“New Approaches to Slash Lab and Commercial Building Energy Use and Improve IEQ”

In the face of significant energy costs and concerns over global warming, buildings are receiving increasing scrutiny to reduce their carbon footprint and cut their energy expenses. For many buildings outside air is the largest single driver of both energy efficiency and indoor environmental quality. Demand control ventilation has attempted to reduce energy expenses by controlling outside air but the actual results over time have been mixed at best. This talk will discuss and provide case studies of both commercial and laboratory buildings for a more energy efficient and healthier variation on demand control ventilation that uses a new, cost effective, and more accurate sensing approach known as multiplexed sensing.

Mr. Sharp is the chairman of Aircuity, Inc. and has over 25 years of wide-ranging entrepreneurial experience and more than 25 U.S. patents in the fields of energy efficiency and laboratory controls. The technologies invented by Mr. Sharp at Phoenix Controls are today saving over $1.5 billion annually in energy use. Mr. Sharp is a graduate of MIT with bachelors and masters degrees in electrical engineering. He is Executive Vice President and a member of the board of directors of I2SL (International Institute for Sustainable Laboratories), the nonprofit foundation that operates the Labs21 conference. He is also a member of two important standards on ventilation: the ANSI/AIHA Standard Z9.5 Committee on Laboratory Ventilation and the ASHRAE SSPC 170 Committee on Ventilation of Health Care Facilities. He is also a voting member of ASHRAE technical committee TC9.10: Laboratory Systems and TC9.11: Clean Spaces/Cleanrooms.

Upcoming Events:
- April 24th – Annual TECH Conference @ Sheraton West
- April 29th – YEA HVAC on Tap @ Breckenridge Brewery
- June 6th – YEA Kickball Tournament
- June 15th – Annual Golf Tournament @ Hiwan
Rocky Mountain ASHRAE Patrons,

Welcome back for another exciting month of ASHRAE in the Rocky Mountains! I’d like to extend a thank you to both Sean Beilman and Chris McDonal on their excellent presentations for the Fort Collins and Denver meetings last month.

The April 1 presentation will be a lunch only presentation. The lunch meeting will be held at Jackson’s Bar and Grille in LoDo. Gordon Sharp will be presenting on “New Approaches to Slash Lab and Commercial Building Energy Use and Improve IEQ”. This presentation will discuss and provide case studies of both commercial and laboratory buildings for a more energy efficient and healthier variation on demand control ventilation that uses a new, cost effective, and more accurate sensing approach known as multiplexed sensing. You can register to attend the presentation on the www.rockymtnashrae.com website.

Our YEA committee has put together a PE study group for the spring exam, so let them know if you are interested in attending the sessions. The sessions started on March 3, but it’s not too late to come to the last few on March 24, 31, and April 7. These seminars are presented and sponsored by the local chapter of ASHRAE at no cost to the attendees. Contact Bryce Buchanan bbuchanan@mkkeng.com or Rachel Romero Rachel.romero@nrel.gov to RSVP.

Our annual Technical Conference is going to be here before you know it. Our Tech Conference Committee has been hard at work for the past few months putting the seminars together, so make sure you put April 24 on your calendar. As in past years, there will be five educational tracks, a vendor tradeshow, and open bar at the end of the day. You won’t want to miss it! You can register online at www.rockymtnashrae.com to confirm your spot.

Our Board of Governor’s vote will be coming up in April. The candidates for Junior Board Member are:

Tony Fischels, Trane
Bryan Henry, Apollo Mechanical Contractors
Erica Moser, The RMH Group, Inc.
Brook Zion, Swanson Rink

If you have any recommendations, comments, and/or suggestions, please don’t hesitate to let me know your thoughts on how to improve our chapter. We are always looking for enthusiastic volunteers to add diversity to our Board of Governors, so if you are interested in working on a committee be sure to let me know.

Thank you and I look forward to seeing all of you on April 1!

