Tuesday, October 11, 2011
Student Night/ Membership Night
IT IS TIME FOR 3RD PARTY TESTING, ADJUSTING, & BALANCING

The presentation is to educate and encourage design engineers and building owners to embrace 3rd party TAB agent in the same manner as they do with 3rd party Commissioning agents. The talk will touch upon “why 3rd party TAB, how it would occur in the design phase, what will occur in the construction phase, and briefly raise awareness to its role in energy retro-commissioning.

Howard McKew, P.E.,CPE

See page 7 for meet the speakers column.

MEETING: Darcy Carbone
MANAGER: Dcarbone@stebbinsduffy.com
COST:
Members w/ RSVP $35.00
Non-Members $45.00
Student Members FREE
w/RSVP
No Walk-ins

LOCATION: Embassy Suites, Waltham
TIME: 5:30 - 6:00 p.m.-Social Half Hour
6:00 - 7:00 p.m. - Dinner

October Meeting Menu: Page 10
Please check out other exciting events.
ASHRAE Winter Conference 2012 ~ page 9
Upcoming events for other societies in Boston ~ page 13
Energy Efficiency Program Trends & Tax Incentives Seminar (Oct. 5th) ~ page 14
Region 1 CRC 2012 & 100th year Gala ~ page 15~17
ASPE Product Show~ page 19

Post your resume on ASHRAE Boston Website for FREE. See page 13.

Other pages to check out
Roster & Product Guide ~page 2
ASHRAE Publication ~ page 18
New Cool Tool from ASHRAE ~ page 20

CRC 2012 POLO SHIRTS ON SALE!!!

RSVP Deadline for this meeting is 12:00pm on Friday, October 7, 2011
RSVP Cancellation Deadline for this meeting is 12:00pm on Friday, October 7, 2011. Please see page 15 for no show policy information.

Please only RSVP to William Tang at wkt@brplusa.com. Upon receiving RSVP, a confirmation email will be sent back to confirm your reservation. If you have not received a confirmation email, you will need to RSVP again. Thank you. William Tang.
PRESIDENT’S MESSAGE
By Pat Duffy

The New England Aquarium joint meeting with the AFE (Association of Facilities Engineers) Boston & Worcester Chapters (www.afe.org) was a huge success. This was our second time joining up with the AFE group, many thanks goes out to Steve Nicholas for organizing the tour once again.

We have a great meeting coming up on Tuesday, October 11th. Howard McKew from Building Smart Software will be on: “It is Time for Third Party TAB.” Howard has been a leading figure in the Building Commissioning sector for years, and has been involved in the relatively new concept of Third Party Testing Adjusting and Balancing of HVAC systems.

Along with our main meeting in October, we also have a couple other items going on during the meeting.

- Cheryl M. Rossini Future Engineer Scholarship will be awarded
- ASHRAE Boston Chapter Hall of Fame winners will be given their plaques.
- Membership Promotion Night
- Student Member Night

During our Membership Promotion Night, we encourage you to bring someone along to the meeting who may be interested in joining. Having them attend a meeting may be enough to sway them into signing up for the benefits that ASHRAE provides. This October meeting will also be a Student Member night, so we encourage all of our student chapter members and their advisors to come by for the educational seminar as well.

On another note, please make sure you give your member ID number and inform to William Tang when making RSVP’s. If you are currently not a member but would like to join, please contact Teri Shannon at tshannon@dac-hvac.com. She will be more than happy to assist you in any way for your membership.

See you at the next meeting,

Patrick Duffy, President

Editor’s Note
By Stacie Suh

Please submit employment / want ads for November by October 14, 2011 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 http://www.ashraeboston.org/committees/northeastaire.html.

2011 Roster & Product Guide Now Available

The Boston ASHRAE Chapter is pleased to announce that the 2011 Roster and 2011 Product Guide are now available online! We are excited to present these documents in an electronic format for ease of use.

Both documents are posted on the Chapter website at www.ashraeboston.org. All ASHRAE members should have received email from Teri Shannon with link to website and password to view roster. If you are a member and did not receive a password, please contact Teri Shannon via email tshannon@dac-hvac.com.
MEETING RECAP

By: Pat Duffy

We had over 185 attendees participating in the tour the New England Aquarium. The night was organized by our co-sponsor the Association of Facilities Engineering (AFE), and great night enjoyed by all that attended.

The joint meeting provided a great business networking opportunity as well as learning about the Aquarium facilities. After some brief talks about chapter membership and what the year has in store for both organizations, dinner was served and the chapters had the entire aquarium to enjoy.

The staff at the Aquarium put on an after dinner presentation about the sea life and the challenges of keeping an aging facility operating at a level that allows the marine life inside a healthy environment.

Thank you to Paul Cantrell, Steve Nicholas, and Gary Powell of AFE for all the work involved with pulling this event together.
Employment Ad Section

Group Leader: Integrated Project Delivery/Design Build


Experience Required:
- 10-15 years diverse engineering design and construction experience in institutional, healthcare, commercial, and industrial facilities
- Expertise in building systems (mechanical and electrical) design, estimating, construction, and project management including central cooling and heating plants, trouble-shooting, and master planning
- Registered Professional Engineer (Mechanical or Electrical) in MA and other NE states.
- Project management, staff management, training, and mentoring experience
- Sales/ business development experience, and NE area client relationships, including owners and contractors
- Other certifications such as ASHRAE HPBP, DBIA, LEED AP, CEM, CPE, CFE, a plus

Desirable Traits of Successful Candidate:
- Experience with and passion for collaborative process of IPD and/or Design-Build project execution
- Experience with and passion for High Performance Building Design
- Experience with and passion for problem solving
- Experience with and passion for BIM
- Experience with and passion for LEAN construction
- Active in professional organizations such as ASHRAE, DBIA, NEHES, IDEA, ISPE

Qualified candidates may apply at our website: www.sebesta.com

Sebesta Blomberg is proud to be an Equal Opportunity Employer. Applicants are considered without regard to race, color, religion, sex, national origin, age, disability, sexual orientation, ancestry, marital or veteran status.

