

Denver Meeting Information

DATE: Wednesday, March 5, 2014
TIME: 5:30 PM – Registration
 6:30 PM – Dinner
 7:00 pm – Program Begins
LOCATION: Dave & Busters
 2000 South Colorado Blvd
 Denver, CO 80222
RSVP: www.RockyMTNASHRAE.COM
COST: \$25 Rocky Mtn Chapter Members
 *Reservation made by 5:00 PM on Monday
\$35 Non-members and late reservations
 \$20 Students

Fort Collins Meeting Information

DATE: Wednesday, March 5, 2014
TIME: 12:00 Registration/Program Begins
NEW LOCATION: 1st Bank 2644 S. Timberline Rd
RSVP: Mike Fulton
mfulton@westernmechanicalsolutions.com
COST: \$10 Rocky Mtn Chapter Members

“FAN EFFICIENCY GRADES FOR ENERGY EFFICIENCY AND CODE COMPLIANCE”

Fan Efficiency Grades (FEG) as determined by Air Movement and Control Association (AMCA) International and their relationship to energy efficiency of fans for compliance with energy codes such as IECC and standards such as ASHRAE 90.1.

Dr. Ganesh has over 26 years of experience in the HVAC and Fan industries. His current responsibilities include fan systems regulatory compliance, applications engineering, product development and customer testing. Prior to TCF he spent 11 years in product development at the Trane Company. He has 3 patents to his credit and has made several presentations at ASHRAE, AMCA and in company training seminars. He has served on several AMCA and ASHRAE committees. Dr. Ganesh received his PhD in Mechanical Engineering from the University of Missouri-Rolla in 1987. He is a registered Professional Engineer in Wisconsin.

This presentation has been registered for 1.0 GBCI Credits

Upcoming Events:

- April 2nd – Denver Lunch Meeting
- May 2nd, 2014 Technical Conference.
- May 7th – Denver Dinner Meeting and Fort Collins Lunch Meeting.

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ROCKY MOUNTAIN CHAPTER LOGO POLO ORDER FORM

RM ASHRAE is a USGBC/GBCI education provider!

The Rocky Mountain Chapter of ASHRAE is now a USGBC/GBCI education provider. If you would like to have a presentation submitted to the USGBC for LEED AP credentialing credits, please contact Jessie Jones jjones@rmhgroup.com or Michelle Swanson mswanson@rmhgroup.com for more information.

PRESIDENT'S MESSAGE

Dear Rocky Mountain ASHRAE:

First I would like to thank TAB Services for conducting the TAB demonstration of air & hydronic balance procedures. I hope everyone found it beneficial.

March will bring a lunch meeting in Fort Collins and a dinner meeting in Denver. We have found a location to hold our Fort Collins meetings for the last two of the year. They will be held in the conference room at FirstBank at 2644 S. Timberline Road.

This month we will be having Rad Ganesh from Twin City Fans speak on FEG (Fan Efficiency Grade). Until recently, fan selection guidance and metrics that allow quick comparison of fan efficiencies have not been available. FEG is a new approach that AMCA International & ASHRAE's TC 5.1 fan committee have developed to create a fan efficiency classification system.

Please make sure to mark your calendar for the Tech Conference on May 2. We will be sending out the brochure via email in a few weeks. We are very excited and think we have a good lineup of speakers. We have changed the format slightly this year. Instead of doing 6 presentations in each track, we will be doing 5. Then at the end of the day, in lieu of the typical 6th presentation, we will be holding one presentation for all to attend that will update everyone on 90.1. If you have any questions, feel free to contact Jessie Jones or myself.

If you have any questions or concerns, please do not hesitate to contact me.