Jessie Jones Fleming
## ROCKY MOUNTAIN BOARD OF GOVERNORS ROSTER

### Rocky Mountain Chapter 2014 - 2015

<table>
<thead>
<tr>
<th>Title/Committee Chair</th>
<th>Name</th>
<th>Email</th>
<th>Phone</th>
</tr>
</thead>
<tbody>
<tr>
<td>President</td>
<td>Jessie Jones Fleming</td>
<td><a href="mailto:president@RockyMtnASHRAE.com">president@RockyMtnASHRAE.com</a></td>
<td>303.239.0909</td>
</tr>
<tr>
<td>President-elect/Tech Conf.</td>
<td>Mike Harrington</td>
<td><a href="mailto:TechConference@RockyMtnASHRAE.com">TechConference@RockyMtnASHRAE.com</a></td>
<td>303.795.1000</td>
</tr>
<tr>
<td>Vice President/CTTC Chair</td>
<td>Megan Sterl</td>
<td><a href="mailto:CTTC@RockyMtnASHRAE.com">CTTC@RockyMtnASHRAE.com</a></td>
<td>303.974.1230</td>
</tr>
<tr>
<td>Secretary</td>
<td>Tony Anderson</td>
<td><a href="mailto:Secretary@RockyMtnASHRAE.com">Secretary@RockyMtnASHRAE.com</a></td>
<td>303.280.1401</td>
</tr>
<tr>
<td>Treasurer</td>
<td>Trevor Bromberg</td>
<td><a href="mailto:Treasurer@RockyMtnASHRAE.com">Treasurer@RockyMtnASHRAE.com</a></td>
<td>303.969.0220</td>
</tr>
<tr>
<td>Newsletter Editor</td>
<td>Eugene Mitchell</td>
<td><a href="mailto:Newsletter@RockyMtnASHRAE.com">Newsletter@RockyMtnASHRAE.com</a></td>
<td>303.322.0165</td>
</tr>
<tr>
<td>Past President</td>
<td>Jon Rundquist</td>
<td><a href="mailto:PastPresident@RockyMtnASHRAE.com">PastPresident@RockyMtnASHRAE.com</a></td>
<td>303.428.2800</td>
</tr>
<tr>
<td>Director</td>
<td>Larry Gelin</td>
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<td>303.761.2291</td>
</tr>
<tr>
<td>Director</td>
<td>Jody Templeton</td>
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<td>303.295.6111</td>
</tr>
<tr>
<td>Northern Section Chair</td>
<td>Mike Fulton</td>
<td><a href="mailto:NorthernSection@RockyMtnASHRAE.com">NorthernSection@RockyMtnASHRAE.com</a></td>
<td>720.934.8273</td>
</tr>
<tr>
<td>Membership</td>
<td>Scott McQuoid</td>
<td><a href="mailto:Membership@RockyMtnASHRAE.com">Membership@RockyMtnASHRAE.com</a></td>
<td>720.384.4507</td>
</tr>
<tr>
<td>Website</td>
<td>Mike Cripe</td>
<td><a href="mailto:Webmaster@RockyMtnASHRAE.com">Webmaster@RockyMtnASHRAE.com</a></td>
<td>303.428.2800</td>
</tr>
<tr>
<td>Student Activities</td>
<td>Ainsley Thrailkill</td>
<td><a href="mailto:Student@RockyMtnASHRAE.com">Student@RockyMtnASHRAE.com</a></td>
<td>307.766.2033</td>
</tr>
<tr>
<td>Sustainable Engineering</td>
<td>Sara Frame</td>
<td><a href="mailto:Sustainable@RockyMtnASHRAE.com">Sustainable@RockyMtnASHRAE.com</a></td>
<td>303.951.0650</td>
</tr>
<tr>
<td>Government Activities</td>
<td>Steve Ferguson</td>
<td><a href="mailto:Government@RockyMtnASHRAE.com">Government@RockyMtnASHRAE.com</a></td>
<td>303.428.2800</td>
</tr>
<tr>
<td>Historian</td>
<td>Ainsley Thrailkill</td>
<td><a href="mailto:Historian@RockyMtnASHRAE.com">Historian@RockyMtnASHRAE.com</a></td>
<td>307.766.2033</td>
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<td></td>
<td>Jon Rundquist</td>
<td></td>
<td>303.428.2800</td>
</tr>
<tr>
<td>Honors &amp; Awards</td>
<td>Nick Peterson</td>
<td><a href="mailto:Awards@RockyMtnASHRAE.com">Awards@RockyMtnASHRAE.com</a></td>
<td>303.322.0165</td>
</tr>
<tr>
<td>Social Media</td>
<td>Andrew Van Essen</td>
<td><a href="mailto:SocialMedia@RockyMtnASHRAE.com">SocialMedia@RockyMtnASHRAE.com</a></td>
<td>303.257.2642</td>
</tr>
<tr>
<td>YEA Chairs</td>
<td>Bryce Buchanan, Rachel Romero</td>
<td><a href="mailto:YEA@RockyMtnASHRAE.com">YEA@RockyMtnASHRAE.com</a></td>
<td>719-330-7971, 303-886-8254</td>
</tr>
</tbody>
</table>
ASHRAE RESEARCH

Don’t Wait, Please Donate for the 2014 -2015 ASHRAE Year

Mail Check To:  
ASHRAE RESEARCH  
c/o Mike Harrington, Beabout Brock Easley  
621 Southpark Drive, Suite 300  
Littleton, CO 80120

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:  
Company:  
Address:  
Telephone:  

| INDIVIDUAL | $25.00 | $50.00 | $75.00 | $100.00 | Other: |
| CORPORATE  | $75.00 | $100.00 | $175.00 | $250.00 | Other: |

Or Contact Mike Harrington at: 303-795-1000

THANK YOU 2014-2015 Donors! We are at $8200!

- Michelle L Swanson
- Scott A Martin
- Ken A Urbanek
- Sara Frame
- Kevin Ainsworth
- Mike Harrington
- Brian Lynch
- Trevor Bromberg
- Eugene Mitchell
- Megan Sterl
- Jon Rundquist
- Rocky Mountain Chapter of ASHRAE
- Jessie Jones - Fleming
- Tony Anderson
- Larry Gelin
- Robert Barrett
- Brent Cunningham
- Gershon Gendler
- Long Building Technologies
- Kyle Manske
- Dave Olson
- Victaulic
- McNevin Company
- Air Purification Company
- Adam Bishop
- Scott Lohr
- Jock Griffith
- Complete Mechanical Balancing
- SMACNA Colorado
- Bob Stroschein

OUR GOAL IS TO RAISE OVER $95,000!
### ASHRAE RESEARCH DONOR LEVELS AND RECOGNITION

<table>
<thead>
<tr>
<th>Donor Level</th>
<th>Recognition Details</th>
<th>Ashrae Recognition Level</th>
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<tr>
<td><strong>Receives 1 day Meeting Registration</strong>*</td>
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<tr>
<td><strong>Receives 2 tickets to Members Night Out and Welcome Party</strong>*</td>
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<tr>
<td><strong>Presented Commemorative Sculpture</strong></td>
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<tr>
<td><strong>Individually recognized at President’s Luncheon</strong>*</td>
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<tr>
<td><strong>Invited to President’s Luncheon</strong>*</td>
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<tr>
<td><strong>Invited to Board of Directors Luncheon</strong>*</td>
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<tr>
<td><strong>Listed on special Display at President’s Luncheon</strong>*</td>
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<td><strong>Group photo published in spring issue of ASHRAE Insights</strong></td>
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<td><strong>Receives personalized shadowbox plaque</strong></td>
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<td><strong>Listed on RP Display in Registration</strong></td>
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<td><strong>Receives Gold ASHRAE Commemorative Coin &amp; Plaque</strong></td>
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<td><strong>Receives blue desktop coin holder</strong></td>
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<tr>
<td><strong>Listed in annual Investor Honor Roll</strong></td>
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<td>Ashrae</td>
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* ASHRAE Winter Meeting  
** Individual Honor Roll Donor begins at $100
ROCKY MOUNTAIN ASHRAE RESEARCH PROMOTION

Who is ASHRAE?
ASHRAE, founded in 1894, is an international organization of 55,000 members. It is the world’s foremost technical society in the fields of HVAC&R. Through its meetings, research, standards writing, publishing and continuing education, the Society helps keep indoor environments comfortable and productive, deliver healthy food to consumers and preserve the outdoor environment.

