Wednesday, February 8, 2012
Past President’s Night / YEA Night

“Lessons Learned”

This month’s meeting will be some of the “Lessons Learned” by Mr. Tafone during his 35+ years in the HVAC&R industry. He will be discussing design, installation and problem solving of a variety of issues such as freezstat tripping, humidity systems, stairwell pressurization, direct return vs. reverse return, etc. The meeting will be a good opportunity to see what works and what doesn’t work and may help prevent problems with your next design project!

February 8th also marks the 100th anniversary of the Boston ASHRAE Chapter!

See page 4 for meet the speaker column.

COST:
Members w/ RSVP $35.00
Non-Members $45.00
Student Members FREE w/RSVP
No Walk-ins

Special Thanks to All Sponsors for
Region I Chapter Regional Conference and 100th Anniversary Gala for the Boston Chapter

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PRESIDENT’S MESSAGE
By Pat Duffy

To kick-off the new calendar year we had a great presentation from Michael Tillou from Cannon Design on "What is ASHRAE 90.1, 2010". Michael is a voting member on the standard and was able to give substantial insight into the development and scope of the code intended energy standard. The meeting was well attended with over 95 people in there for the meeting.

The upcoming meeting on Wednesday February 8th (note it is not typical Tuesday) will be the 100th anniversary of the Boston Chapter (to the day). We will celebrate this milestone with a special meeting to celebrate the chapters history and recognize past Boston Chapter Presidents. If you have any historic pictures from your company or HVAC in general please email me an electronic copy. We are attempting to put a slideshow together with a compilation of photos from the chapters history.

The speaker for the February meeting will be Steve Tafone (past president) on "Lessons Learned". Steve always keeps the audience engaged and this will no doubt be a fun meeting with lots of practical knowledge shared.

On another note, we will soon be moving to online electronic payments for the monthly meetings. We hope to have this ready for the February meeting, but at the latest it will be available for the March meeting. This change will help to speed up the check-in process. Cash or check will still be accepted at the door for a period of time while everyone gets used to the new system of payment.

Pat Duffy, President

Editor’s Note
By Stacie Suh

Please submit employment / want ads for February by February 10, 2012 in Word format. A company logo (in .gif or .jpg format) can be included. Any ideas you would like to share, please email me.

Please submit your project for the project of the month section and also submit your project for the 100th year Gala event.
For more information, please call or e-mail me at 781-258-1002 or Stacie@stebbinsduffy.com.
You can also visit the Boston Chapter website at www.ashraeboston.org

February Meeting Menu:
Starter:
New England Clam Chowder

Main:
Petit Filet Mignon w/ Grilled Shrimp

Dessert:
Cheesecake w/ Fresh Fruit Compote
MEETING RECAP

By: Dan Diorio

The January ASHRAE-Boston meeting began with another lively social gathering. Membership Promotion Night brought several new faces looking to start enjoying the benefits of ASHRAE membership as well as the discounted meal promotion. Teri Shannon, the Membership Promotion Committee Chair, took a few minutes in front of the audience to highlight membership benefits and methods for joining the Boston Chapter.

Following a delicious dinner that included a Caesar salad, chicken picatta, and a chocolate mousse cup, Chapter President, Patrick Duffy, kicked off the main program with his chapter announcements. He announced the upcoming nomination and election process for the 2012 Boston Chapter Hall of Fame and then brought forward Robert Persechini to promote sponsorship of the 2012 CRC and 100th Anniversary Gala.

Michael Tillou, the Director of Energy Services at Cannon Design, took the stage to present ‘What is ASHRAE 90.1,2010?’ Mr. Tillou’s presentation provided an overall review of ASHRAE 90.1, which dictates the minimum standards for the energy efficiency of buildings and building components. Specifically, he covered the history of the standard, its scope, and the process by which it is maintained. The majority of the presentation focused on the energy-saving improvements from the 2004 edition that were made in the 2010 revision. The talk concluded with a brief look-ahead to some of the proposed changes for the 2013 revision.

Photos by Stacie Suh

January Attendance
84 members
2 students
10 non-members
MEET THE SPEAKER

Steve Tafone

Mr. Tafone has over 35+ years of experience in the HVAC and construction fields. He is presently employed at Suffolk Construction Inc., a construction management firm, as Vice President of Engineering. He is a past president of the Boston chapter of the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) Boston’s Chapter.

Additionally, he has taught various technical courses for over 15 years. Mr. Tafone is a Registered Professional Engineer in MA & NY, has a CFC Universal Certification, LEED AP and holds a MA license as a Refrigeration Technician. He received his BSME from Pratt Institute.

FREE SUNDAY RIVER & SUGARLOAF DISCOUNT SKI VOUCHERS

SAVE $14 PER ADULT TICKET

The Boston Chapter is participating in the Sunday River/Sugarloaf corporate voucher program again this year. Each voucher entitles you to purchase up to four discounted lift tickets [$66 Adults, $58 Teen, $47 Junior/Senior] at either ski resort by presenting an ASHRAE membership card, picture ID, and voucher. The regular adult price is $80. Contact Ed Waldman 508-405-1554, ewaldman1@verizon.net, if you would like any vouchers. There is no charge for the vouchers and there are no blackout dates. Complete rules below:

How To Use Vouchers
1. Bring your corporate voucher to any participating resorts ticket window.
2. Present your voucher, photo ID, and valid ASHRAE membership card to the ticket seller.
   In the absence of the individual member, immediate family members defined as spouse and children, must present some form of ASHRAE identification, plus a photo ID in order to receive the discount.
3. Each person expecting the corporate pricing must be present with the corporate voucher holder at the time of ticket purchase. The ticket seller will take the voucher in exchange for up to 4 lift tickets.

2012 Roster & Product Guide

The updated edition of the Product Guide directory will be posted on the ASHRAE Boston website at www.ashraeboston.org. The Product Guide includes a cross referenced list of local engineers, representatives, wholesalers, contractors and affiliated organizations engaged in the HVAC field.

Please look out for the email from our committee this month for information on electronic 2012 Roster & Product guide this month. Any questions, please contact Stacie Suh at stacie@stebbinsduffy.com and Teri Shannon at tshannon@dac-hvac.com.
Save the Date
ASHRAE Boston Chapter 100th Year Anniversary Gala

SAVE the DATE
ASHRAE’s 100-Year Anniversary Gala

saturday
8/25 2012
6pm-midnight

Contact Information:
Robert Persechini
rpersechini@rdkengineers.com
Darcy Carbone
dcarbone@stebbinsduffy.com

Marriott Boston Hotel
more information to follow
Historian Column
By John Morrill

Seismic Activity in Massachusetts

The news of a magnitude 4.7 earthquake over the weekend near the Kilauea Volcano in the Big Island of Hawaii most likely did not even cause much of a “ripple” in the local news here in Boston.