Best Regards,

Jon Rundquist

Chapter President
Rocky Mountain Chapter of ASHRAE



ROCKY MOUNTAIN BOARD OF GOVERNORS ROSTER

Rocky Mountain Chapter 2013 - 2014

Title/Committee Chair	Name	Email	Phone
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YEA Chair	James Newman	YEA@RockyMtnASHRAE.com	303.421.6655

ASHRAE RESEARCH



Don't Wait, Please Donate for the 2013-2014 ASHRAE Year

Mail Check To:
ASHRAE RESEARCH
c/o Jessie Jones, The RMH Group
12600 W Colfax Ave, Suite A-400
Lakewood, CO 80215

Your contribution puts us closer to achieving our goal. Please send what you can today!

* Individual contributions of \$100 or more and Corporate contributions of \$150 or more receive this year's Commemorative Coin And Honor Roll Contribution status.

Name: _____

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INDIVIDUAL	\$25.00	\$50.00	\$75.00	\$100.00	Other: _____
CORPORATE	\$75.00	\$100.00	\$175.00	\$250.00	Other: _____

Or Contact Jessie Jones at: 303-312-4641


































THANK YOU Donors!

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Our goal for this year is to raise \$83,100

ASHRAE RESEARCH DONOR LEVELS AND RECOGNITION

Receives 1 day Meeting Registration*							-----		
Receives 2 tickets to <i>Members Night Out</i> and <i>Welcome Party</i> *									
Presented Commemorative Sculpture									
Individually recognized at President's Luncheon*									
Invited to President's Luncheon*									
Invited to Board of Directors Luncheon*									
Listed on special Display at President's Luncheon*									
Group photo published in spring issue of ASHRAE Insights									
Receives personalized shadowbox plaque							-----	-----	
Listed on RP Display in Registration							-----		
Receives Gold ASHRAE Commemorative Coin & Plaque							-----		
Receives Silver ASHRAE Commemorative Coin & Plaque					-----	-----	-----	-----	
Receives Bronze ASHRAE Commemorative Coin & Plaque				-----	-----	-----	-----	-----	
Receives Antique ASHRAE Commemorative Coin & Plaque			-----	-----	-----	-----	-----	-----	
Receives blue desktop coin holder		-----	-----	-----	-----	-----	-----	-----	
Listed in annual <i>Investor Honor Roll</i>									
	Honor Roll Donor** \$150-\$249	Major Donor – Antique \$250-\$499	Major Donor – Bronze \$500-\$999	Major Donor – Silver \$1000-\$2499	ASHRAE Associate \$2500-\$4999	ASHRAE Partner \$5000-\$9999	Golden Circle Donor \$10,000 - \$19,999	Platinum Circle Donor \$20,000+	

* ASHRAE Winter Meeting

** Individual Honor Roll Donor begins at \$100

SUSTAINABLE ENGINEERING COMMITTEE

March Meeting

DATE: 3/26/2014

TIME: 12PM – 1PM

LOCATION: Eaton Energy Solutions
143 Union Blvd, Ste 350
Lakewood, CO 80228

RSVP: Sara Frame
sustainable@rockymtnashrae.com

The Sustainable Engineering Committee is committed to advocate sustainable design, construction and operation to our members, the industry and our community through advocacy group meetings and educational seminars. We strive to promote sustainable practices at all ASHRAE events and sponsored activities.

This committee meets once a month for planning and coordination. If you have questions about the committee, please contact Sara Frame at sustainable@rockymtnashrae.com.

2014 SUSTAINABILITY PROJECT

The SEC is working with Energy Outreach Colorado (EOC) to evaluate a potential ventilation upgrade project for the Disabled American Veterans building. The project scope, budget, and opportunity for ASHRAE to get involved are currently being determined. More information on how to get involved will be available in the coming months.

PLANNING FOR HALF-DAY SEMINAR, FALL 2014

A half day event is being planned for Fall 2014. The seminar will be geared toward preparation for the High-Performance Building Design Professional (HBDP) examination. Topics have not yet been chosen. If there is a topic you would like to learn more about and would like to see at this half-day seminar, please contact Sara Frame.

TREE PLANTING

The SEC is planning another tree planting activity, similar to past years. If you would like to get involved, please contact Sara Frame. Watch the newsletter for future details.