ASHRAE’s Research Vision
ASHRAE conducts timely research to remain the foremost, authoritative and responsive international source of technical and educational information, standards and guides on the interaction between people and the indoor and outdoor environment through the operation of HVAC&R systems in buildings and other applications.

The donations that are raised by the Rocky Mountain Chapter of ASHRAE fund this research.

Please complete the form below and mail to:
Mike Harrington, c/o Beabout Brock Easley, 621 SouthPark Drive, Suite 300, Littleton, CO 80120.

An invoice will be sent with instructions for payment.

Annual Golf Tournament – June 16, 2015
☐ Hole Sponsor ------------------------ $300 # Signage
   (Company signage at a tee box or green)
☐ Individual manufacturer’s signage ------- $50 each # Signs
   (Smaller signage in addition to Hole Sponsor)
☐ Golf Foursome ------------------------ $600 each foursome # 4-somes
☐ 2-person Team ------------------------ $300 each # Teams
☐ Individual Golfers --------------------- $150 each # Individual Golfers

Annual Technical Conference – April 24, 2015
☐ Break Sponsorship --------------------- $250 # Attendees
☐ Track Sponsorship --------------------- $1,800* # Attendees
☐ Happy Hour Bar Sponsorship ---------- $400 # Attendees
☐ Vendor Booth -------------------------- $875* # Attendees
☐ Technical Conference ASHRAE Member $175 each # Attendees
☐ Technical Conference Non-Member----- $195 each # Attendees
   (10% discount for 5 or more attendees, pricing based on registration by April 10, 2015)
*Available on a limited basis as available

General ASHRAE Research Promotion Levels of Recognition
☐ Honor Roll Donor --------------------- $150– $249
☐ Major Donor – Antique ---------------- $250 - $499
☐ Major Donor – Bronze ---------------- $500 - $999
☐ Major Donor – Silver ---------------- $1,000 - $2,499
☐ ASHRAE Associate ------------------- $2,500 - $4,999
☐ ASHRAE Partner ---------------------- $5,000 - $9,999
☐ Golden Circle Donor ---------------- $10,000 - $19,999
☐ Platinum Circle Donor ---------------- $20,000+ # Research Donation

Company Name: ____________________________________________________________________________
Contact Name and phone number: ______________________________________________________________
Anticipated Date for Payment: _________________________________________________________________

Based upon your selections above, an invoice will be mailed to contact listed.
### ASHRAE Research Projects

#### Region IX

<table>
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<tr>
<th>ID</th>
<th>Project Description</th>
<th>Institution/Location</th>
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<tbody>
<tr>
<td>143,168</td>
<td>Active Mechanism for Enhancing Heat and Mass Transfer in Sorption Fluids</td>
<td>U. NEBRASKA - Lincoln, NE</td>
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<td>180,000</td>
<td>Updating Heat and Moisture Production Rates of Modern Swine and their Housing Systems</td>
<td>U.S. MEAT ANIMAL RESEARCH CENTER - Clay Center, NE</td>
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<td>200,000</td>
<td>The Effect of Humidity on the Reliability of ICT Equipment in Data Centers</td>
<td>MISSOURI UNIV. SCIENCE &amp; TECH. - Rolla, MO</td>
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<td>177,067</td>
<td>Characterization of Liquid Refrigerant Flow Emerging from a Flooded Evaporator Tube Bundle</td>
<td>KANSAS STATE U. - Manhattan, KS</td>
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<td>297,866</td>
<td>Stochastic Control Optimization of Mixed-Mode Buildings</td>
<td>U. COLORADO - Boulder, CO</td>
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<td>500,000</td>
<td>Role of HVAC Systems in the Transmission of Infectious Agents in Buildings and Intermodal Transportation</td>
<td>U. COLORADO - Boulder, CO</td>
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<td>70,000</td>
<td>Simplified Procedure for Calculating Exhaust/Intake Separation Distances</td>
<td>CPP, INC. - Fort Collins, CO</td>
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<td>10,000</td>
<td>Air-Side Economizer Low-Limits Effect on Energy and Thermal Comfort</td>
<td>KANSAS STATE U. - Samantha Pekarscik,</td>
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<td>U. COLORADO-BOULDER-Ryan Tanner</td>
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<td>5,000</td>
<td>Stochastic Control Optimization of Mixed Mode Buildings (1597-RP)</td>
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<td>Time</td>
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<tr>
<td>7:30-8:00</td>
<td>Registration</td>
<td>Western Mechanical Solutions</td>
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<td>8:00-8:55</td>
<td>Altitude Effects on System Design</td>
<td>Heating Water Boiler Systems For K-12</td>
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<td>Michael Haughey P.E., Siltertip Integrated Engineering Consultants</td>
<td>Jerry Bivens, LEED AP Envision Mechanical Engineers</td>
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<td>8:55-9:00</td>
<td>Psychrometrics</td>
<td>Design and Economics of Commercial Ground Loop Heat Pump Systems</td>
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<td>Michael Fulton, P.E. Western Mechanical Solutions</td>
<td>Alan Niles WaterFurnace International</td>
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<td>9:00-9:55</td>
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<td>Application of VAV Terminals and Advanced Control Strategies for Terminals in HVAC Design</td>
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<td></td>
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<td>Dennis Sikkema Price Industries</td>
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<td>Rebecca Reel The RMH Group</td>
<td>Charles Landherr Mitsubishi Electric Zach Pearson, P.E. M-E Engineers</td>
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<td></td>
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<td>Jay Watson P.E. HPE Mar Ferguson, P.E. Colorado College</td>
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<tr>
<td>11:25-12:20</td>
<td>Lunch Break and Keynote Address: Achieving a Green Data Center: More Than a Good Design is Needed</td>
<td>Healthy Airside Solutions to Significantly Reduce your Building’s Carbon Footprint</td>
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<td>12:50-1:20</td>
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<td>Continuous Commission Peter Bergquist Sky Foundry</td>
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<tr>
<td>1:20-2:15</td>
<td>Fan Fundamentals</td>
<td>Fan Fundamentals Ryan Johnson Twin City Fan</td>
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<td>2:15-2:35</td>
<td>Afternoon Break &amp; Vendor Exhibits</td>
<td>Fan Fundamentals Ryan Johnson Twin City Fan</td>
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<td>3:35-5:00</td>
<td>Afternoon Technical Keynote Address And Open Bar</td>
<td>Closing the Comfort Gap–Are We Giving Building Owners The HVAC They Want?</td>
</tr>
</tbody>
</table>
**SUSTAINABLE ENGINEERING COMMITTEE**

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.