Mechanical and Senior Electrical Engineer

Established in 1897, RDK Engineers is a specialized mechanical and electrical engineering firm offering a spectrum of engineering services - total building systems solutions. RDK’s 190+ member professional staff includes Registered Mechanical Engineers, Electrical Engineers, Plumbing/Fire Protection Engineers, Communication Distribution Designers, Telecommunications Engineers, Audio/Visual Engineers, and technical and administrative support personnel, with five offices located in Andover, MA; Boston, MA; Amherst, MA; and Durham and Charlotte, NC.

Our firm is organized in Multi-Disciplined "Team Studios", each of which is committed to providing dedicated attention and personalized service for specific market sectors and/or clients. Each of these Engineering Teams is led by a Principal, and is comprised of a capable team of MEP/FP/T engineers who are accustomed to working with one another on a daily basis. As a firm that continues to grow, we genuinely believe that it is our unique organization, our "companies within a company" structure, that helps foster a small, company service atmosphere resulting in increased client satisfaction.

RDK has many exciting MEP design projects in house. Visit our website and take a look at the great projects we are working on. If you’re looking for a growth opportunity and a great place to work, then RDK may be right for you!

Our benefits package includes:

- straight time overtime pay for salaried employees
- bonus opportunities and profit sharing
- health and dental insurance
- 401(k) with company sponsored match
- generous paid time off benefits
- tuition reimbursement
- In-house training
- short and long term disability insurance, and group life insurance

For more information, visit and/or apply via our website at www.rdkengineers.com

EOE M/F/D/V No agencies please
R.W Sullivan Engineering specializes in providing HVAC, Plumbing, Fire Protection, Electrical Engineering and Code Consulting services. For over 65 years, we have provided consulting engineering services to some of the region’s leading businesses and institutions.

The candidate for this position will be responsible for the implementation of functional testing procedures to confirm performance of HVAC, electrical, fire protection and plumbing systems. The commissioning agent will witness and document the performance of these systems and complete field reports. The candidate will be responsible to develop testing procedures to serve as road map for the field-testing. Candidate must have a minimum of 10 years of experience with MEPFP systems and controls. Ideal candidate will be self-starter and be able to work in a team environment with customer service and quality as a primary focus. Knowledge of building and operational requirements for MEPFP systems, commissioning site requirements, safety, and financial management. Proficient in Microsoft Office, energy modeling software and AutoCAD.

We offer a comprehensive benefits package, which includes Harvard Pilgrim Health Insurance, Dental, 401(k), Short-Term and Long-Term Disability Insurance, Education Reimbursement, Flextime, Life-Insurance, Bonus Opportunities and more. We are conveniently located at The Schrafft Center, 529 Main Street, Suite 203, Boston, MA where there is free parking for all employees and also located across from the Sullivan Sq. MBTA Station. All interested applicants should send or fax their resume and salary requirements to:

Renee Finn, Human Resources Administrator / R.W. Sullivan Engineering
Phone: (617) 523-8227/ Fax: (617) 523-8016/ Email: resume@rwsullivan.com

Since 1988, Environmental Health & Engineering, Inc. has earned a reputation for being an environmental consulting and engineering services firm that is focused, service-driven, and constantly exceeding clients’ expectations. Building-related engineering and environmental consulting issues are complex and serious with potentially significant ramifications on people, businesses, and institutions. EH&E has a proven record of providing the complete environmental and engineering solution to effectively address these issues.

Environmental Health & Engineering, Inc. (EH&E) is seeking a senior level commissioning (Cx) engineer to assume project management and group management responsibilities. This position will report to the Director of Cx services. Engineering candidates must have a solid foundation in commercial and institutional HVAC design, construction, operation, and controls. The ideal candidate will have a strong commercial building construction background with a focus on mechanical, electrical, plumbing and life safety systems. We are seeking a candidate having a minimum of 10 years overall experience with significant experience in system performance testing, project management and client interaction with hospital and laboratory clients.

BS degree in Mechanical Engineering required, PE license a plus (not required). Excellent written and oral communication skills are mandatory for this position. Additionally, candidates should be proficient in MS Word, Excel, and Access, as well as CAD.

EH&E offers excellent salaries and generous employee benefits, including an employee stock ownership plan.

Please email your résumé to HumanResources@eheinc.com or mail to:
Human Resources
Environmental Health & Engineering, Inc.
117 4th Avenue
Needham, MA 02494
TRO Jung|Brannen is an international Architecture, Engineering, Interior Design, and Master Planning firm headquartered in Boston, MA. We were chosen as one of the best places to work by the Boston Business Journal 2010!

This position will support the design and engineering of large scale health projects. Be responsible for full-cycle design of projects including: bids, project scheduling, design, and construction management. Perform heating and cooling load calculations, heat transfer, fluids analysis, pressure calculations, and equipment selections as related to building engineered systems.

Must have a BSME or equivalent with 5+ years experience. Proficiency in AutoCAD 2004 or higher, Microsoft Word, and Excel required. REVIT MEP experience preferred. Professional registration and LEED Accreditation Professional strongly preferred.

For more info and to apply, go to: https://careers-trojungbrannen.icims.com/jobs/1065/job Or fax to 617-502-3405

Equal Opportunity Employer, M/F/D/V

Founded in 1987 and headquartered in Springfield, Massachusetts; The Dennis Group is a national engineering firm which offers complete planning, process engineering, facility development, and construction management services exclusively to the food and beverage industries.