We are all aware of the revamped building codes in Massachusetts for seismic protection in new construction and retrofit projects. Again, for all of us in the HVAC design industry, seismic protection has become a “big deal”, seemingly tantamount to the big explosion of activity in IAQ during the 80’s after the tragedy of Legionnaires disease in 1976.

Did you know that in recorded history, there have been nineteen earthquakes that have been centered in Massachusetts? A shock in 1755 reached an intensity of VIII (modified Mercalli scale) and was felt across the entire State. On November 18th of that year, Boston walls and chimneys were knocked down, at Pembroke and Scituate small chasms opened in the earth and the quake was felt from Lake George to 200 miles east of Cape Ann, and from Chesapeake Bay to Nova Scotia.

The Northern States Emergency Consortium issues an index of 4.81 for the Commonwealth’s preparedness for an earthquake. The national average is 5.21. The scale is from 10 to 1, with 1 being the most prepared.

The lesson drawn is not an “out of sight, out of mind” approach as with the aforementioned Hawaii quake, but perhaps a harbinger of “hard knocks” or perhaps is could be “shaking our foundations” as HVAC Engineers.

Sources: USGS, Huffington Post, NESEC

ASHRAE Boston Chapter –Employment Ads

The NorthEastAire is published monthly, September through June. It is posted on the Chapter website at www.ashraeboston.org. A link is sent each month to all members of the Chapter, currently over 900.

**Newsletter Rate:**
- $200 for 1/4 page
- $400 for 1/2 page
- $800 for full page

**Website Rate:** $300 per calendar month

**Format:**
Word format, company logos in .jpg or .gif

**Email:**
Stacie Suh at Stacie@Stebbinsduffy.com

**Deadline for March Newsletter:**
February 10, 2012

Any questions, please contact Stacie Suh/Newsletter Editor at 781-258-1002 or Stacie@Stebbinsduffy.com
The New Product & Energy Show 2012
Date: April 10, 2012

The Officers and Board of Directors of the Boston Chapter of ASHRAE are pleased to extend an invitation to your organization to participate / exhibit at the 13th Biennial Product Show to be held at Lantana’s in Randolph, MA on April 10, 2012.

This show has always been well attended in the past, not only by the general ASHRAE membership, but also by others who work in this field, including Facility Engineers, Hospital Engineers, Building Owners and Mechanical Contractors. The local New Product & Energy Show targets a specific audience where you can talk to the customers who matter to you. Admission is free to all attendees.

Below are the specific details of the New Product & Energy Show. Please click on the following link download the application for participation [http://www.ashraeboston.org/events/2012_product_show_application.doc](http://www.ashraeboston.org/events/2012_product_show_application.doc).

**Date:**
- Tuesday, April 10, 2012; 1:00 p.m. to 8:30 p.m.
- Seminars 1:00 p.m. to 5:00 p.m.
- Product Show 3:00 p.m. to 8:15 p.m.
- Dinner 6:00 p.m. to 8:00 p.m.

**Location:**
Lantana’s
Routes 28 and 128
Randolph, MA
[Click here to get customized directions](http://www.ashraeboston.org/events/2012_product_show_application.doc).

**Exhibitor Registration:**
- Price $900.00 per single booth; Multiple adjoining booths are available.
- Reservations are on a first come- first serve basis.
- Registration forms will be mailed to vendors in early January.
- If you have not exhibited at our show before, please contact the show chairpersons to be placed on our permanent mailing list and have a blank reservation form sent to you.
- Registration forms will be stamped in order of receipt. Booths are limited.
- Checks registration (completed) must be received by March 30, 2012. Credit cards (Master, Visa & AmEx) are now accepted along with an additional $25 processing fee for each booth.
- Click here for form.

**Booths:**
- Single – 8 feet wide x 6 feet deep
- Double – 16 feet wide x 6 feet deep
  - a. A pre-printed sign will be attached to the backdrop with your company name.
  - b. Draped booths will be set up labeled prior to your arrival.
  - c. Tables 72" x 30" will be available upon your advanced request.
  - d. Electricity is available only upon your advanced request. No heavy electrical loads will be permitted. Please bring your own extension cords.
  - e. Water and drains are not available.
  - f. Internet connections available at an additional charge through Lantana’s.

**Food:**
A complementary buffet dinner will be available to all attendees of the show.

**Seminars:**
ASHRAE has reserved the facility for the entire day. Rooms are available for seminars from 3:00 p.m. to 6:30 p.m. Please contact Enrique de los Reyes at er@energysystemsdesign.com if you are interested in providing a seminar. An outline of the seminar material will need to be submitted prior to approval. The seminars are intended to be educational and not commercial in nature.

Thank you for your interest and participation in the Boston Chapter – ASHRAE Product Show. You will receive a confirmation letter with additional information, plus some invitations for you to distribute to your customers who may not have received one. Please visit [www.ashraeboston.org](http://www.ashraeboston.org) for more information and also for updated booth layout of exhibits.

Please contact me at 781-372-3053 or jeffrey_schultz@aha-engineers.com should you have any questions.

Sincerely,
Jeffrey H. Schultz
Research Promotion

By Bill Garvey

I would like to thank all of the Organizations that have sponsored the 2012 CRC & 100th Gala event. There sponsorship is helping us reach our research promotion goal. There are table tents at every meeting showing the list of current sponsors, keep an eye out!!

Attention Product Show Vendors.... Once again we will have trailer spaces available outside in the parking lot for vendors to showcase larger displays. Please contact Jeff Schultz (Jeffrey_Schultz@aha-engineers.com) for more information.

We are currently at $10,170 in RP donations, thank you to all that have given to date. We still have a ways to go to meet our goal of $20,280, so if you haven’t made a donation please think of doing so. I will be making more phone calls in the coming months to help reach our society goal.

Contribution envelopes will be available at every meeting to make it easier for you to help out. As always there is a link at the Chapter website (www.ashraeboston.org) and you can pay online.

Did you know that 100% of the money donated to Research Promotion actually goes towards Research? In fact our Region receives over $4 toward research projects and grants for every $1 donated to ASHRAE Research Promotion.