Are you aware of the Building Energy Quotient (bEQ) program and how it's helping building owners achieve levels of improved building performance. Setting high standards for improving energy performance is a major focus of ASHRAE's mission and we believe bEQ is an effective tool in this effort. bEQ is specifically designed to identify factors causing the gap between a building's design potential and its actual performance in operation. Only those who hold an ASHRAE Building Energy Modeling Professional or Building Energy Assessment Professional certification may submit workbooks and benefit fully from the bEQ program. At <https://www.ashrae.org/education--certification/certification/beq-brochures-for-your-use> you'll find revised brochures that reflect ASHRAE adding the As Designed rating to bEQ and how certification supports the program. Please let us know if you have any questions.

GREENING OUR MEETINGS

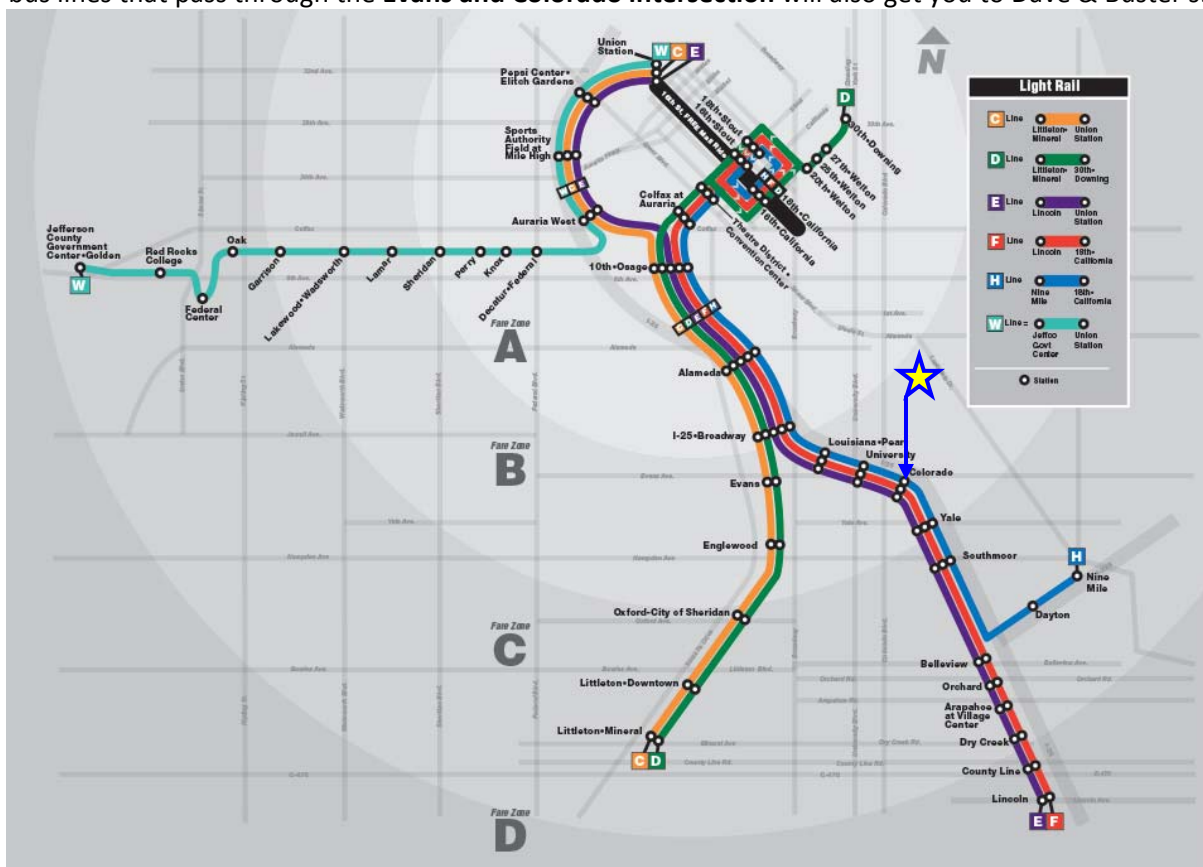
The Rocky Mountain Chapter of ASHRAE will present a free raffle ticket to anyone taking public transportation to the monthly ASHRAE meeting.