---

**Next Committee Meeting**

*Join us for appetizers and drinks at the Hornet!*

**DATE:** Thursday, April 9th 2014

**TIME:** 4:30 – 5:30 pm

**LOCATION:** Happy Hour @ The Hornet

76 Broadway (corner of 1st & Broadway)

Denver, CO

**RSVP:** Sara Frame, 303-951-0650

sustainable@rockymtnashrae.com

---

**20% DISCOUNT AVAILABLE**

**ROCKY MOUNTAIN GREEN (APRIL 2ND & 3RD)**

Rocky Mountain ASHRAE and USGBC Colorado are working together to provide a discount to those individuals attending both USGBC Colorado’s Rocky Mountain Green (April 2-3) and the Rocky Mountain ASHRAE Technical Conference (April 24).

Rocky Mountain ASHRAE and USGBC Colorado are working together to provide a 20% discount to those individuals attending both USGBC Colorado’s Rocky Mountain Green Conference (April 2-3) and the Rocky Mountain ASHRAE Technical Conference (April 24). If you attend both conferences, you will be given a 20% discount to each conference.

If you are attending both events and are interested in the discount, please contact Sara Frame, 303-951-0650 sustainable@rockymtnashrae.com.

USGBC Colorado’s Rocky Mountain Green event is designed by and for professionals working on high-performance, green building projects. GBCI/Real Estate/AIA continuing education hours are available. The event will be hosted at the Hyatt Regency Denver at the Colorado Convention Center. Registration options are available for both days, a single day, or a half day.

Through this joint effort, GBCI Continuing Education hours will also be available for some of the sessions at the April 24th Rocky Mountain ASHRAE Technical Conference. GBCI CE hours are provided by USGBC Colorado.

For more information about the ASHRAE Tech Conference, please see the website, www.rockymtnashrae.com. For more information about Rocky Mountain Green, please see the website, www.rockymountaingreen.com.
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

PE Study Group

Taking the April PE exam or even the fall exam? YEA is sponsoring an ASHRAE study group.  
Dates: March 24*, 31, and April 7  
Time: 5:30 pm to 7:00 pm  
Location: Baumann Engineering, Industry, 3001 Brighton Blvd., Denver, CO 80216  
*March 24th will be located at: Group 14 1325 E 16th Avenue, Denver  
Dinner will be provided so we can stuff our bellies as we stuff our brains!  
RSVP for the study group sessions by emailing YEA@RockyMtnASHRAE.com

Thanks to our teachers so far: Mark Pavol, Blender Products Inc and Paulo Tabares, Colorado School of Mines for helping to prepare our engineers! Also, thank you to Baumann Engineering for being great hosts!

Kickball 2015!
The second annual kickball tournament will be Saturday, June 6th! Start spreading the word and recruiting your teams!

Also, we are looking for sponsors. Check out the attached flyer for more information or go to http://rockymtnashrae.com/meetinginfo.php?id=94&ts=1425315570

Leadership U - 2015 Annual Conference
June 26 - July 2  
Applications accepted until Friday, March 23

Next HVAC on Tap
The next HVAC on Tap will be on April 29th at Breckenridge Brewery. Additional details will be sent out to the YEA mailing list and posted on the chapter website soon.

HVAC on Tap: Thanks
Big thanks to Larry Gelin and CFM Company for presenting at February’s HVAC on Tap about public speaking! It was a fantastic presentation with a great turnout of young engineers! Stay tuned for information about the next HVAC on Tap!
Energy Savings and Industrial Competitiveness Act Reintroduced in the Senate

Earlier this week, long-time leaders in energy efficiency, Senators Rob Portman (R-OH) and Jeanne Shaheen (D-NH) reintroduced their Energy Savings and Industrial Competitiveness Act (S.720). The bill, which is largely identical to the version that was most recently introduced last year, addresses several areas including:

- Building Energy Codes
- Workforce Training and Capacity Building
- Energy Efficiency and Helping to Improve Indoor Air Quality in School Buildings
- Encouraging the Alignment of Tenants and Building Owners Concerning Energy Efficiency
- Valuing Energy Efficiency in Mortgage Underwriting
- Industrial Energy Efficiency
- Federal Green Buildings

ASHRAE supports this bill, which is projected to save consumers $16.2 billion a year, significantly reduce CO2 and related emissions, and create more than 190,000 jobs.

“By establishing a national energy strategy, we can create jobs, save taxpayers billions, make manufacturers more competitive, and protect the environment,” said Senator Portman. “Our bill is the equivalent of taking 37 million homes off the grid, and I look forward to renewing our efforts to promote this commonsense legislation.”

“Energy efficiency is the cheapest and fastest way to address our energy challenges,” Senator Shaheen said. “Our bipartisan bill will create jobs, save consumers billions, and drastically reduce pollution in a smart, effective and affordable way – that’s why it enjoys broad bipartisan support. A vote to pass our legislation is long overdue and I hope the overwhelming support behind this bill will help carry it through the Senate.”

The bill is supported by over 250 businesses and nonprofit organizations. The bipartisan legislation is cosponsored by Senators Kelly Ayotte (R-NH), Michael Bennet (D-CO), Maria Cantwell (D-WA), Susan Collins (R-ME), Chris Coons (D-DE), Al Franken (D-MN), John Hoeven (R-ND), Joe Manchin (D-WV), Lisa Murkowski (R-AK), Mark Warner (D-VA), and Roger Wicker (R-MS).

The next step is for the Energy Savings and Industrial Competitiveness Act to be considered by the Senate Energy & Natural Resources Committee, and then brought to the Senate floor for a vote. Timing for these stages has not yet been determined, but is expected to begin sometime in April.
GOVERNMENT AFFAIRS CONT.

