New Face of Engineering," Delaney said. "As a young engineer, I'm excite to share my experiences of the global impact of our industry and changes/advancements my generation is poised to make during our careers."

Today, Delaney works to deliver cost-effective and innovative ways to reduce her clients' energy usage. She ha optimized geothermal systems to produce radiant water temperatures without heat pumps and educates her clients on the benefits of radiant heating/cooling systems and the importance of envelope performance to passively reduce thermal loads. Additionally, Delaney is a global leader for Engineers without Borders and travels to Kenya and Uganda to teach sustainable practices to local communities.

"As a young engineer, Rebecca plays an important role in shaping the future of how buildings are designed, constructed and maintained," ASHRAE President Bill Bahnfleth said. "She comes to the industry with a fresh perspective and strives to design sustainable, high performance buildings that provide high levels of indoor environmental quality with low energy consumption. Additionally, her work in Engineers without Borders is savin lives and helps to ensure that sustainable practices are put to use around the world."

Delaney was featured in a national ad in USA Today during Engineers Week along with other participating engineering societies' winning New Faces. She will also be recognized in the Society's monthly publication, the ASHRAE Journal.



Continued from previous page

ASHRAE received nominations from around the world for the honor of being the Society's 2014 New Face of Engineering. Additional nominees were:

- Pam Androff, P.E., product manager, Commercial Equipment, Suwanee, Ga.
- Charles Blaschke IV, general manager, taka solutions, Dubai, United Arab Emirates
- Alexandre Bourchard, engineer, Martin Roy, Deux-Montagnes, Québec, Canada
- Caleb Brantley, P.E., project manager, TME, Tucson, Ariz.
- Terese Decker, senior consultant, Navigant, Boulder, Colo.
- Colin Fay, sustainability specialty, mechanical engineer-in-training, PDC Inc. Engineers, Anchorage, Ala.
- Bob Fassbender, founder, www.energy-models.com and Cosmo Logic, San Francisco, Calif.
- Calina Ferraro, P.E., mechanical engineer, project manager, Randall Lamb Associates, La Mesa, Calif.
- Chad Ferreira, sales engineer, Jascko Corp, Miami, Fla.
- Andrea Gains-Germain, Cogenra Solar, Mountain View, Calif.
- Chris Gray, P.E., senior research engineer, Southern Company, Birmingham, Ala.
- · Ashu Gupta, managing partner, Design to Occupancy, Jaipur, India
- Charlie Haack, senior associate, ICF International, Fairfax, Va.
- Rupesh Iyengar, P.E., doctoral research, Swiss Federal Institute of Technology Zurich, Singapore
- Brian Jennissen, design engineer, Innovent Air Handling Equipment, Minneapolis, Minn.
- Chonghui Liu, P.E., mechanical engineer, C&S Engineers, Syracuse, N.Y.
- Mark McLean, P.E., sales engineer, Tri-State Roofing and Sheet Metal Co., Lexington, Ky.
- Larry McWilliams, P.E., mechanical engineer, McVeigh &Mangum Engineering, Charlotte, N.C.
- Vrushali Mendon, Pacific Northwest National Laboratory, Richland, Wash.
- Gabriel Millican, P.E., ASHRAE-Certified Healthcare Facility Design Professional, mechanical engineer, SmithGroupJJR, Phoenix, Ariz.
- Jacob Moberg, applications engineer, Stan Weaver and Company, Orlando, Fla.
- Anna Morton, energy modeling and design engineer, dbHMS, Chicago, III.
- Patrick Murphy, P.E., mechanical engineer, Vanderweil Engineers, Alexandria, Va.
- Ben Oliver, mechanical engineer in training, Chorley & Bisset, London, Ontario, Canada
- Frank Paradiso, assistant engineer designer, Stony Brook University Research and Support Services, New York
- Greg Phipps, P.E., test engineer, Big Ass Fans, Lexington, Ky.
- James Spencer, graduate mechanical engineer, Arup, Seattle, Wash.
- Rumen Yordanov, CEng., cofounder, director, Asian European Engineering, Hong Kong
- Cassie Waddell, P.E., principal mechanical engineer, sustainable designer, AlfaTech, San Francisco, Calif.
- Ryan Westlund, commercial projects manager, REHAU Construction, Leesburg, Va.
- Justin Westmoreland, P.E., staff engineer, Alternative Energy Systems Consulting, Fresno, Calif.
- Alyssa Wingenfield, energy services specialist, McClure Company, Harrisburg, Pa.

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