ASHRAE has a general fund that pays for the remaining expenses, such as salaries, travel, reimbursements, etc. So when you donate to ASHRAE Research, every dollar actually goes into the funding of research development that gives us the information we use on a daily basis from the ASHRAE Handbooks and various other standards and information material that ASHRAE supplies!

Mission: To improve the quality of life and to answer tomorrow's questions through research TODAY.

Over $2 million is raised annually to help fund $16 million in research projects and student grant-in-aides. There are over 80 research project and student grant-in-aides going on.

Research is used to update the Society's standards and guidelines.

Contributions come from more than 6,700 members, non-members, and companies. 100% of all funds raised go directly to research projects that support the HVAC&R industry.

Active research projects are conducted all around the world at various universities and organizations.

ASHRAE is qualified 501(c)3 and all contributions are tax deductible.

Please fill out the form in this newsletter and mail it to me with whatever contribution you can make or you can go to the ASHRAE Boston website at www.ashraeboston.org.

Mailing Address: ASHRAE Boston Chapter c/o Bill Garvey
66 Morton St. Hanson, MA 02341

Click on the Donation Form under Research & Promotion, or go there directly with this link: http://www.ashraeboston.org/researchpromo/donation-form.html

Credit card payments can also be made when via Society's ASHRAE website via this link: https://www.ashrae.org/aboutus/resource_promotion.asp

A big THANK YOU to the following Members and Companies for Making Donations to RP!

SY 2011–2012 January Donors

- Dr. Arthur Bergles
- Henry Breen Jr.
- Buckley Associates
- J.S. Fleming Associates
- Mitsubishi Electric
- R.G. Vanderweil Engineers
- Regan Marjollet Inc
- RST Thermal
- Michael Sconsoni
- Weil McLain
- WSP Flack + Kurtz

$20280

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Membership Promotion

By Teri Shannon

Membership Promotion Night

January’s meeting was a Membership Promotion Night. There was a great turnout at the meeting, and we welcomed four new members who attended. We also had 2 people sign up that day – welcome to Julie Rogers and Christine Amero!

The January meeting was also a YEA Night (Young Engineers in AHSRAE). There were 26 YEA’s in attendance – great to see them attend the meetings! As was noted last year, the Boston Chapter continues to see a positive trend where half of the new members who join are YEA. This is very exciting, both for the Boston Chapter and Society overall.

New Members

At this time, I’d like to welcome the newest members to ASHRAE – be sure to say hi to these folks at future meetings!

Members:
Jeffrey Gillette, Eric Menard, Jeffrey Siemasko

Associate Members:
Emil Cuevas, Michael DeCarli, Deborah De Maso, Peter DiSalvio, Joseph Dunn, Shiyu Huang, Kamila Kaczor, Lauren Mattison, Timothy O’Brien, Stephen Picariello, David Rausch, Julie Rogers, Mark Russell, Craig Simmons and Arthur Wilcox.

Students:
Christopher Ayotte (Western New England College), Scott Beaupre (Massasoit), Lang Chea (Massasoit), Charles D’Alleva (Massasoit), Michael Debitetto (Massasoit), Dennis Del Toro (Massasoit), Paul Dunphy (Massasoit), Lee Farrows (Massasoit), Colby Flynn (Massasoit), Robert Kean (Massasoit), Michael Laroche, John Lightbody (Massasoit), Carl Plaisimond (Massasoit) and Kevin Tolson (UMass Amherst).

Cancellations

Over the past few months, there appears to be an increase in cancellations by Society due to non-payment. As a reminder, members who are more than 6 months delinquent on their renewal dues are automatically cancelled by Society. For anyone who wishes in the future to become a Life Member, which is a member in good standing for 30+ years, it is imperative that this not be allowed to occur. It’s very important to keep your dues payments up-to-date, as well as your contact information so that you receive the notices from Society.

I would strongly encourage all members to verify their dues are current. For those members who are close to expiring, I will also be sending a reminder e-mail to you in the event you may have missed the notice from Society.

If anyone has any questions regarding their membership dues or status, please do not hesitate to give me a call.

Cheers,
Teri

Student Activities

By Dan Diorio

January was a busy month for Student Activities! February should be more of the same!

Four mechanical engineering students from the Student Chapter at Northeastern University toured the Stokes Hall construction site at Boston College on January 13th. The tour began in a construction trailer where Glenn Hand, the Clerk of the Works for Boston College, gave a brief synopsis of the project including the type of construction, the completion schedule, and some of the major contractors on the project. The group then made its way into the building which is scheduled to be completed for occupancy in October of 2012. A significant amount of the mechanical piping and ductwork has been roughed-in with some of the major equipment yet to be delivered. The condensing boilers and the large emergency generator have been installed. However, the water-cooled chillers, cooling towers, and large air handling units serving the VAV system have not yet been delivered. The highlight of the tour took place in the new 13.8 kV NStar sub-station, located in the basement. This station, fed from two separate NStar distribution stations for redundancy, feeds new high voltage loops serving several Boston College buildings.

The Student Chapter from Massasoit Community College will tour Stokes Hall in early-February. I will continue to schedule tours of this LEED-Gold project for Student Members throughout the spring and summer. Please contact me if your Student Chapter is interested.

Fenway High School runs a Job Shadow program where seniors spend part of a day ‘shadowing’ a professional in their field of interest. The day provides the student with an overview of the company’s mission and structure, experience of a typical work day, and interviews with employees to gain knowledge about what it takes to be successful. Robert Persechini, past Boston Chapter President, and Executive Principal at RDK Engineers, hosted a student from Fenway High School on January 20th as part of this program. The agenda for the day included interviews with engineers in each of the major trades (HVAC, electrical, plumbing, and fire protection) as well as a visit to a local project site.

Please drop me a line at daniel.diorio.2@bc.edu if you’re interested in helping out with the Student Activities Committee or to suggest ideas for student activities.
The ECM Fan Array

The Electronically Commutated Motor, or ECM, has infiltrated the small fan market. The technology gained ground several decades ago, mostly with small scale process applications and residential air conditions. More recently the ECM fan has made a huge impact with fan powered boxes. Currently they’re being used on fan coil units; air cooled condensers, evaporator coils, bio-safety cabinets, and a host of other small fan applications. Although limited to low pressure air systems (~ 4.0” w.c.), there have been recent improvements in the technology that suggest the ECM can do more, even central air handling systems. With this technology an air delivery systems can be optimized with incredible turn down efficiencies and flow control between central and terminal fans.