Senators Reintroduce Bipartisan Legislation Promoting State Energy Efficiency and Weatherization Assistance

Senators Chris Coons (D-DE), Susan Collins (R-ME), Jack Reed (D-RI), and Jeanne Shaheen (D-NH) have reintroduced the Weatherization Enhancement and Local Energy Efficiency Investment and Accountability Act (S.703), which would improve, reauthorize, and extend for five years, the State Energy Program and Weatherization Assistance Program. Together, these programs have helped more than 7.4 million low-income families make their homes more energy efficient, and helped states strategically leverage federal dollars to promote energy efficiency.

“The Weatherization Assistance Program and State Energy Program have made it possible for millions of Americans to reap the benefits of a wide range of energy-efficient technologies and practices,” said Senator Coons. “Our bill will not only ensure that both landmark programs can continue to help make American homes safer, healthier, and more energy efficient, it also further enhances the Weatherization Assistance Program with a complementary, competitive grant program, and requires that the DOE establish strong, achievable standards for qualifying entities. This will ensure that even more families can benefit.”

“Weatherization provides grants to permanently lower home energy costs for low-income families, seniors, and individuals with disabilities,” Senator Collins said. “This is particularly important for a state like Maine with some of the oldest housing stock in the nation and a high dependence on home heating oil. The State Energy Program is also supporting important state energy efficiency and renewable energy projects. Programs such as these have a significant return on investment and help meet our national goals of saving energy, lowering costs, and energy independence.”

Proposed Rule Issued by DOE for Test Procedures for Residential Furnaces and Boilers

The U.S. Department of Energy (DOE) is proposing to revise its test procedure for residential furnaces and boilers established under the Energy Policy and Conservation Act. This rulemaking will fulfill DOE's obligation to review its test procedures for covered products at least once every seven years. The proposed rule generally considers revisions based on the latest industry standards incorporated by reference, clarifications to the set-up and methodology, as well as new procedures for verification of the design requirements for certain categories of boilers and for estimating electrical consumption of furnaces and boilers. DOE is also announcing a public meeting to discuss and receive comments on issues presented in this test procedure rulemaking.

ASHRAE Standard 103 Methods of Testing for Annual Fuel Utilization Efficiency of Residential Central Furnaces and Boilers is discussed extensively in this notice of proposed rulemaking.

Comments are due on or before May 26, 2015. DOE will hold a public meeting and webinar on Thursday, March 26, 2015 from 1:00 to 5:00 p.m. Eastern in Washington, DC.
DOE Releases Correction on Final Rule for Energy Conservation Standards for Certain Commercial Heating, Air Conditioning, and Water Heating Equipment

DOE has issued a correction on a final rule they issued on May 16, 2012 concerning energy conservation standards and test procedures for certain commercial heating, air conditioning, and water heating equipment. The final rule discusses ASHRAE standards extensively.

Full information is available at https://www.federalregister.gov/articles/2015/03/05/2015-05061/energy-conservation-program-for-certain-industrial-equipment-energy-conservation-standards-and-test

Federal Committee Will Meet to Develop Standards and Test Procedures for Residential Appliances and Commercial Equipment

DOE's Appliance Standards and Rulemaking Federal Advisory Committee (ASRAC) will hold a public meeting and webinar on Thursday, March 19, from 9:00 a.m. to 1:00 p.m.. The purpose of this meeting is to provide advice and recommendations to DOE on the development of standards and test procedures for residential appliances and commercial equipment.

Full information is available at https://www.federalregister.gov/articles/2015/03/04/2015-04503/appliance-standards-and-rulemaking-federal-advisory-committee-notice-of-open-meeting-and-webinar

Survey on Energy Modeling Software

The Building Codes Assistance Project is conducting a survey of design professionals through April 30. This survey is seeking information on the current use of energy modeling software. It is primarily a multiple-choice survey and should take no longer than ten minutes to complete. Each participant can opt to enter into a raffle to receive one of five $50 Amazon gift cards. To access the survey, go to https://www.surveymonkey.com/s/WXZWTSY
Welcome to the “The Membership Promotion Page.” We would like time to welcome the following new ASHRAE members for the month of March:

- Ms Liz Lueneburg
- Mr Brad Letourneau
- Mr Eric Nelson
- Mr Geoffrey Herrig

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

- Mr Dushyant Shindore

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.
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.

<table>
<thead>
<tr>
<th>Mentor</th>
<th>Trade Show</th>
<th>Meeting Volunteer</th>
<th>Sustainability Project</th>
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<tbody>
<tr>
<td>Meeting Presenter</td>
<td>Raffle item for meeting</td>
<td>Committee Participation</td>
<td></td>
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</tbody>
</table>

Please make check payable to Rocky Mountain Chapter ASHRAE.

| Annual Membership | $50 |
| Name Tag | $10 |
| Total | $________ |

Please mail to:
Scott McQuoid
1756 Clarkson St. #316 Denver, CO 80218

membership@rockymtnashrae.com
The Rocky Mountain Chapter of ASHRAE would like to thank everyone who came out and supported the chapter on March 4th for Student Night. We had a great turnout and about a dozen students attend the meeting.

Additionally, during the meeting, Scholarships were awarded to the below students. Congratulations to all!

- Kathleen Menyhart
- Brent Johnson
- Justin Chin
- Brittany Carl

ASHRAE is looking for a roster of volunteers for events at some of the student chapters including, but not limited to CU Boulder, CO School of Mines and CSU. Some of the volunteer opportunities include speaking at student chapter meetings and advising on curriculum. If you are interested please contact Scott Jones at:

employmentad@rockymtnashrae.com
ROCKY MOUNTAIN ASHRAE HISTORY

In April, 1990, the Chapter held a Forum on "Professional Ethics". It was led by Pete Johnson from Merrick Engineering and Chuck Madison who was Chairman of the ASPE/ASHRAE Joint Task Force on Quality. Mike Zeller was President for the year.

The Chapter had just held its joint SMACNA/ASHRAE Trade Show in March. There were over 70 displays and it was held at the Denver Merchandise Mart. As usual, it was a great success.

They were also gearing up for a Refrigeration Seminar to be held in May. Main topics were VAV and DX refrigeration, hot gas bypass, suction unloading, Compressor types & low ambient controls.