The successful candidates will be professional, self-motivated, energetic and enthusiastic with excellent communication and inter-personal skills. Compensation includes generous base salary plus eligibility for performance bonus, profit share, 401k employer contribution, health/dental/disability/life benefits, flexible spending and paid vacation.

The Dennis Group is seeking

<table>
<thead>
<tr>
<th>Mid and senior level Mechanical Utilities Engineers</th>
<th>Mid and senior level Mechanical and Piping Layout Designers</th>
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<tr>
<td>Springfield, MA location</td>
<td>Springfield, MA location</td>
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<tr>
<td><strong>Candidates should have a strong knowledge of:</strong></td>
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<tr>
<td>• Steam/condensate, compressed air, chilled water generation, water filtration systems</td>
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<td>• Utility and distribution piping</td>
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<td>• Generation of equipment and piping specifications, utility PFD’s &amp; P&amp;ID’s</td>
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<td>• Installation supervision and system start up assistance</td>
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<td><strong>Requirements:</strong></td>
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<td>• PE or FE/EIT certificate preferred</td>
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<td>• AutoCAD experience</td>
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<td>• Preferred 5+ years of relevant experience</td>
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<td>• Experience with sanitary environments, the food industry or industrial design is a plus</td>
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<td>• Candidates without a minimum of a Bachelor degree in a related field will not be considered.</td>
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<td>• Some travel is required</td>
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**Responsibilities:**
- Generation of Process, Utility Equipment and Piping Layout Drawings
- Material Handling Systems for the Food Processing Industry
- Mechanical Layouts, Equipment Installation and Assembly

**Requirements:**
- Requisite Proficiency in AutoCAD
- Piping / Equipment Layout and P&ID’s
- 3D experience a plus
- Experience in the food industry is a plus
- 4 year college degree preferred
- 2-5 years experience required

Please send resume and cover letter to:
The Dennis Group
C/o Alyssa Boudeureau – Human Resource Manager
employment@dennisgrp.com
1537 Main Street. Springfield, MA 01103. Fax: 413-787-1786
MEET THE SPEAKER

Howard McKew, P.E.,CPE

- Owner of www.BuildingSmartSoftware.com
- Registered Professional Engineer (Massachusetts) & Certified Plant Engineer
- Steering Committee Member of Healthcare Associated Infection Organization
- ASHRAE Fellow & Life Member and Member ASHRAE Technical Committees TC 9.01 and TG-2
- Recipient of 12-Energy Engineering Awards from ASHRAE during the 1980’s and 1990s
- Recipient of ASHRAE George B. Highetower Technical Achievement Award
- Passes the National Environmental Balancing Bureau (NEBB) air and water balancing test 1994
- 20-years as an HVAC Engineer up to an including Manager of HVAC Engineering at major consulting engineering firm 1978. During that time developed 2-new engineering services/profit centers (energy conservation group and facility support services group)
- 9-years at major design-built, outsource O&M building management, and HVAC service firm serving the east coast from New England to Virginia. During that time was Vice President of Design-Build Engineering and Construction Department Estimating for D-B services, member of Corporate Quality Control and Training Steering Committees, Manager of Outsource O&M Technical Support services for approximately 24 million square feet of buildings
- 4-years at major construction management firm. During that time was Vice President of Engineering and developed of in-house mechanical and electrical estimation group and a separate facility support services group/profit center responsible for operation and maintenance management for approximately 5 million square feet of college, university, and healthcare facilities
- 4-years establishing a regional engineering consultant firm in Massachusetts and in Cleveland Ohio, as well as opening another office in Washington DC office
- 9-years at local consulting engineering firm establishing the Building Solutions group/profit center with commissioning, retro-commissioning, facility assessments, energy retro-commissioning, and 3rd Party TAB services. In 2009 established a new profit center implementing the role of Integrated Project Delivery Facilitator
- Author of more than 400 articles and monthly columns and 1-book (Managing People in the HVAC/R Industry)

Historian Column

By John Morrill

Professor James Winter (1936-2011)

It is important to reflect with fondness the passing of professor James Winter of Wentworth Institute. Professor Winter was truly a very good man, kind, affable and quite valuable to the growth of our Chapter in the late 80’s and well into the new century.

I had the distinct honor to serve for six years as the Education Chair of the Boston Chapter from 1986 through 1992. During that time period, we established Student Chapters at Wentworth and Blue Hills.

Professor Winter was instrumental in the success of the Wentworth Chapter. Without his dedication, the Chapter would never have gotten “off the ground”. There were many occasions when I would pick up the phone and it would be Jim with a great idea to increase student involvement in HVAC through the Student Chapter.

Born in China on June 18, 1936, He earned his Bachelors Degree from California Polytechnic Institute at San Luis Obispo and his Masters in Education at B.U. as well as Masters in Energy Engineering from U Mass, Lowell.

He was a science teacher at the High School level in, Lexington, Waltham and Marblehead before his distinguished career of twenty two years at Wentworth. While in that capacity he received the Robert Boyden Professional Chair from 1997 to 2000 and the Alumni Association Distinguished Service Award in 1998.

Jim always brought his students over to our bi annual Product Show to take part in the “bull gang” of offloading and reloading our Exhibitors’ displays.

Professor Winter will be sorely missed around the Chapter and his contribution will never be forgotten.
Research Promotion

By Bill Garvey

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!

This year our Chapter Goal is $20,280, slightly up from the previous two years. Please help out the Chapter by donating to ASHRAE Research Promotion today, no amount is too small.

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

I would like give a big THANK YOU the following members and Companies for making donations to RP!