The benefits of the ECM fan versus the more traditional permanent split capacitor (PSC) induction motor is that the ECM is powered by direct current (DC) electricity with electronic commutation systems, rather than mechanical commutators and brushes. While AC current is connected to the ECM motor, it has an internal rectifier that converts AC current to DC power. The current-to-torque and frequency-to-speed relationships of an ECM are linear, and therefore extremely more efficient at part loads. This is even more apparent when you include the drive losses on three phase motors.

There is an array of ECM fans at the University of Massachusetts Medical School (UMMS) South Street facility that serve a 7,400 square foot data center. Each array consists of (12) 7.5 HP ECMs, with backwards curved fans, that can deliver 83,000 CFM at 2.5” w.c. The two arrays combined can deliver a total of 166,000 CFM, which is enough air to cool the maximum design data center heat load of 1.2 MW (SA=75F to RA=100F). The air distribution system is a plenum design that allows for a low pressure drop at maximum design flow (T.S.P < 2.0”). The 24” raised floor is maintained at a constant positive pressure of 0.05” by an array of static pressure sensors under the floor that modulate the discharge of the ECM arrays.

The turndown of the ECM array is so good that perforated tiles are only added with new IS equipment, unutilized floor space is left all solid tile. Each added perforated tile delivers the design air flow. Rack mounted temperature sensors let the facility staff know if more tiles (or even grates) are needed. The supply air flow closely matches the IS equipment air flow, saving tremendous amount of fan power. What’s more, the air flow system can seamlessly grow with data center load without compromising on efficiency.

The ECM fan is directly controlled by the Building Management System (BMS); a single fan on the array can be modulated, start, stop, measure air flow, pressure drop, and power draw. The ECM array provides not only an energy efficient central fan, but provides redundancy with easy to replace multiple fans. The motors also have a longer life cycle and take up less space than traditional fans. A potential candidate for an ECM array in a large building central air handling systems could be a dedicated outdoor air system (DOAS) with the primary air distribution sized for low pressure drop, and ECM fan powered terminal units as well. A facility with such a system, combined with a robust BMS, would be capable of turning down the central air system to closely match only what the terminal units need for primary air; even if it’s just one terminal unit calling. The manufacturer of the ECM fans at UMMS; http://www.ebmpapst.us/
Boston Chapter – Behind the Scenes

By Dan Diorio

Every month, prior to the Main Program, the Boston Chapter of ASHRAE’s Board of Governors meet to discuss Chapter business. This article, based on the Secretary Meeting Minutes, shall serve as an informative summary for members as to what is happening behind the scenes of the Boston Chapter. Please feel free to contact me with any questions or for

Meeting Date: January 10, 2012

Review of December Meeting Minutes

Each Board of Governors meeting begins with a review and eventual vote to approve the previous month’s meeting minutes. Any items that required follow-up are updated and closed or are determined to be carried-forward once again. Revisited items included:

- The 30% Research Promotion fundraising goal was reached by the stipulated deadline.
- Some chapter/newsletter advertising is still being accepted, but the Boston Chapter wants to provide the most value to the advertisers based on the newsletter and advertising schedule.

Research Promotion

Research Promotion has raised and sent a total of $8,320 to Society to date. Fundraising from the 2012 CRC and Gala, slated for Research Promotion, will be sent by March.

2012 Region 1 CRC & Anniversary Gala – Boston

Fundraising continues for the 2012 Region 1 CRC and the 100th Anniversary Gala. The next planning committee meeting will be held shortly. Formal invitations will be sent from the Boston Chapter to local vendors, contractors, and consultants by the end of March.

2012 New Product & Energy Show

Jeff Schultz has been selling vendor booths and receiving checks. Coordination of the (8) technical seminars that will be a part of the New Product & Energy Show will begin shortly.

February Meeting

The February meeting will be held on Wednesday, February 8. This date marks the exact day of the Boston Chapter’s 100th Anniversary. The Chapter’s Board of Governors are planning events for the evening to commemorate the special occasion.

Boston Chapter Hall of Fame

The Boston Chapter will continue the new tradition of electing local ‘legends’ of the industry into the Boston Chapter ASHRAE Hall of Fame. An email to the Chapter members will be sent inviting 2012 nominations. Elected members will be inducted in October. The process will fall under the responsibility of the President-Elect.

Presidential Award of Excellence

Boston Chapter - 2011 ~2012

<table>
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<th>Chapter Members</th>
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<th>Student Activities Points</th>
<th>Research Promotion Points</th>
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### ASHRAE BOSTON

#### UPCOMING EVENTS

Visit [www.ashraeboston.org/index.html](http://www.ashraeboston.org/index.html) for more information.

#### Commercial Building Energy Code

- **When:** February 16, 2012 12:00~1:30pm
- **Where:** 281 Summer St, Boston
- **FMI:** [Catherine.Griffin@kema.com](mailto:Catherine.Griffin@kema.com)

#### Energy Modeling Case Studies

- **When:** March 13, 2012
- **Where:** Embassy Suites, Waltham
- **FMI:** [www.ashraeboston.org/index.html](http://www.ashraeboston.org/index.html)

#### ASHRAE Region I CRC & Gala Event

- **When:** August 23~25, 2012
- **Where:** Boston Marriott, Boston
- **FMI:** [www.ashraeboston.org/index.html](http://www.ashraeboston.org/index.html)

### Sustainable Performance Institute

#### UPCOMING EVENTS

Visit [http://sustainable-performance.org/events](http://sustainable-performance.org/events) for more information. All event location is at 38 Chauncy St, 7th FL. Boston, MA 02111

### AFE Chapter 74-Worcester Area-Central MA

#### UPCOMING EVENTS

Visit [http://afe.org/chaptersnew/index.cfm?chapterIndex=20](http://afe.org/chaptersnew/index.cfm?chapterIndex=20) for more information.

### USGBC MASSACHUSETTS CHAPTER

#### UPCOMING EVENTS

Visit [www.usgbcma.org](http://www.usgbcma.org) for more information.

### IFMA BOSTON CHAPTER

#### UPCOMING EVENTS

Visit [http://www.ifmaboston.org/events.html](http://www.ifmaboston.org/events.html) for more information.

### AEE NEW ENGLAND CHAPTER

#### UPCOMING EVENTS

Visit [http://aeenewengland.org/future_events.html](http://aeenewengland.org/future_events.html) for more information.