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In 1881, in a Presidential Address to the British Association, at York, Sir William Thomson (Lord Kelvin) spoke on the Sources of Energy in Nature Available to Man for the Production of Mechanical Effect. He summarized the natural sources of energy as Tides, Food, Fuel, Wind, and Rain. All except the tides derive energy from the sun. “Heat radiated from the sun ... is the principal source of mechanical effect available to man.” He referred to tide mills, and the possibility of storing energy in batteries between tides, but nevertheless considered the economics impractical for wide application. Windpower he considered “decadent,” but acknowledged coal would become an exhausted resource, thus windmills should generate electrical power. Kelvin also outlined the economics of hydroelectricity.
ASHRAE SOCIETY NEWS AND PRESS RELEASES

Looking for the Right Candidate? Look to ASHRAE’s New Job Board

ATLANTA – ASHRAE announces a new job board to assist members and employers for finding opportunities and candidates.

An ASHRAE Journal survey of AHR Expo attendees showed that 67 percent of respondents expect industry business to increase by more than 5 percent in 2015. With increasing business prospects, ASHRAE is providing a new job board to help members and other professionals further their careers and for industry employers to find the right candidates.

The new ASHRAE Job Board offers the following benefits to job-seekers:

• Search and apply for relevant jobs quickly and effectively.
• Set up job alerts for immediate notification of job postings matching skills and interests.
• Anonymous profiles and resume uploads.
• Useful tips and tools for improving job searching effectiveness.
• Single sign-in for ASHRAE members.

Employers can:

• Put their positions in front of ASHRAE’s unique audience of engineering experts.
• Manage jobs and applicant activity on the Job Board site.
• Search the ASHRAE Job Board’s candidate database.
• Limit applicants to only those qualified.
• Quickly find the right professionals for their positions.

The Job Board can be found at www.ashrae.org/jobs. The Job Board is designed to assist members and other industry professionals along with ASHRAE’s student program, Young Engineers in ASHRAE, education and certification programs.

ASHRAE/USGBC/IES Agree to Develop Biomass Requirements for Green Building Standard

ATLANTA – The development of biomass requirements is being explored by ASHRAE, U.S. Green Building Council (USGBC) and the Illuminating Engineering Society (IES), for inclusion in their co-sponsored green building standard.

ASHRAE/IES/USGBC Standard 189.1, Standard for the Design of High Performance Green Buildings, contains minimum requirements for the siting, design and construction of high-performance green buildings in support of reducing building energy, resource consumption and other environmental impacts. To that end, the standard contains requirements for the use of renewable energy systems such as solar, wind and geothermal.

The Standard 189.1 Committee recently considered a proposal to add biomass to the definition of renewable energy systems, which was submitted by an interested individual from outside the committee. In this context, biomass includes organic material, such as wood and crop waste, that can be burned to generate thermal energy.

At ASHRAE’s 2015 Winter Conference held recently in Chicago, the committee voted not to accept the proposal to simply add the word biomass to this definition. However, in its response to the proposal, the committee stated that they intend to work on a definition of biomass as well as requirements on the use of biomass to meet the renewable energy requirements of the standard, according to chair Andy Persily.
ASHRAE Publishes Revision of Ground Source Heat Pump Book

Atlanta – When ASHRAE’s original book on ground source heat pumps was published 17 years ago, such systems were used mainly in residential settings and designers who used them were seen as risk takers.

Today, the technology is much more widely used having been recognized for its benefits. The lessons learned during that time are incorporated in a newly published book from ASHRAE, “Geothermal Heating and Cooling: Design of Ground-Source Heat Pump Systems (GSHP).” The publication is a complete revision of “Ground-Source Heat Pumps: Design of Geothermal Systems for commercial and Institutional Buildings,” published in 1997 and recognized as the primary reference for non-residential GSHP installations.

The new book was written by Steve Kavanaugh, professor emeritus at the University of Alabama, and Kevin Rafferty, a consulting engineer, Klamath Falls, Ore. Both have spent the last 25 years focused on geothermal/GSHP work.

“One of the realities of the GSHP industry is that, to some degree, it has been a victim of its own success,” Rafferty said. “Years ago the struggle was to simply get design teams to consider using the technology. Though this is still an issue in some areas, nationally it is far less of an issue than 20 years ago. There is now fairly wide recognition of the benefits of GSHP systems, particularly on the part of building owners in the schools and office building sectors, where the technology has achieved its highest penetration rates. However, there also is a widely held view that anything bearing the name ‘geothermal,’ ‘ground source’ or ‘earth energy’ will produce the desired high efficiency/low operating cost. As a result, poorly designed systems are often installed and building owners expectations are unmet.”

The book provides benchmarks, design strategies and information necessary for engineers to configure the most efficient and cost effective systems and avoid problems such as inefficient pumping, high cost ground loop designs, inadequate outside air provisions, unnecessarily complex control schemes and other common design errors.

In addition to cost and performance data, Kavanaugh provides building owners and their architects the information necessary to ask the right questions and accurately evaluate potential engineering consultants. The net effect is a more cost effective and efficient design and satisfied building owners.

“GSHP produces superior HVAC system performance and when properly implemented can be cost competitive with many (but not all) conventional systems,” Rafferty said. “They can be operated with far simpler controls than traditional HVAC systems, and also can reduce equipment building space requirements, reduce duct work requirements and eliminate the need for external building mechanical equipment.”

As part of the revision, seven of the original eight chapters and appendices were completely rewritten and now include coverage of close-loop ground (ground-coupled), groundwater, surface water, GSHP equipment and GSHP piping. Additional information on site characterization has been added including a new hydro-geological chapter. The final chapter was replaced and the new section contains results of recent field studies, energy and demand characteristics and updated information to optimize GSHP system cost.


New: Recognition for “Best Graduate Student Paper”

Paper Deadline Approaching for ASHRAE’s 2016 Winter Conference


The call for papers includes a recognition for the best paper written by a graduate student.

Papers are being accepted on the following topics:
Design Build project delivery, which explores the challenges and benefits, highlights successful projects and addresses several topics, including contracts and alternative design and construction processes.

Modern Residential Systems for energy efficient solutions and the latest advances ranging from glazing to water heating to lighting for the residential market.

Cutting Edge Technologies, which explores efforts to achieve net zero energy buildings.

In addition, the 2016 ASHRAE Winter Conference also seeks papers addressing advances and practices across HVAC&R systems, equipment, fundamentals and applications, especially for the International Design Track.