One raffle ticket will be given to each participant for each meeting. Visit www.rtd-denver.com for system maps and times or contact ridegreen@rockymtnashrae.com for further assistance.

Acceptable modes of alternative transportation:

- ✓ Walking
- ✓ Bicycling
- ✓ Bus
- ✓ Light Rail
- ✓ Alternative Fuel Vehicle
- ✓ High Efficiency Vehicle (35+ mpg)
- ✓ Carpooling (2 or more persons)

The ASHRAE meeting (Denver) at Dave & Buster's is located at the **Colorado Light Rail Station** for lines E, F and H. Any bus lines that pass through the **Evans and Colorado intersection** will also get you to Dave & Buster's.



YOUNG ENGINEERS IN ASHRAE (YEA) & STUDENTS

Young Engineers in ASHRAE (YEA) events are open to all ASHRAE Members, you do not have to be younger than 35 to attend.

The YEA Committee has new leadership. Former Chairman James Newman has relocated to Boston MA. Therefore Rachel Romero and Bryce Buchanan have taken over the committee.

The following topics are currently under discussion.

- FE/PE Study Groups
- FE/PE Study Material Library
- Site Tours
- Annual Kickball Event
- Mentoring Program
- Educational Series
- YEA Shadowing Opportunities

If you have any ideas or would like to join the committee please contact Rachel or Bryce at YEA@RockyMtnASHRAE.com.

Applications Now Being Accepted for the *HVAC Design: Level I - Essentials* Training Scholarship

ASHRAE's *HVAC Design: Level I - Essentials* training targets those new to the field, either as new hires or engineers and others in career transition. The next three opportunities to attend are:

Atlanta, June 9-11 (apply by April 11)

The YEA Institute scholarship is offered for each training listed above and covers the full cost of Level I registration.

<https://www.ashrae.org/membership--conferences/yea-scholarship-for-hvac-design-essentials-workshop>

Registration Now Open for YEA Leadership Weekend Spring 2014

March 28-30, 2014 | Portland, Oregon.

Are you interested in expanding your knowledge, meeting fellow engineers and having some fun along the way? Look no further than YEA Leadership Weekend!

YEA Leadership Weekend is an opportunity for you—the future leaders of ASHRAE—to learn more about Society, develop soft skills and network with other young professionals. Over 300 YEA members have already taken advantage of this great opportunity...will you be next?

<https://www.ashrae.org/membership--conferences/young-engineers-in-ashrae/yea-leadership-weekend-spring-2014>



GOVERNMENT AFFAIRS

Government Affairs is now its own standing committee. This committee's responsibilities are to keep the Chapter members informed of Government activities such as new laws and regulations, legislative and building department activities as well as making ourselves available to the local government entities as an information source. The committee is chaired by Steve Ferguson who can be reached at Government@RockyMtnASHRAE.com if you are looking for more information or are interested in being involved.

Grassroots Government Affairs Report

MOE

The Licensing That Works Task Force continues to monitor states where legislation might be introduced to require a "Masters or Equivalent" (MOE) as part of PE licensure. ASHRAE is represented on this committee of allied professional organizations by Dick Hayter, Presidential Member (1995-1996). Jim Scarborough, Manager of Grassroots Government Affairs, participates in the calls as well. States on the "Watch List" include Idaho, Illinois, Maryland, New Hampshire, Vermont and West Virginia. At this time, no MOE legislation has been introduced for adoption in any state.

STEM Education

ASHRAE staff was fortunate to attend a presentation on Capitol Hill sponsored by Change The Equation. This presentation was made as part of [National Engineers Week](#) (February 16 - 22) to promote STEM education at the K-12 levels. Featured were three prominent engineers: Robert L. Curbeam, Jr. (former astronaut on three Space Shuttle missions and now with Raytheon), Gayle J. Gibson with DuPont and Ioannis Maioulis, of The Museum of Science, Boston. All three stressed the importance of promoting science, physics, mathematics and engineering from the earliest years of education, to "stay the course" on high standards and to support meaningful high school graduation requirements.