### IBPSA BOSTON CHAPTER

#### UPCOMING EVENTS


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**Webmaster’s Notes**

*By Steve Rosen*

- The ASHRAE Boston website [www.ASHRAEBoston.org](http://www.ASHRAEBoston.org) was awarded the highest honor at the CRC 2011 held this year in New York City, the Webstation of Excellence, for the 2nd year in a row. Many thanks to our website designer Donna Harrington of Avant-garde Graphics, Inc. We will be keeping the site current with information; Check back often!

- On the Employment page (under the Chapter Updates section) not only will you see job opportunities, but we are now accepting resumes to post for **free** from any ASHRAE member in good standing looking for work!

- **Let employers find you on the ASHRAE Boston website!** We will continue this year to post past meeting presentations for our members to review, and our Chapter is continuing our efforts to reduce waste by eliminating printed handouts at our meetings. As always you will also be able to link to the following:
  - Chapter officers and committee chairs contact information (who's who)
  - Chapter monthly meeting info (when, what, where)
  - Region I website, and view the Chapter history
  - Sign up for the e-mailed newsletter
  - ASHRAE membership information
  - Current chapter newsletter, past newsletters,
  - Upcoming events and future meetings
  - Other functional Chapter committee pages;
  - Membership, RP, SA, Programs, CTT.
  - Most recent and past BOG/Meeting minutes
  - Look soon for a pre-registration payment online system!
This past week ASHRAE announced that they are rebranding the organization. One of the key components of the rebranding is Sustainability as a core competency that ASHRAE as an organization is striving for.

I am attending the AHR conference and I noticed how more and more vendors’ equipment are displaying the need for HVAC system communication compatibility. In earlier articles we discussed the ability of various systems to communicate is the key to maintain a facilities comfort and efficiency.

The last article was regarding the new Energy Code. The Mass DOER is very interested in the designers opinions and views about the new energy code. There will be a lunch session to discuss a peer-to-peer discussion of the pro’s and con’s of the 8th edition non-residential energy code.

This session is on February 16th 12pm – 1:30pm
281 Summer Street, Boston, MA
Lunch: Free

If you are a design engineer and you are interested in a free lunch and want to share your opinion feel free to attend.

The sustainability committee will start our conference calls in shortly and we will be looking for members to assist us in developing our objective. Our objective is to educate our membership in sustainability. Thinking with the end in mind and balancing the systems to meet the loads of the buildings.

It was great seeing all of you at the last meeting. I was very happy to see many of the YEA members who attended the last meeting and it was great to speak to some of you. February is Past President’s night and YEA night. Please join Steve Tafone (speaker for the meeting), Siobhan Carr and me at 5:30 pm prior to the meeting in the main room for YEA discussion with the presenter. Please email William Tang at wkt@brplusa.com to sign up for the event by February 3, 2012.

Thank you all who participated in the survey! I appreciate all the great responses we have received, the responses will help local YEA chapter with future events and activities.

We will be hosting our first YEA event this year at Harpoon Brewery (Boston, MA) on Wednesday, February 15, 2012. Please contact me if you are interested attending this event I will be sending out email to all YEA members with detail information about the event. Hope to see all you at this event.

We will be hosting YEA events throughout the year and we would really appreciate your inputs. Please send me your ideas! YEA events are great way to network with other engineers in this industry and also have a lot of fun.

Want to know more about ASHRAE Technical Committees? Visit on the website at http://www.ashrae.org/YEAtechinfo and also contact tcstaff@ashrae.net to learn more about technical committees.

If you are on face book, check out www.facebook.com/ashraeYEA#!/ashraeYEA.

Be sure to join Young Engineers in ASHRAE (YEA) on Facebook.

Please contact me with any questions and concerns at stacie@stebbinsduffy.com / (781) 258-1002.
Notice to Members (and Non-Members)

In an effort to clean up our meeting mailing list, we are asking that all ASHRAE members log in and ensure their information is current and up-to-date, especially the e-mail address. We would like to minimize the amount of returned mail notices that are received plus ensure that our members are receiving the meeting notices in a timely manner. We will soon be switching to sending emails only to members at the email addresses that are listed with ASHRAE. If you are not sure that you have recently updated you information (especially email address!) please take a minute to login to http://www.ashrae.org/ with your membership card and update your information. For those that are no longer members, please consider re-upping or follow the new mailing list procedure below.

For all non-members, if you wish to continue receiving notices of the meetings you must opt in by sending a specific request to remain on the mailing list. Please send your request to Enrique de los Reyes at Enrique.de.los.Reyes@mail.ashrae.org. Again this will help to keep our mailing list up-to-date. **As of October 30, all non-members who have not requested to be on the mailing list in this manner will be removed from the list.**

Thank you in advance for your assistance.
Regards,

Teri Shannon
Membership Promotion Chair

Enrique de los Reyes
Membership Promotion Committee

William Tang
Attendance Chair

---

Attention to all ASHRAE Boston Chapter Members:

No–Show Policy

Each member is responsible to RSVP cancellation on or before the deadline. If member RSVP after deadline, he or she will be charged for the meeting fee. If you have any questions, please contact William Tang at
On August 23rd - 25th, 2012, the Boston Chapter will be hosting the ASHRAE Region I Chapter Regional Conference (CRC). This meeting coincides with the Boston Chapter’s 100th Anniversary Celebration Gala which will be held on Saturday, August 25, 2012 directly after the Region I Conference. Both exciting events will be held at the Marriott Copley Place in downtown Boston.

Region I consists of 15 Chapters which includes New England, New York and New Jersey. At the Conference, there will be over 150 active ASHRAE members along with their families to enjoy all that the City of Boston has to offer. At the must attend Gala event, we are expecting over 700 people. Attendees will consist of local engineering firms, contractors, manufacturers, facilities and building owners, as well as other professional societies. As always, your donations are tax deductible, the ASHRAE Boston Chapter is a registered 501(c)(3) charitable organization. Please join us at the Gala for plenty of food, beverage and live entertainment from Las Vegas!

Request for sponsorships and advertizing have been sent out. If you did not receive or have misplaced the solicitation please reach out to Darcy, Bill or Bob.

To date the following companies have taken out sponsorship and we appreciate the support.

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<th>Entertainment Sponsor</th>
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<th>Premier Advertise Sponsors</th>
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If you are interested in helping us sponsor our events, please contact Darcy, Bill, or Bob and they can help finalize the corporate information and final ad setup. We look forward to hearing from you and sincerely hope you’ll consider a sponsorship for this event.