ASHRAE offers two types of paper submissions:

- Conference Paper Abstracts due March 23, 2015. Upon acceptance, papers will be due July 6, 2015. These “final” papers undergo a single-blind review, are submitted as a PDF and have an eight single-spaced page maximum length.
- Full Technical Papers due April 20, 2015. Papers submitted for review must be both technically accurate and clearly written. These papers undergo a rigorous double-blind review and can be a maximum of 30 double-spaced pages.

Graduate Student Paper Recognition

Graduate students who submit a Conference Paper are eligible to participate in a recognition program titled “Best Graduate Student Paper.” The recognition program is an ASHRAE effort to expose a deserving graduate student to the international community of researchers in the field by helping to fund their travel to the 12th CLIMA World Congress to be held May 22-25, 2016, in Aalborg, Denmark.

ASHRAE will conduct a review of graduate student papers accepted for the January 2016 ASHRAE Winter Conference to make the selection. The graduate student author chosen will receive funding up to $2500 to offset expenses of attending the CLIMA 2016 Congress. Conditions of the award are that the paper must be based on the student’s thesis, that the paper be a Conference Paper (not a Technical Paper), that the student be the first author listed and that the submitter be a graduate student at the time of the abstract submission.

To submit a Conference paper abstract or a technical paper and for more information about the tracks, go to www.ashrae.org/orlando.

The 2016 Winter ASHRAE Conference takes place at the Hilton Orlando.

Held in conjunction with the 2016 Winter Conference is the ASHRAE co-sponsored International Air-Conditioning, Heating, Refrigerating Exposition, Jan. 25-27, 2016 Orlando Convention Center. The AHR Expo will attract some 60,000 professionals and the ASHRAE Conference will attract some 4,000 attendees and meeting participants.

ATLANTA – Papers are being sought for a conference focused on emerging energy conversion technologies, conservation and management strategies.

Organized by Kuwait University and ASHRAE, the 6th International Conference on Energy Research and Development (ICERD-6) takes place March 14-16, 2016, in Kuwait.

Abstracts (400 words in length) are due June 1, 2015. If accepted, papers are due September 15, 2015. Authors of accepted papers are responsible for travel and registration. Hotel accommodations are free for authors presenting papers. Submittal information can be found at www.ashrae.org/Kuwait2016.

The conference objective is to optimize the utilization of basic energy resources in the major energy consuming sectors in the arid region of the Arabian Peninsula. The conference builds upon the five previous conferences that attracted the international energy research and development community. The conference will be attended by more than 300 registrants and will involve decision makers to help in setting energy policies not only for Kuwait but also for the region. Many challenges arise when designing systems in high ambient condition and new innovations and advances are always needed, according to Walid Chakroun, chair of the scientific committee for the conference.
“The conference theme is ‘Advances in Energy Research and Development’ and aims to bring together leading academic scientists, researchers and practicing experts to exchange and share their experiences and research results about all advancements in energy applied systems,” Chakroun said. 

Topics include but are not limited to:
- Energy Conversion and Management
- Energy Conservation
- Fuels and Alternatives
- Energy Policy and Planning
- Combined and Cogeneration Energy Systems
- Air-conditioning and Refrigerating Systems
- Energy and Environmental Issues
- Energy and Sustainable Development
- Renewable Energy Technologies
- Energy Storage
- Thermodynamics, Heat Transfer and Fluid Dynamics
- Thermodynamic Optimization and Exergy Analysis
- Plant and Facilities Mechanical Integrity
- Emerging Energy Technology
- Material Design and Analysis

The papers will undergo a peer-review conducted by ASHRAE and overseen by the scientific committee. The conference also includes lectures of invited speakers and training courses to help in building local capacities.

In addition, a forum discussion will be organized to present a future plan for energy in the Gulf Cooperation Council (GCC) countries. A representative from each GCC country will make a presentation followed by a discussion on energy production, management and conservation.

ASHRAE Announces Spring 2015 Online Courses; New Course on Commissioning Process

ATLANTA – With the commissioning process becoming widely recognized as being critical to the success of high-performance buildings ASHRAE has added a new Learning Institute course focused on requirements in its first commissioning standard.

Taught by Walter Grondzik, P.E., the course, “Commissioning Process and Standard 202” is being held March 25, 2015. It is one of 12 Spring Online courses being offered by ASHRAE.

In 2005, ASHRAE Guideline 0, The Commissioning Process, addressed the commissioning process when it was a voluntary element of the building acquisition process. With the incorporation of mandatory commissioning requirements in standards, such as ASHRAE/IES/USGBC Standard 189.1, Standard for the Design of High Performance Green Buildings, it was determined that a code-language description of the commissioning process was needed. That gap was filled with publication of ANSI/ASHRAE/IES Standard 202-2013, Commissioning Process for Buildings and Systems, which provides information on minimum acceptable commissioning process practices.

“The course reviews the commissioning requirements embodied in Standard 202 and links them to Guideline 0 and other technical support documents,” Grondzik said. “We will provide an understanding of the commissioning process as described by Standard 202, explain how and why the Standard 202 commissioning process differs from that in Guideline 0, and explore how compliance with the standard is likely to evolve.”

The 12 ALI courses provide professional development through in-depth information that is timely, practical and targeted to provide engineers in consulting practices, facility management or supplier support with instruction on applying ASHRAE standards and employing new technologies essential for advanced building performance.

Course participants earn continuing education credits and qualify for Professional Development Hours for each course completed. Courses are instructor-led, drawing upon professional knowledge of leading practitioners.
Eight of the courses are part of ASHRAE’s Career Enhancement Curriculum, which focuses on IAQ Practices (IAQ) and Energy Savings (ES) Practices. The program helps professionals expand their knowledge in specific areas of HVAC&R and advance their careers.

For registration costs and to register, visit www.ashrae.org/onlinecourses.