Lessons from State Energy Efficiency Programs Presented to U.S. Senate Committee

States have often been thought of as the laboratories of democracy, and it is in this vein that the U.S. Senate Energy & Natural Resources Committee's Subcommittee on Energy recently held a hearing to examine lessons for federal policy from state efficiency and renewable energy programs.

During the hearing witnesses spoke about the impact of state programs, as well as federal programs, such as the State Energy Program, on building energy efficiency.

Additionally, Senators Jeanne Shaheen (D-NH) and Rob Portman (R-OH) spoke about the importance of the Energy Savings and Industrial Competitiveness Act, which they first introduced over three years ago, and has since become the most significant energy efficiency legislation in Congress, garnering wide support from both Democrats and Republicans, as well as stakeholder organizations, including ASHRAE. This bill has undergone significant changes since its initial introduction in the Senate, and will likely be reintroduced in the coming weeks.

The new version will include incorporate several amendments that have achieved widespread support.

To view witness testimony and an archived webcast of the hearing, please visit <http://ow.ly/tOI0d>.

For additional information, please contact Mark Ames, ASHRAE's Senior Manager of Federal Government Affairs, at mames@ashrae.org.

In 1886, America's first alternating current power plant began operation in Great Barrington, Mass. George Westinghouse demonstrated transmission at 500 volts for 4000 feet, with a step-down for lights in stores. Driven by a water mill there, it started producing commercial power two weeks later, but subsequently became damaged by an accident and was abandoned. However, it had successfully showed the great advantage of using transformers at the source for transmission at higher voltage, with decreased energy losses, for distances greater than was possible by Edison's direct current ventures. Westinghouse opened his first successful A.C. generating plant on 30 Nov 1886 at Buffalo, NY.

MEMBERSHIP PROMOTION

Welcome to the "The Membership Promotion Page." We would like time to welcome the following new ASHRAE members for the month of October:

- Mr Casey Grimes
- Mr Matthew Maurio
- Mr Scott Matson
- Ms Tia Heneghan
- Mr Jacob Naeb

We would also like to welcome the following new student members:

- Ms Denise Mauney
- Mr Dareum Nam
- Hyunwoo Lim

If you have questions or need membership assistance please send an email to cgarofoli@victaulic.com or call Chris Garofoli at 303-396-9006.

Also, please look around your company and through your contacts to let people know about the benefits of joining ASHRAE. We continue to bring in new young members of the industry to keep them involved with technology and standard advancements.



ASHRAE Rocky Mountain Chapter



Rocky Mountain ASHRAE



@ASHRAERkyMtn

In 1869, an electrical resistance heater was patented by Leigh Burton (No. 88,006).

In 1872, Thomas J. Martin was awarded a patent for the fire extinguisher.

In 1960, in New York a car was displayed with a battery recharged by solar cells.



MEMBERSHIP APPLICATION

Name: _____

New Member Renewal National Member ID _____
*National membership is required to join chapter.

Address: _____

Email: _____

Name Tag: _____ (\$10) Yes
**Name as it is to appear on the tag.

I would like to be contacted about participating in the following events.

Mentor	Trade Show	Meeting Volunteer	Sustainability Project
Meeting Presenter	Raffle item for meeting	Committee Participation	

Please make check payable to **Rocky Mountain Chapter ASHRAE**.

Annual Membership	\$50
Name Tag	\$10
Total	_____

Please mail to:

Chris Garofoli

3416 Alcott St Denver, CO 80211

membership@rockymtnashrae.com

ROCKY MOUNTAIN ASHRAE HISTORY

For the Rocky Mountain Chapter, ASHRAE has not always stood for the American Society of Heating, Refrigerating and Air-Conditioning Engineers.