Darcy Carbone – CRC 2012 General Chair
Contact #: (617) 957-2567 E-mail: dcarbone@stebbinsduffy.com

Bill Garvey – CRC 2012 General Co-Chair
Contact #: (781) 910-9576 E-mail: wgarv@aol.com

Bob Perschini – 100th Anniversary Gala General Chair
Contact#: (617) 345-9885 E-mail: rpersechini@rdkengineers.com
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1EarthWise Systems: Waterside: 12°F ΔT across evaporator, 15°F ΔT across condenser, high-efficiency chiller. Airside: 40°F design supply-air temperature, 77°F zone cooling setpoint (due to lower indoor RH driven by lower supply air-temperatures, per ASHRAE Gold Air System Design Guide defining indoor comfort), supply-air-temperature reset (from 48°F up to 60°F) at mild outdoor conditions, comparative enthalpy economizer, parallel fan-powered VAV terminals, optimized supply duct static pressure control (fan pressure optimization).

Conventional Systems: Waterside: 10°F ΔT across evaporator, 15°F ΔT across condenser, minimum 90.1 chiller efficiency. Airside: 35°F design supply-air temperature, 75°F zone cooling setpoint, fixed dry-bulb economizer, VAV with reset terminals, fixed supply duct static pressure control.
Cannon Design joins in celebrating the 100th Anniversary of the Boston ASHRAE Chapter

So much can be accomplished in a century...this RDK knows first hand. Congratulations to ASHRAE Boston on your 100th anniversary!

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We are looking for experienced and motivated Sales Engineers to join our highly successful Commercial Sales Teams in the greater Boston and Metro NYC markets. Interested candidates should forward their resume to Susan Pickett at spickett@hvac.mea.com


Engineered Solutions, Inc. (ESI), established in 1988, is a dynamic HVAC/Energy consulting firm with high-profile clients in the greater Boston area. We are conveniently located in the Boston suburb of Natick. We provide high level engineering services such as technical energy analysis and audits, mechanical systems infrastructure evaluation and re-design, central chiller and boiler plant design, and building automation system design to a variety of clients including hospitals, high-rise office buildings, telecommunication facilities, educational institutions, museums, manufacturing facilities, and laboratories.

ESI offers its employees a competitive benefits package including generous company contribution to health/dental plans, participation and company matching contribution to our 401K plan, disability and life insurance, tuition reimbursement, flex-time, and an excellent performance based bonus program. Due to our recent growth, we have an exciting opportunity for an HVAC Project Engineer.

The HVAC Engineer will be instrumental to the organization in providing high quality HVAC/Energy analysis and design for our various projects. This includes but is not limited to conducting field work at our client sites, performing engineering analysis and system design, inspecting construction sites, writing reports and interacting with our customers. For the right candidate, this is a unique opportunity for career growth and large project experience in a small company environment. Qualified candidates will have the following experience:

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MESSAGE FROM ASHRAE
PRESIDENT RON JARNAGIN:
"Master's or Equivalent"
measures threaten flow of engineers into
HVAC&R profession

ASHRAE Regional Leaders and Chapter CTTC Chairs-

As has been discussed at previous CTTC meetings, the National Council of Examiners for Engineering and Surveying (NCEES) has created a model law for adoption in 2020 in the U.S. If adopted by state licensing bodies, the law will require that all seeking professional engineer licensure for the first time hold a master’s degree.

This is in direct conflict with the ASHRAE Board resolution (attached). Additional information is available at http://www.licensingthatworks.org/.

I am seeking assistance from chapter and regional leadership to be prepared to work with your U.S. ASHRAE chapters to discourage adoption of the model law.

Although no state has yet adopted the model law, we are aware that there is discussion in a limited number of states to do so. We need assistance from all the chapters in the U.S. to identify states that may be considering adoption of the model law and that the local ASHRAE chapter then communicate with their state board members.

In addition to background information, we will be sending you a message template for your use in communicating with your chapters. It will be important that the chapters actively communicate with their state boards and report back to you as well as the ASHRAE Government Affairs office the status of any action in their state via email to washdc@ashrae.org or by calling Mark Wills at (202) 833-1830.

Thank you for your continuing service to ASHRAE and our profession.

Sincerely,
Ronald E. Jarnagin
2011-12 ASHRAE President
SOCIETY NEWS

New Book Offers Guidance on Implementing Energy Savings Plan

ATLANTA – Guidance on increasing energy efficiency in existing buildings through measuring and tracking efficiency and implementing an efficiency plan is featured in a new book from leading built environment organizations. “Energy Efficiency Guide for Existing Commercial Buildings: Technical Implementation” provides clear and easily understood technical guidance for energy upgrades, retrofits and renovations by which building engineers and managers can achieve at least a 30 percent improvement in energy performance relative to a range of benchmark energy utilization indexes. It features practical means and methods for planning, executing and monitoring an effective program, based on widely available techniques and technologies.

"Energy efficiency improvement in buildings is one of the greatest means to increase resource efficiency, improve environmental stewardship and save operating funds,” George Jackins, who chaired the committee overseeing the book, said. “More importantly, energy efficient improvement should happen because it makes good business sense. Good planning and on-going commitment is essential to maximizing investments in energy efficiency.” Improving energy in an existing building is an iterative process, but first you have to know where you are starting from, according to Jackins. The book recommends some tips on how to begin the energy savings process:

1. Calculate energy use and cost
2. Set energy performance goals
3. Measure and analyze current energy use
4. Select and implement energy efficiency measures
5. Measure and report improvements
6. Continue to track performance and reassess goals

“Energy Efficiency Guide for Existing Commercial Buildings: Technical Implementation” is the second energy efficient guide for existing commercial buildings developed by the same group developing at the Advanced Energy Design Guide series for new buildings – ASHRAE, the American Institute of Architects, the Illuminating Engineering Society of North America and the U.S. Green Building Council and supported by the U.S. Department of Energy. In addition, the Building Owners and Managers Association and the U.S. General Services Administration were involved in its development. The first, “Energy Efficiency Guide for Existing Commercial Buildings: The Business Case for Building Owners and Managers,” provides the rationale for making economic decisions related to improving and sustaining energy efficiency in existing buildings.

The cost of “Energy Efficiency Guide for Existing Commercial Buildings – Technical Implementation” is $75 ($64, ASHRAE members). To order, contact ASHRAE Customer Contact Center at 1-800-527-4723 (United States and Canada) or 404-636-8400 (worldwide), fax 404-321-5478, or visit www.ashrae.org/bookstore.