<table>
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<th>$20,280</th>
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SY 2011–2012 September Donors

Darcy Carbone  Air Distribution Corp  Alfieri Proctor Associates
David DeMoura  BR+A Consulting Engineers  Boston Air Products, LLC
Daniel Diorio  DAC Sales  Dura Systems Barriers, Inc
Gary Elovitz  J.S. Fleming Associates  Kirschner Associates
Bill Garvey  Northeast Air Solutions  RDK Engineers
Robert Hamilton  RDK Engineers  RMI Inc.
Max Levi  Victaulic  WSP Flack & Kurtz
Paul Padula  York International/  
Stephen Rizzo  Johnson Controls

Steven Rosen
Teri Shannon
Steven Tafone
Zbigniew Wozny
ASHRAE is pleased to be returning to Chicago for the 2012 Winter Conference. Members have the chance to discuss and examine the latest topics in the building industry, such as high performing buildings and integrated design, as well as participate in technical tours; attend ASHRAE Learning Institute courses; earn professional credits; and obtain ASHRAE certifications.

Chicago will also serve as the site of the AHR Expo, co-sponsored and held in conjunction with the Winter Conference. The two events combine to create the ideal atmosphere for those interested in advancing the building industry to network, inspect the latest technology and learn about the newest practices for the built environment. Don’t miss the chance to participate in ASHRAE’s historically best-attended Conference.

### Registration Costs

**Early bird rates (by Oct. 31) for members, $485**

$670 for non-members (includes one year of membership)

Once online registration is completed, registrants receive an email confirmation from orders@ashrae.org.

### Housing

The Palmer House Hilton serves as the ASHRAE Headquarters Hotel. Housing information is currently being e-mailed to all ASHRAE committee members. Those who serve on an ASHRAE committee and do not receive housing information, notify ASHRAE at meetings@ashrae.org.

Those who do not serve on an ASHRAE committee and want to stay at the Palmer House must check the housing box on the registration form and the ASHRAE housing link will be e-mailed.

Visit the conference website at [www.ashrae.org/chicago](http://www.ashrae.org/chicago) for more information and to register.
Membership Promotion
By Teri Shannon

The October 11th meeting is designated as a Membership Promotion meeting. New members who bring a completed application can attend this meeting free of charge. Members at the Associate grade level who bring a completed upgrade application can attend a future dinner meeting free of charge, after the upgrade has been approved by Society. Please send me an email at tshannon@dac-hvac.com if you need an application or have any questions. You may also download an application from the ASHRAE Society website (www.ashrae.org).

The January meeting will also be designated as a Membership Promotion Night / Young Engineers in ASHRAE Night. We will have some special promotions for that meeting as well; stay tuned for details.

As we’re into a new ASRHAE year, I would strongly urge members to verify their dues are up-to-date. There are many people who are past due on paying their membership dues; a reminder that members who are more than 6 months delinquent on their Society dues are cancelled by Society. A cancellation for non–payment does mean that any accumulated years with ASHRAE are lost, unless the member is reinstated by paying back dues. For anyone who is aiming for Life Member or Life Associate, which is being a member in good standing for 30+ years, it is imperative that you don’t let this happen.

Please do not hesitate to contact me with any questions on your membership.

Cheers,
Teri

Student Activities
By Dan Diorio

Just a quick, check-in installment this month seeing as there is such a short turn-around between newsletters. A couple of important student items…

As I mentioned last month, the upcoming monthly meeting will be the first of our two ‘Student Nights’. We will be recognizing the students in attendance. No, you won’t have to deliver a speech. There will be a quick opportunity to stand up at your table and be seen by the audience. Typically, this leads to networking conversations with employers that night and in the months to come. Never a bad thing! If possible, please let me know ahead of time if you are planning to attend. That way we will have the most accurate list of student attendees to call out.

It’s time to start thinking about attending the ASHRAE Winter Conference during the last week of January, 2012. The conference is in Chicago this year and will include several presentations, lectures, and activities geared toward students. Information is available on the ASHRAE website at www.ashrae.org. 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. See you all at the September tour at the New England Aquarium!

October Meeting Menu:

Starter:
Baby Spinach Salad

Main:
Oven Roasted Prime Rib

Dessert:
Chocolate Decadence Cake w/ Berry Coulis
PUE Version 2: The myth, the Mystery and of Course the Methodology.

We’ve heard a lot about PUE (Power Usage Effectiveness); a metric for measuring Data Center energy efficiency by The Green Grid back in 2007. A fairly simple formula; PUE = Total Energy divided by IT Energy, where Total Energy is all the energy consumed by the entire data center facility and IT Energy is the power consumed only by the IT equipment. The best possible PUE is 1.0, which should be impossible unless you plug your server into a standard outlet and left it outdoors, under a tent of course. But questions arise; what should be included in Total Energy, where is the line between facility energy and IT energy, is it annual average energy or peak energy? For the most part these questions have been answered in a white paper released by The Green Grid and in collaboration with a task force of seven other industry leaders including ASHRAE, “Recommendations for Measuring and Reporting Overall Data Center Efficiency: Version 2 – Measuring PUE for Data Centers” on 17 May 2011.

The consensus of this task force is that PUE is the preferred energy metric for measuring data center energy efficiency and Version 2 has clarified these issues and more. First it puts a stake in the ground on IT Energy, it states that at a minimum the IT Energy be measured at the output of the uninterruptible power supply (UPS). It further states that future data centers should strive to move this point of IT Energy measurement directly at the IT load (e.g., server, storage, network, etc.). If there is any non-IT equipment (e.g., CRAC, CRAH, In-row coolers, etc.) supported downstream of the UPS, it needs to be metered and subtracted from the UPS load to determine the IT Energy.

In addition, the Total Energy has been further defined. A facility is classified as either a “Dedicated Data Center” or a “Mixed-Use Data Center”. The dedicated data center is a standalone facility and the mixed-use is a data center within a larger facility. In either case, The Total Energy now includes all ancillary spaces that are dedicated to the data center (offices, lobby, restrooms, etc.) and all fuels consumed by these spaces (electric, natural gas, oil, etc.).