On March 1, 1978, the dinner meeting program was “COAL – IS IT REALLY OUR ENERGY SAVIOR?”

“The Firing of Coal Boilers will be on the March program. Bill Moore and Don Young will present a candid review of some of the new and old forgotten requirements for burning coal in residential units and up to 100,000#/hr. boiler units. The discussion will also include some of the current clean air restrictions imposed by regulatory agencies and their effect on the use of coal-fired units.

Bill and Don, who are employed by Engineered Projects Company, each have over 30 years’ experience in the application and engineering of boiler/burner/stoker units.”

In 1918, the U.S. first began daylight saving time (DST) on Easter Sunday, when clocks were set ahead by one hour. The idea was sponsored by the Daylight Savings Association. N.Y. Senator William M. Calder introduced the bill to Congress on 17 Apr 1917. It was initially defeated, but subsequently passed by roll-call on 27 Jun 1917. In recent years in the U.S., up to 2006, clocks were changed at 2 a.m. on the first Sunday in April, and reverted on the last Sunday of October. Effective in 2007, DST is set by Congress to begin on the second Sunday of March and end the first Sunday of November. The concept had already been introduced in Great Britain as a fuel-saving measure during wartime, in order to conserve coal stocks during WW I.

In 1791, after a proposal by the Académie des sciences (Borda, Lagrange, Laplace, Monge and Condorcet), the French National Assembly finally chose that a metre would be a 1/10 000 000 of the distance between the north pole and the equator.

In 1979, a nuclear accident occurred at Unit 2 of the Three Mile Island nuclear power plant outside Harrisburg, Pennsylvania, USA. Caused by human and mechanical errors, a cooling system malfunctioned and permitted a partial meltdown of the reactor's core. Efforts to re-establish cooling of the reactor took several days. No evacuation was ordered, but 100,000 people fled. President Jimmy Carter personally visited four days later (1 Apr 1979). Disaster was avoided, although some radioactivity leaked into the air. It was the worst U.S. nuclear accident to date, but no radiation injuries were identified. On 21 Jul 1982, a video camera inspected the damage to the core and revealed a large amount of uranium had spilled and melted to the bottom of the pressure vessel.



ASHRAE SOCIETY NEWS AND PRESS RELEASES

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, Ill. 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 excited 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 has 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 saving 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.

ASHRAE received nominations from around the world for the honor of being the Society's 2014 New Face of Engineering including Terese Decker, senior consultant, Navigant, Boulder, Colorado.

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.”

ASHRAE SOCIETY NEWS AND PRESS RELEASES (CONT.)

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.

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 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.

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

ASHRAE SOCIETY NEWS AND PRESS RELEASES (CONT.)

promoting energy efficiency in buildings in the United States by establishing successively more stringent – but cost effective – minimum requirements and we look forward to further advances in future revisions.”

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

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

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

- **Building Envelope.** Opaque elements and fenestration requirements have been revised to increase stringency while maintaining a reasonable level of cost-effectiveness. Opaque and fenestration assemblies in Tables 5.5-1 through 5.5-8 are revised in most climates. These changes include:
 - 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-by-space lighting power density limits, thresholds for toplighting and revised controls requirements and format.
- **Mechanical:** Equipment efficiencies are increased for heat pumps, packaged terminal air conditioners, single package vertical heat pumps, air conditioners and evaporative condensers. Also, fan efficiency requirements are introduced for the first time. Additional provisions address commercial refrigeration equipment, improved controls on heat rejection and boiler equipment, requirements for expanded use of energy recovery, small motor efficiencies and fan power control and credits. Control revision requirements have been added to the standard such as direct digital controls in many applications.

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

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

ASHRAE SOCIETY NEWS AND PRESS RELEASES (CONT.)

SAVE THE DATE

April 17, 2014

1:00pm - 4:00 pm EDT

FREE ASHRAE WEBCAST

Buildings in Balance: IEQ and Energy Efficiency

This **FREE** webcast will feature industry experts who will identify the link between energy efficiency and Indoor Environmental Quality (IEQ) through the integrated design process. Viewers will be able to recognize the importance of the four cornerstones of IEQ and how system selection can benefit both energy efficiency and IEQ.