Half-day short courses are:

- Fundamentals & Applications of Standard 55-2013 (IAQ Practices), March 9
- Troubleshooting Humidity Control Problems (IAQ Practices), March 11
- Advanced High-Performance Building Design (ES Practices), March 23
- New! Commissioning Process and Standard 202, March 25
- IT Equipment Design Evolution and Data Center Operation Optimization, March 30
- Complying with Standard 90.1-2013: HVAC/Mechanical (ES Practices), April 8
- Fundamental Requirements of Standard 62.1-2013 (IAQ Practices), April 13
- NEW! Understanding Standard 189.1-2014 for High-Performance Green Buildings (ES Practices), April 20
- Complying with Standard 90.1-2013: Envelope/Lighting (ES Practices), May 4
- Exceeding Standard 90.1-2013 to Meet LEED Requirements (ES Practices), May 13

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, April 22 and Part 2, April 27

ASHRAE, founded in 1894, is a global society advancing human well-being through sustainable technology for the built environment. The Society and its more than 50,000 members worldwide 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. More information can be found at www.ashrae.org/news.
EMPLOYMENT OPPORTUNITIES

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<thead>
<tr>
<th>Position</th>
<th>Company</th>
<th>Date Posted</th>
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<tbody>
<tr>
<td>Sales Engineers</td>
<td>ACE Mechanical Equipment, Inc.</td>
<td>January 4th, 2015</td>
</tr>
<tr>
<td><strong>Position: Inside Sales Engineer</strong></td>
<td>Growing manufacturer’s representative serving Colorado and Wyoming, looking for enthusiastic Inside Sales Engineer to support sales of applied HVAC equipment. We specialize in custom equipment needing strong interface with the consulting mechanical engineers and design-build contractors, including water-and ground-source heat pumps, custom air handling units, make-up air equipment, heat recovery systems, medical and process chillers, fan coil units. Required qualifications include a good technical background and some experience in the industry. Major responsibilities include support of outside sales, and parts sales and support. Will work with contractors and engineers to support outside salesmen, so good communication and presentation skills are a must. Please forward resume via email or fax.</td>
<td></td>
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<tr>
<td>Position: Outside Sales Engineer</td>
<td>Growing manufacturer’s representative serving Colorado and Wyoming, looking for enthusiastic Outside Sales Engineer to sell applied HVAC equipment. We specialize in custom equipment needing strong interface with the consulting mechanical engineers and design-build contractors, including water-and ground-source heat pumps, custom air handling units, make-up air equipment, heat recovery systems, medical and process chillers, fan coil units. Required qualifications include engineering degree or equivalent experience, with at least 4 years of experience in our industry. Must have good communication and presentation skills. Please forward resume via email or fax.</td>
<td></td>
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<tr>
<td>Mechanical Plans Review Engineer</td>
<td>City &amp; County of Denver</td>
<td>January 26th, 2015</td>
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<tr>
<td>Responsibilities include the review of building mechanical and plumbing construction documents and specifications for compliance to the Denver Building Code for new and existing buildings. This position also assists design professionals with engineering standards, coordinates with other mechanical engineering functions, such as, fire protection, utilities, environmental, safety, security, contractors, and appropriate manager and staff. This position requires the ability to work within a multi-disciplinary team as well as work independently reporting directly to the Engineer/Architect Supervisor for the section.</td>
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<tr>
<td>Entry Level Engineer</td>
<td>Brian Seyferth &amp; Associates</td>
<td>February 23rd, 2015</td>
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<td>Go to our website to open these links: <a href="http://rockymtnashrae.com/classifieds.php">http://rockymtnashrae.com/classifieds.php</a></td>
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</table>
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

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
2ND ANNUAL
FIRE PROTECTION SYMPOSIUM

ALL PROCEEDS BENEFIT THE ROCKY MOUNTAIN CHAPTER ACADEMIC SCHOLARSHIP FUND

APRIL 23, 2015
UNIVERSITY MEMORIAL CENTER AT UNIVERSITY OF COLORADO BOULDER
1669 EUCLID AVENUE, BOULDER, CO 80302

PROGRAM SCHEDULE

Registration

Registration
7:30 am

Morning Session

8:00 am - 11:30 am

FLASHOVER
8:00 am - 9:30 am
James G. Quintiere, Ph.D. – University of Maryland, Professor Emeritus

BREAK – REFRESHMENTS
9:30 am - 10:00 am

SPRINKLER TECHNOLOGY:
CURRENT STATE OF THE ART AND GLIMPSE INTO THE CRYSTAL BALL
10:00 am - 11:30 am
James E. Golinveaux – Tyco Fire Protection Products

Lunch – Catered
11:30 am - 1:00 pm

Afternoon Session
1:00 pm - 5:30 pm

INTELLIGIBILITY OF FIRE ALARM AND EMERGENCY COMMUNICATION SYSTEMS
1:00 pm - 2:30 pm
Jack Poole, P.E. – Poole Fire Protection

BREAK – COOKIES & REFRESHMENTS
2:30 pm - 3:00 pm

THE ROLES OF FIRE PROTECTION ENGINEERS IN FIRE INVESTIGATIONS
3:00 pm - 4:30 pm
Frederick W. Mower, Ph.D., P.E. – Cal Poly, San Luis Obispo

Reception – Details Coming Soon
5:30 pm

WWW.SFPE-ROCKYMOUNTAIN.ORG/SYMPHOSIUM
REGISTRATION

Morning Session  
8:00 am - 1:00pm  
(INCLUDES COFFEE & LUNCH)

$129  

Afternoon Session  
11:30am - 4:30pm  
(INCLUDES LUNCH & SNACK)

$129  

All Day  
8am - 4:30pm  
(INCLUDES COFFEE, LUNCH, & SNACK)

$169

Prices do not include parking 
Payment by credit card or PayPal only; no cash 
Register in advance: 
www.sfpe-rockymountain.org/symposium

LOCATION
The event venue will be the University Memorial Center located on the University of Colorado Boulder campus at, 1669 Euclid Avenue, Boulder, CO 80309. The Fire protection Symposium will be held in Room 235 on the 2nd Floor, west side of the building, next to the atrium.

PARKING
Paid parking available. Parking information will be posted on the symposium web page soon.

DIRECTIONS
From US-36 – Take Baseline Road west to Broadway. Turn right on Broadway and proceed north to 18th Street. Turn right on 18th street. In two bocks turn left on to Euclid Avenue.

HOTEL RESERVATIONS
Book by March 22, 2015 to take advantage of the symposium room rates of $180/night at the Boulder Marriott.

www.sfpe-rockymountain.org/symposium