There are four categories for reporting PUE and they are all averaged over 12 months of energy consumption. The categories range from PUE Category 0 through Category 3. These categories represent how accurately the IT Energy is measured. For example, Category 0 is for facilities that can only measure monthly peak loads to calculate the PUE and is the least accurate, while Category 3 is for facilities that can measurement IT Energy directly at the IT equipment and is the most accurate. Category 1 is for facilities that measure at the UPS and Category 2 is for facilities that measure at the PDU (power distribution unit).

There are several sections regarding heat recovery and renewable energy applications. In a nutshell, recovery of data center waste heat is allowed as a credit in calculating PUE, but only if the heat is used within the data center space which includes the ancillary spaces. Surprisingly, renewable energy is disallowed as an energy credit for calculation PUE; the rational is determining how efficiently energy is used within the data center is regardless of energy supply. The Green Grid has introduced two new metrics for sustainable measurements; Carbon Usage Effectiveness (CUE) and Water Usage Effectiveness (WUE). Click on the link below for your own copy of version 2 and visit thegreengrid.org for more information. The Green Grid website offers online courses, a re-

Boston Chapter – Behind the Scenes

Meeting Minutes of the Board of Governor’s Last Planning Meeting
(No Meeting)

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 additional information.

Meeting Date: No meeting – Notes are a summary of ‘off-line’ discussions occurring recently between Officers and BOG members.

2012 Region 1 Chapter Visit Schedule
Chapter President Patrick Duffy distributed the Region 1 Chapter Visit Schedule by email. Throughout the 2011/2012 ASHRAE season, Region 1 RVC’s and Directors visit chapter meetings to report on their operations. Assistant Regional Chair & Treasurer will be visiting the Boston Chapter for the November meeting.

Boston Chapter Committee MBO’s
Each year, Boston Chapter committee chairs (Student Activities, CTTC, and Membership Promotion) must submit their MBO’s to the respective Region 1 committee chair. MBO’s, or Management by Objective, are essentially goals that each chapter committee chair sets for their committee for the upcoming ASHRAE season. MBO’s are due at the end of October.

Boston Chapter to complete ‘Full Circle’
Region 1 Chapters gain PAOE points when each officer makes a donation to ASHRAE Research & Promotion. The Boston Chapter is attempting to be the first Region 1 chapter in 2011/2012 to complete ‘Full Circle.’

Pricing - 2012 New Product & Energy Show, 2012 Golf Outing, and 2012 CRC & Gala
Lead by Darcy Carbone, the Boston Chapter officers have been discussing the pricing for various events that will occur in 2012. The discussions have included potential package-pricing for multiple events.

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President Award of Excellence

Boston Chapter - 2011 - 2012

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<thead>
<tr>
<th>Chapter Members</th>
<th>Membership Promotion Points</th>
<th>Student Activities Points</th>
<th>Research Promotion Points</th>
<th>History Points</th>
<th>Chapter Organization Points</th>
<th>Chapter Technology Transfer Points</th>
<th>Chapter PAOE Point Totals</th>
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ASHRAE BOSTON
UPCOMING EVENTS
Visit www.ashraeboston.org/index.html for more information.

DOAS-Design and Field Experiences
When: November 8, 2011
Where: Embassy Suites, Waltham
FMI: www.ashraeboston.org/index.html

2012 ASHRAE Winter Conference
When: January 21~25, 2012
Where: Palmer House Hilton, Chicago
FMI: www.ashrae.org/events/page/hicago2012#register

Sustainable Performance Institute
UPCOMING EVENTS
Visit 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

USGBC MASSACHUSETTS CHAPTER
UPCOMING EVENTS
Visit www.usgbcma.org for more information.

IFMA BOSTON CHAPTER
UPCOMING EVENTS
Visit http://www.ifmaboston.org/events.html for more information.

AEE NEW ENGLAND CHAPTER
UPCOMING EVENTS

IBPSA BOSTON CHAPTER
UPCOMING EVENTS

Webmaster’s Notes
By Steve Rosen

The ASHRAE Boston website 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 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!
Integrated Design approach for construction is becoming this wave that we need to learn to ride. The process requires everyone involved in the planning, use, construction; operation and maintenance of the facility to be part of the process (don’t forget the finance arm). My first design Charrette almost 8 years ago attempted to do just that and everyone had an opinion. I learned that the facilitator, ideally the commissioning agent, had to set the ground rules. The process had to value every opinion and every viewpoint. This requires the team to pick partners early from general contractors to building controls. This process is difficult but it assures the building will be designed with a clear definition of what the end result should be.

Sustainability as I stated last month is an old process, it is common sense! We cannot forget what our forefathers have taught us “Thinking with the end in mind”. This is a simple concept, but one that is forgotten in many cases. When a design team takes the time to do life cycle costing and designing the facility and it’s systems to meet the objectives of the end user that is sustainability. Sustainability can costs more to design a facility but it also costs less to build because the end result is clearly defined and construction changes tend t be drastically reduced.

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

Association of Energy Engineers – New England Chapter

What: Energy Efficiency Program Trends & Tax Incentives Seminar
Where: Embassy Suites Hotel (formerly DoubleTree Hotel)
50 Winter St
Waltham, MA
Exit 27B off Route 128 (I-95)
When: October 5, 2011
Contact: Nicole Price (508) 375-6886, nprice@capelightcompact.org

Contact: Jeff Schultz at jhs@brplusa.com
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 your information (especially email address!) please take a minute 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 wkt@brplusa.com.
Boston Chapter ASHRAE will be holding Region I Chapters’ Regional Conference (CRC) August 2012 which is also the chapters 100th anniversary. We are looking for volunteers to be on the Host Committee to help plan many of the events that will occur during the conference especially our 100th year anniversary Gala!!!!