Visit www.ashrae.org/IEQWebcast for additional information about the program, sponsorships, continuing education credits, speakers, and registration.

EMPLOYMENT OPPORTUNITIES

Go to our website to open these links <http://rockymtnashrae.com/classifieds.php>

Job Title	Company	Date Posted
Mechanical Engineer II	Beaudin Ganze Consulting Engineers, Inc.	April 29, 2013
Application Engineer	Setpoint Systems Corporation	August 30, 2013
Junior Energy Engineer	U.S. Engineering Company	December 16, 2013
Senior Energy Engineer	U.S. Engineering Company	December 16, 2013
Preconstruction Manager	U.S. Engineering Company	December 16, 2013
Sales Engineer	Coolerado Corporation	January 09, 2014
Senior Engineer	PCD Engineering Services	January 10, 2014
Territory Sales Engineer	Grundfos	January 13, 2014
Building Energy Engineer	Group 14 Engineering	January 14, 2014
Commissioning Agent / Project Manager	Iconenergy, Ltd.	January 20, 2014
HVAC Design Engineer	20/20 Engineering, Inc.	February 11, 2014
Mechanical & Electrical Engineers	MDP Engineering Group	February 18, 2014
Mechanical Engineer II	Beaudin Ganze Consulting Engineers, Inc.	April 29, 2013
Building Energy Modeler	YRG	August 22, 2013
Application Engineer	Setpoint Systems Corporation	August 30, 2013
Mechanical HVAC/Plumbing Designer	JCAA Consulting Engineers, LLC	September 16, 2013
Junior Mechanical Engineer	MKK Consulting Engineers	October 09, 2013

ASHRAE Jobs Website Tool:

ASHRAE has now partnered with the job board service Bird Dog to promote employment opportunities for the ASHRAE community. This effort is called ASHRAE Jobs and can be linked to from the ASHRAE home page or www.ashraejobs.com.



Would you like to show your ASHRAE Rocky Mountain Chapter pride? How about a polo with the chapter logo?



You can order polos through Michelle Swanson by emailing her at mswanson@rmhgroup.com. Polos available include a light knit weight polo in mens and womens styles for \$27, you choose the color. An enduring favorite, our comfortable classic polo is anything but ordinary. With superior wrinkle and shrink resistance, a silky soft hand and an incredible range of styles, sizes and colors, it's a first-rate choice for uniforming just about any group. 5-ounce, 65/35 poly/cotton pique, Flat knit collar and cuffs, Metal buttons with dyed-to-match plastic rims, Double-needle armhole seams and hem, Side vents, Adult Sizes: XS-6XL



Banana	Bark	Black	Bright Lavender	Burgundy
Clover Green	Coffee Bean	Cool Grey	Court Green	Dark Green
Deep Berry	Eggplant	Gold	Hibiscus	Kelly Green
Light Blue	Light Pink	Light Stone	Lime	Maroon
Mau Blue	Mediterranean Blue	Mint Green	Navy	Orange
Purple	Red	Royal	Steel Grey	Stone
Strong Blue	Teal Green	Texas Orange	Tropical Pink	Ultramarine Blue
White				

Or a Nike dry fit performance polo for \$57, you choose the color. Nike Golf is known for classic polos engineered to take comfort to the next level. The Dri-FIT fabric technology delivers superior moisture management, while the stitch-trimmed shoulder panels and gussets make a distinctive difference. Flat knit collar, three-button placket and open hem sleeves. Pearlized buttons are selected to complement the shirt color. The contrast Swoosh design trademark is embroidered on the left sleeve. Made of 4.7-ounce, 100% polyester Dri-FIT fabric. Adult Sizes: XS-4XL



Black	French Blue	Midnight Navy	Skyline Blue	Varsity Red
Vivid Green	White			