For Release: December 14, 2011 Contact: Jodi Scott / Public Relations / 678-539-1140 / jscott@ashrae.org

ASHRAE Recognizes Outstanding HVAC&R Industry Achievements

CHICAGO – Thirty-six people are being recognized by ASHRAE for their contributions to the Society and the building industry at the Society’s 2012 Winter Conference held here Jan. 21-25.

The Hall of Fame, honors deceased members of the Society who have made milestone contributions to the growth of HVAC&R technology.

The recipient is Presidential Member Roderick Kirkwood, Fellow ASHRAE, Life Member.

Fellow ASHRAE is a membership grade that recognizes distinction in the arts and sciences of environmental technology and is earned through achievement as a researcher, designer, educator or engineering executive. The Society elevated 13 members to the grade of Fellow ASHRAE:

Continues on Page 25
constantinos balaras is research director, institute for environmental research and sustainable development, national observatory of athens, greece.

van baxter is senior research and development engineer, oak ridge national laboratory, oak ridge, tenn.

vin gupta is senior principal engineer, 3m company, st. paul, minn.

mark modera is senior principal engineer, 3m company, st. paul, minn.

mark modera is senior principal engineer, 3m company, st. paul, minn.

mark modera is principal andvice president, moser mayer phoenix associates, greensboro, n.c.

arshad sheikh is owner/principal consultant, ses consulting engineers, lahore, pakistan.

edward vineyard is group leader, building equipment research, oak ridge national laboratory, oak ridge, tenn.

iain walker is scientist, lawrence berkeley national laboratory, berkeley, Calif.

brian warwicker is consultant, brian warwicker partnership, ltd., london, u.k.

bill werek is professor and director, energy technology laboratory, university of illinois-chicago •xudong yang is chang-jiang professor anddeputy director, institute of built environment, school of architecture, tsinghua university, beijing, china •jiashun zhang is professor and director, building energy and environmental systems lab, department of mechanical engineering and aerospace engineering, syracuse university, syracuse, n.y.

the ashrae technology awards recognize outstanding achievements by members who have successfully applied innovative building designs, which incorporate ashrae standards for effective energy management and indoor air quality. six projects received first-place ashrae technology awards:

•roland charneux, p.eng., ashrae fellow, ashrae certified healthcare facility design professional, pageau morel & associates, montreal, quebec, canada in the new commercial buildings category for mountain equipment co-op, longueuil, quebec, canada. the building is owned by the co-op

•ken sommor, ecovision consulting, montreal, quebec, canada in the existing commercial buildings category for the ike a brossard distribution center, quebec, canada. the building is owned by ike a distribution services.

•rené dansereau, dessau, longueuil, quebec, canada the new educational facilities category for the université de sherbrooke—campus de longueuil, quebec, canada. the building is owned by the university.

•paul marmion, stantec consulting, ltd., vancouver, british columbia, canada in the new health care facilities category for abbotsford regional hospital and cancer centre, british columbia, canada. the building is sponsored by laing investments management services and owned by the hospital.

•blake ellis, p.e., burns & mcdonnell, kansas city, mo. in the new industrial facilities or presses category for thermal energy storage at texas medical center, houston, texas. the owner is thermal energy corp.

•luc simard, compressor systems control (csc), inc., les coteaux, quebec, canada in the existing industrial facilities or presses category for the arena marcel dutil, st-gédéon-de-beauce, quebec, canada. the building is owned by the municipalite st-gédéon-de-beauce.

the ashrae student design project competition challenged teams of students to create an integrated sustainable building design as well as select and design hvac&r systems for the drake well museum located in titusville, pa., the site where edwin l. drake drilled the world's first oil well in 1859 and launched the modern petroleum industry. first place in hvac system design is awarded to holly brink, michael crabb, james dougherty, andrew gilliam and gina halbom of university of nebraska-omaha. first place in hvac system selection is awarded to lynn gualtieri, evan oda, kristin porter, navid saidnia, jeffrey wong and cameron young of california polytechnic state university, san luis obispo, Calif. first place in the integrated sustainable building design is awarded to qi te, zhang qiqi and chen yuanyi of tianjin university, china.

the john f. james international award is given to an ashrae member who has done the most to enhance the society’s international presence. the recipient is edward ka cheung tsui, managing director, intelligent technologies, ltd., hong kong, hong kong.

the e.k. campbell award honors outstanding achievements by engineering educators and is presented by the ashrae life members club. the recipient is wayne helmer, ph.d., p.e., professor of mechanical engineering, arkansas tech university, russellville, ark.
ASHRAE Learning Institute
2012 Spring Online Course Series

2 WAYS TO REGISTER
Internet: www.ashrae.org/onlinecourses
Phone: Call toll-free at 1-800-527-4723 (US and Canada) or 404-636-8400 (worldwide)
Note: You may register up to 24 hours prior to an online course. Courses are in US Eastern Standard Time.

District Cooling & Heating Systems
Mon, March 19, 2012 – 1:00 pm to 4:00 pm ET

Basics of Combined Heat & Power
Wed, March 21, 2012 – 1:00 pm to 4:00 pm ET

Evaluating the Performance of LEED®-Certified Buildings
Wed, March 28, 2012 – 1:00 pm to 4:00 pm ET

Commissioning Process & Guideline 0
Wed, April 4, 2012 – 1:00 pm to 4:00 pm ET

* Complying with Standard 90.1-2010: HVAC/Mechanical
Mon, April 9, 2012 – 1:00 pm to 4:00 pm ET

* Complying with Standard 90.1-2010: Envelope/Lighting
Wed, April 11, 2012 – 1:00 pm to 4:00 pm ET

* Take both Standard 90.1 courses and save 20% on the price of these courses

The following courses are comprised of two parts. Registrants must attend both parts in order to receive CEU/PDH credits. Archiving is available.