Please contact Darcy Carbone – CRC General Chair dcarbone@stebbinsduffy.com or Bob Persechini- CRC Co-Chair Rpersechini@RDKengineers.com

More information will be made available soon.

**Boston Chapter ASHRAE Started February 8, 1912**

Originally the Boston Chapter was the Massachusetts Chapter.

**The Name**

1894-1954 -- American Society of Heating and Ventilating Engineers (ASHVE) and chartered the Massachusetts Chapter February 8, 1912.

1954-1962 -- American Society of Heating and Air Conditioning Engineers (ASHAE)

1905-1962 -- American Society of Refrigerating Engineers (ASRE). Formed in 1905 and chartered the Boston chapter December 4, 1929.

1959 -- Society name ASHRAE is known since January 1959 when ASRE and ASHAE society predecessors merged.

1959-Present -- American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE)

**Early History**

Quote directly (including punctuation, capitalization, and spelling) from the 1912 ASHRAE Transactions, Proceedings of the Semi-Annual Meeting, "Report of Massachusetts Chapter", p. 326:

"The first meeting of the Massachusetts Chapter was held at the office of the Society at the Engineering Societies’ Building, New York City. H. W. Whitten was elected temporary President, and D.S. Boyden, temporary Secretary. A committee on constitution and by-laws, of which Wm. G. Snow was chairman, and on nomination of officers, of which A.B. Franklin was chairman, were appointed.

"The second meeting was held February 8, at office of Cooper & Bailey, 89 Franklin street, Boston. The following officers were elected:

'President, Wm. G. Snow.

"Vice-President, Frank Irving Cooper.

"Secretary, Herbert W. Whitten.

"Treasurer, Wm. T. Smallman.


"Mr. Snow reported a constitution and by-laws which were adopted, subject to the action of the Board of Governors of the parent body."

**Other items to note**

The first elected president William G. Snow had been national president of the society in 1909.

Boston has hosted Society events the first was in 1925 and took place jointly in New York and Boston and they commuted by train:

<table>
<thead>
<tr>
<th>Year</th>
<th>Event Type</th>
<th>Dates</th>
</tr>
</thead>
<tbody>
<tr>
<td>1925</td>
<td>ASHRAE Annual</td>
<td>January 27-30</td>
</tr>
<tr>
<td>1932</td>
<td>ASHRAE Semi-Annual</td>
<td>June 9-11</td>
</tr>
<tr>
<td>1945</td>
<td>ASHRAE 51st Annual</td>
<td>November 25-28</td>
</tr>
<tr>
<td>1956</td>
<td>ASHRAE Semi-Annual</td>
<td>June 9-11</td>
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<tr>
<td>1975</td>
<td>ASHRAE Annual</td>
<td>June 22-26</td>
</tr>
<tr>
<td>1997</td>
<td>ASHRAE Annual</td>
<td>June 28-July 2</td>
</tr>
</tbody>
</table>
Shirts ordered can be picked up at monthly meetings or mailed out for an additional $2.50 per shirt.

Make checks payable to A.S.H.R.A.E Boston Chapter

Mail to:
Bob Persechini
RDK Engineers
70 Fargo Street, Suite 800
Boston, MA 02210

Enclosed is check for $______ for quantity _______ x $35.00  Short Sleeve Polo shirts to be picked up
$$______ for quantity _______ x $37.50  Short Sleeve Polo shirts to be mailed
$$______ for quantity _______ x $40.00  Long Sleeve Polo shirts to be picked up
$$______ for quantity _______ x $42.50  Long Sleeve Polo shirts to be mailed
Total $ _____________

Name: ____________________________  Address: _________________________________________
Phone:________________  Fax:___________________  E-mail:______________________

Shirt color:  □ Navy  □ Columbia Blue
Shirt sizes:  Men/Quantity:  S___  M___  L___  XL ___  XXL ___  XXXL___
            Women/Quantity:  S___  M___  L___  XL ___  XXL ___  XXXL___
Obtain the skills needed to:

- Improve overall building performance
- Design high-performance HVAC systems
- Effectively collaborate on an integrated design team

ASHRAE has created the HVAC Design Essentials to provide intensive, practical education for designers and others involved in delivery of HVAC services. Developed by industry-leading professionals, this workshop provides participants with training design to accelerate their evolution into effective member on a design, construction or facilities maintenance team.

In addition to gaining in-depth knowledge and understanding, attendees will receive real-world examples of HVAC systems based on the newly renovated ASHRAE Headquarters building. The workshop teaches a systematic approach to guide a design team to a solution that optimally meets the client’s expectations.

Who Should Attend

- Engineers new to the HVAC industry
- Facilities managers involved in new construction or major renovation projects
- Technicians who would like to gain design knowledge
- Architects who want to understand HVAC design
- Construction project managers involved with mechanical systems

Visit www.ashrae.org/hvacdesign to register
You are invited to the ASPE Boston Chapter's 20th Anniversary Biennial Product Show

When: Tuesday, November 8, 2011
Where: The Lantana – Randolph, MA

- Nearly 100 Vendor booths including many New Exhibitors this year;
- Thousands of Plumbing and Fire Suppression Products on display;
- Special emphasis on NEW and GREEN products;
- Technical Seminars—with Industry Renowned and Respected Guest Speakers;
  - Domestic Hot Water Seminar - All Day seminar
  - Rainwater Containment and Re-Use Seminar - All Day seminar
  - NFPA Updates & Changes Seminar – 1 hour
  - Seismic Design Seminar – 1 hour
  - NFPA 99 2012 Updates Seminar – 1 hour
  - LEED Points Calculations Seminar – 1 hour
  - Mass Plumbing Code Updates Seminar – 1 hour
  - Energy Rebates Seminar – 1 hour
- CEU Credits available for all seminar attendees
- Anniversary Give-a-ways for all Product Show attendees
- Raffle Prizes and Special 20th Biennial Show GRAND PRIZE
- Ample Free Parking
- Register today at http://www.aspebostonchapter.org

Any questions please contact either:

Paul Taylor at ptaylor@ber-engineering.com
Nancy Bonnetti at nbonnetti@quanteng.com
SOCIETY NEWS

New Cool Tool from ASHRAE – Helps Predict Consistent Thermal Comfort

ATLANTA – An updated tool from ASHRAE provides a user-friendly interface to predict thermal comfort, based on the Society’s standard for thermal environmental conditions.

ASHRAE Thermal Comfort Tool, Version 2, maintains consistency with ANSI/ASHRAE Standard 55-2010, Thermal Environmental Conditions for Human Occupancy. The standard specifies the combinations of indoor thermal environmental factors and personal factors that will produce thermal environmental conditions acceptable to a majority of the occupants within the space. The tool makes thermal comfort predictions using several existing thermal comfort models, including the Adaptive and Predicted Mean Vote (PMV) models. Inclusion of these models can potentially improve occupant comfort by allowing engineers to more easily fine tune their comfort analysis to the particular needs of the occupants in the building.

“The software allows you to calculate the predicted thermal comfort for a human at a point in space,” Bill Fleming, volunteer chair of ASHRAE’s Publications Committee, said. “All you need to do a comfort analysis is some basic information about the thermal environment you want to model and a few things about the person you want to put in that environment.”

The cost of the ASHRAE Thermal Comfort Tool is $117 ($99, 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.

ASHRAE Introduces New Liquid Cooled Datacom Environmental Classes

ATLANTA – A new whitepaper that serves as the first vendor neutral thermal guideline for liquid cooled data processing environments is available for free download from ASHRAE.

“2011 Thermal Guidelines for Liquid Cooled Data Processing Environments” creates data center classes for liquid cooling that can enable fulltime economizers for a number of applications in many climates, according to Don Beaty, chair of the Publications Subcommittee of ASHRAE’s Technical Committee (TC) 9.9, Mission Critical Facilities, Technology Spaces and Electronic Equipment.


The increasing heat density of modern electronics is stretching the ability of air to adequately cool the electronic components within servers as well as the data center facilities that house these servers. To meet this challenge, the use of direct water or refrigerant cooling at the rack or board level is now being deployed. This trend of increasing heat densities combined with the interest in energy and waste heat recovery created the need for liquid cooling guidelines to help bridge the gap between IT equipment design and data center facility design, according to Beaty.

Five liquid cooling classes have been created:

- W1 – Facility Water Supply Temperature of 2 to 17 C
- W2 – Facility Water Supply Temperature of 2 to 27 C
- W3 – Facility Water Supply Temperature of 2 to 32 C
- W4 – Facility Water Supply Temperature of 2 to 45 C
- W5 – Facility Water Supply Temperature of > 45 C

In addition to the classes, the whitepaper provides insight into other considerations for liquid cooling including condensation, operation, water flow rates, pressure, velocity and quality as well as information on interface connections and infrastructure heat rejection devices.

This whitepaper follows an earlier whitepaper released in May 2011, “2011 Thermal Guidelines for Data Processing Environments – Expanded Data Center Classes and Usage Guidance,” which addresses air cooling in data centers and created new data center environmental classes which expanded the opportunity for chiller-less data centers (fulltime economizers).
# Boston ASHRAE 2011 - 2012 Meeting Schedule

<table>
<thead>
<tr>
<th>Date</th>
<th>Main Program</th>
<th>Speaker</th>
<th>PDH Credits</th>
<th>Meeting Manager</th>
<th>Location</th>
</tr>
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<tbody>
<tr>
<td><strong>September</strong></td>
<td>New England Aquarium IMAX Virtual Tour</td>
<td>NA</td>
<td>Steve Nicholas</td>
<td><a href="mailto:snicholas@airinds.com">snicholas@airinds.com</a></td>
<td>N.E Aquarium</td>
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<tr>
<td>Thursday,</td>
<td>AFE joint Meeting</td>
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<td>September 22,</td>
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<td><strong>October</strong></td>
<td>It is time for Third Party TAB</td>
<td>Howie McKew</td>
<td>TBD</td>
<td>Darcy Carbone</td>
<td>Embassy Suites, Waltham</td>
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<td>Tuesday,</td>
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<td>October 11,</td>
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<tr>
<td><strong>November</strong></td>
<td>Dedicated Outdoor Air Systems - Design and Field Experiences</td>
<td>Stanley Mamma, PHD</td>
<td>TBD</td>
<td>John Morrill</td>
<td>Embassy Suites, Waltham</td>
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<td>Tuesday,</td>
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<td>November 8,</td>
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<td><strong>December</strong></td>
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<td>Embassy Suites, Waltham</td>
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<td>December 13,</td>
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<td><strong>January</strong></td>
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<tr>
<td>January 10,</td>
<td>Membership Night/YEA</td>
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<tr>
<td><strong>February</strong></td>
<td>Lessons Learned</td>
<td>TBD</td>
<td>Steve Tafone</td>
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<td>Embassy Suites, Waltham</td>
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<td>Tuesday</td>
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<td>February 7,</td>
<td>Past President’s Night/ YEA Night</td>
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<tr>
<td><strong>March</strong></td>
<td>Energy Modeling Case Studies</td>
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<td>Teri Shannon</td>
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<td>March 13,</td>
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<td><strong>April</strong></td>
<td>2012 – 2012 New Product &amp; Energy Show</td>
<td>NA</td>
<td>Jeff Schultz</td>
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<td>Lantana Randolph</td>
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<td>April 10,</td>
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<tr>
<td><strong>May</strong></td>
<td>Installation Of Officers</td>
<td>NA</td>
<td>Steve Nicholas</td>
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<td>Tuesday</td>
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<td>May 8,</td>
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<tr>
<td><strong>June</strong></td>
<td>Golf Outing</td>
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<td>NA</td>
<td>Bill Garvey</td>
<td>Halifax Country Clubs</td>
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<tr>
<td>Monday</td>
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<tr>
<td>June 4,</td>
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<td><a href="mailto:wgarv@aol.com">wgarv@aol.com</a></td>
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</table>
### 2011 - 2012