Humidity Control: Principles and Applications – Part 1
Mon, March 26, 2012 – 1:00 pm to 4:00 pm ET

Humidity Control: Principles and Applications – Part 2
Mon, April 2, 2012 – 1:00 pm to 4:00 pm ET

Implementing ASHRAE Standard 189.1-2009 – Part 1
Mon, April 16, 2012 – 1:00 pm to 4:00 pm ET

Implementing ASHRAE Standard 189.1-2009 – Part 2
Thurs, April 19, 2012 – 1:00 pm to 4:00 pm ET

Integrated Building Design – Part 1
Mon, April 23, 2012 – 1:00 pm to 4:00 pm ET

Integrated Building Design – Part 2
Wed, April 25, 2012 – 1:00 pm to 4:00 pm ET

ASHRAE HVAC Design Workshops
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May 21-25, 2012 • ASHRAE Foundation Learning Center • Atlanta, GA

HVAC Design: Level I – Essentials
May 21-23, 2012
ASHRAE’s HVAC Design: Level I - Essentials workshop provides intensive, practical education for designers and others involved in delivery of HVAC services. Developed by industry-leading professionals, the workshop provides participants with training design to accelerate their evolution into effective member on a design, construction or facilities maintenance team. Gain the fundamentals and technical aspects to design, install and maintain HVAC systems.

HVAC Design: Level II – Applications
May 24-25, 2012
ASHRAE’s HVAC Design: Level II - Applications workshop provides advanced instruction on HVAC system designs for experienced HVAC designers or those who completed the HVAC Design: Level I Essentials workshop. Gain an understanding of system design incorporating the application of Standards 55, 62.1, 90.1 and 189.1.

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Attendees of the HVAC Design Workshops can earn continuing education credits. Contact the relevant governing body for more information.

Visit www.ashrae.org/hvacdesign to register

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- Building Energy Modeling Professional (BEMP)
- Commissioning Process Management Professional (CPMP)
- Healthcare Facility Design Professional (HFDP)
- High-Performance Building Design Professional (HPBDP)
- Operations & Performance Management Professional (OPMP)

For more info, visit www.ashrae.org/certification
Is the Massachusetts Commercial Building Energy Code Headed in the Right Direction?

As part of a study on design and construction practices related to the energy code in Massachusetts, KEMA Inc. and its partner ERS, are collaborating with the USGBC Massachusetts Chapter and the ASHRAE Boston Chapter to host a lunchtime peer-to-peer discussion on the Commercial Building Energy Code.

Please join us share experiences on working with the Energy Code and the Stretch Energy Code and provide feedback on the current and future direction of the code.

Who: Design engineers who work on commercial buildings
When: February 16th, 2012, 12pm – 1:30pm
Where: 281 Summer Street, Boston
Why: Discuss challenges and opportunities related to the energy code and provide feedback on the 8th edition and Stretch Code

Lunch will be provided. The event is limited to 15 participants. Please RSVP today to Catherine Griffin at 718-418-5719 or Catherine.Griffin@kema.com. If you have any questions or concerns, don’t hesitate to contact Wendy or Andrea.
## Boston ASHRAE 2011 - 2012 Meeting Schedule

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<td>It is time for Third Party TAB</td>
<td>Howie McKew</td>
<td>1.0</td>
<td>Darcy Carbone</td>
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<tr>
<td>Tuesday, October 11, 2011</td>
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<tr>
<td>November</td>
<td>Dedicated Outdoor Air Systems - Design and Field Experiences</td>
<td>Stanley Mumma, PHD</td>
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<td>John Morrill</td>
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<tr>
<td>Tuesday, November 8, 2011</td>
<td>History Night / Research Promotion Night</td>
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<td>December</td>
<td>Solar Heating</td>
<td>Ross Trethewey</td>
<td>1.5</td>
<td>Dan Denisi</td>
<td>Embassy Suites, Waltham</td>
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<tr>
<td>Tuesday, December 13, 2011</td>
<td>ASPE Joint Meeting</td>
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<td>January</td>
<td>ASHRAE 90.1-2010</td>
<td>Michael Tilou</td>
<td>TBD</td>
<td>Dan Diorio</td>
<td>Embassy Suites, Waltham</td>
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<td>Tuesday, January 10, 2012</td>
<td>Membership Night/YEA</td>
<td></td>
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<tr>
<td>February</td>
<td>Lessons Learned</td>
<td>Steve Tafone</td>
<td>1.0</td>
<td>Steve Tafone</td>
<td>Embassy Suites, Waltham</td>
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<tr>
<td>Wednesday, February 8, 2012</td>
<td>Past President’s Night/YEA Night</td>
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<tr>
<td>March</td>
<td>Energy Modeling Case Studies</td>
<td>TBD</td>
<td>TBD</td>
<td>Jim Armstrong</td>
<td>Embassy Suites, Waltham</td>
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<tr>
<td>Tuesday, March 13, 2012</td>
<td>Joint meeting with AEE and IBPSA</td>
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<td></td>
<td>Student Night/ RP Night</td>
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<td>April</td>
<td>2012 – 2012 New Product &amp; Energy Show</td>
<td>N/A</td>
<td>NA</td>
<td>Jeff Schultz</td>
<td>Lantana Randolph</td>
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<tr>
<td>Tuesday, April 10, 2012</td>
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<td>Seminar Mgrs: Enrique de los Reyes &amp; Bill Garvey</td>
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<td>May</td>
<td>Installation Of Officers</td>
<td>N/A</td>
<td>NA</td>
<td>Steve Nicholas</td>
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<td>Tuesday, May 8, 2012</td>
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<tr>
<td>June</td>
<td>Golf Outing</td>
<td>N/A</td>
<td>NA</td>
<td>Bill Garvey</td>
<td>Halifax Country Clubs</td>
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<td>Monday, June 4, 2012</td>
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<td>August</td>
<td>Region 1 CRC 100th Anniversary Gala</td>
<td>Darcy Carbone</td>
<td></td>
<td></td>
<td>Boston Marriott</td>
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<tr>
<td>August 23–25, 2012</td>
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</tbody>
</table>
2011 - 2012
BOSTON CHAPTER OFFICERS, BOARD OF GOVERNORS & CHAIRPERSONS

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YEA
Stacie Suh, Stebbins Duffy
781-258-1002
Stacie@stebbinsduffy.com
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.

CALL Bill Garvey NOW! at 781-910-9576, OR: wgary@aol.com

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ASHRAE RESEARCH
c/o Bill Garvey
66 Morton St
Hanson, MA 02341

Name: _______________________________________________________________________________________________

Company: __________________________________________________________________________________________

Address: ___________________________________________________________________________________________

TEL: ________________________________________________________________________________________________

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<tr>
<th>INDIVIDUAL</th>
<th>$25.00</th>
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<td>CORPORATE</td>
<td>$250.00</td>
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Other: ____________

NorthEastAire

ASHRAE - BOSTON CHAPTER www.ashraeboston.org

Stebbins Duffy, INC
10 Technology Drive
Peabody, MA 01960

ADDRESS SERVICE REQUESTED