**BOSTON CHAPTER OFFICERS, BOARD OF GOVERNORS & CHAIRPERSONS**

#### OFFICERS

<table>
<thead>
<tr>
<th>Position</th>
<th>Name</th>
<th>Company/Institution</th>
<th>Phone</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>President</td>
<td>Patrick Duffy</td>
<td>VAV International, INC</td>
<td>781-935-7228</td>
<td><a href="mailto:pduffy@vavint.com">pduffy@vavint.com</a></td>
</tr>
<tr>
<td>President-Elect</td>
<td>Stephen Nicholas</td>
<td>Air Industries</td>
<td>978-682-9993</td>
<td><a href="mailto:snicholas@airinds.com">snicholas@airinds.com</a></td>
</tr>
<tr>
<td>Vice President</td>
<td>Teri Shannon</td>
<td>DAC</td>
<td>207-985-0873</td>
<td><a href="mailto:tshannon@dac-hvac.com">tshannon@dac-hvac.com</a></td>
</tr>
<tr>
<td>Secretary</td>
<td>Daniel Diorio</td>
<td>Boston College</td>
<td>617-552-8772</td>
<td><a href="mailto:diorioda@bc.edu">diorioda@bc.edu</a></td>
</tr>
<tr>
<td>Treasurer</td>
<td>William Garvey</td>
<td>WSP Flack+Kurtz</td>
<td>781-910-9576</td>
<td><a href="mailto:wgarv@aol.com">wgarv@aol.com</a></td>
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#### BOARD OF GOVERNORS

<table>
<thead>
<tr>
<th>Year</th>
<th>Name</th>
<th>Company/Institution</th>
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<th>Email</th>
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<tbody>
<tr>
<td>2010 - 2013</td>
<td>Dan Denisi</td>
<td>BR+A</td>
<td>617-254-0016 (395)</td>
<td><a href="mailto:dcd@brplusa.com">dcd@brplusa.com</a></td>
</tr>
<tr>
<td></td>
<td>Stacie Suh</td>
<td>Stebbins Duffy</td>
<td>781-258-1002</td>
<td><a href="mailto:Stacie@stebbinsduffy.com">Stacie@stebbinsduffy.com</a></td>
</tr>
<tr>
<td></td>
<td>Bryan Hermanny</td>
<td>BR+A</td>
<td>617-925-8295</td>
<td><a href="mailto:bmh@brplusa.com">bmh@brplusa.com</a></td>
</tr>
<tr>
<td>2009 - 2012</td>
<td>Daniel Diorio</td>
<td>Boston College</td>
<td>617-552-8772</td>
<td><a href="mailto:diorioda@bc.edu">diorioda@bc.edu</a></td>
</tr>
<tr>
<td></td>
<td>Jeffrey H. Schultz</td>
<td>BR+A</td>
<td>617-925-8242</td>
<td><a href="mailto:jhs@brplusa.com">jhs@brplusa.com</a></td>
</tr>
<tr>
<td></td>
<td>Teri Shannon</td>
<td>DAC</td>
<td>207-985-0873</td>
<td><a href="mailto:tshannon@dac-hvac.com">tshannon@dac-hvac.com</a></td>
</tr>
<tr>
<td></td>
<td>Steven Rosen</td>
<td>EYP</td>
<td>617-305-9865</td>
<td><a href="mailto:srosen@eypae.com">srosen@eypae.com</a></td>
</tr>
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#### COMMITTEES

<table>
<thead>
<tr>
<th>Committee</th>
<th>Chair</th>
<th>Company/Institution</th>
<th>Phone</th>
<th>Email</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attendance</td>
<td>William Tang</td>
<td>BR+A</td>
<td>(617) 254-0016</td>
<td><a href="mailto:wkt@brplusa.com">wkt@brplusa.com</a></td>
</tr>
<tr>
<td>Chapter Program</td>
<td>Patrick Duffy</td>
<td>VAV International, INC</td>
<td>781-935-7228</td>
<td><a href="mailto:pduffy@vavint.com">pduffy@vavint.com</a></td>
</tr>
<tr>
<td>Chapter Technology Transfer</td>
<td>Paul Hanbury, UMass Medical School</td>
<td>781-246-0840</td>
<td><a href="mailto:paul.hanbury@umassmed.edu">paul.hanbury@umassmed.edu</a></td>
<td></td>
</tr>
<tr>
<td>CRC Alternate</td>
<td>Stephen Nicholas</td>
<td>Air Industries</td>
<td>978-682-9993</td>
<td><a href="mailto:snicholas@airinds.com">snicholas@airinds.com</a></td>
</tr>
<tr>
<td>CRC Delegate</td>
<td>Patrick Duffy</td>
<td>VAV International, INC</td>
<td>781-935-7228</td>
<td><a href="mailto:pduffy@vavint.com">pduffy@vavint.com</a></td>
</tr>
<tr>
<td>CRC 2012 Chair</td>
<td>Darcy Carbone</td>
<td>Stebbins Duffy</td>
<td>617-957-2567</td>
<td><a href="mailto:dcarbone@stebbinsduffy.com">dcarbone@stebbinsduffy.com</a></td>
</tr>
<tr>
<td>CRC 2012 CO-Chair</td>
<td>William Garvey</td>
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