ASHRAE Philadelphia Chapter

QUAKER CITY CLIMATE

November 2012
Volume 48, Issue 3

INSIDE THIS ISSUE:

COSTS

Fees are based on online reservations and prepayment.

Philadelphia Chapter Members:
$30

ASHRAE Members -
Non-Chapter Members:
$40

Non- ASHRAE Member:
$40

Young Engineers (35 & under):
$25

Students:
$10

SEMINAR COST:
$95

Thursday, November 8, 2012

TODD L. RINDLISBAKER, PE, QCxP, HBDP, LEED® AP, CDP

President

Rindlisbaker Commissioning, Inc.

1:30 PM to 4:30 PM Seminar

"Who Sabotaged My High-Performance Building?"

Click here to Register for the Seminar
Certificates of Attendance will be available.

5:00 PM to 6:00 PM	Social Hour/Cash Bar
6:00 PM to 7:00 PM	Dinner
7:00 PM to 8:00 PM	Presentation

"Design Engineers Working with a Commissioning Agent"

Click here to Register for the Dinner/Presentation

This is Research Promotion Night.

LOCATION

Holiday Inn Historic District
400 Arch Street
Philadelphia, PA 19106
215-923-8660

Please note that the Holiday Inn no longer provides free parking in the attached parking garage. Nearby parking can be found using the Parking Authority's online locator service at http://philapark.org/locator/.

For Directions: click here

YEA Fall Social

Thursday, November 15, 2012

See page 3 for details!

2012- 2013

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PRESIDENT'S MESSAGE

I hope everyone had an enjoyable time at SMCA's Engineers' Night last month. I would like to send a special thank you to SMCA for once again hosting an excellent event. This month we return to our regular chapter meeting schedule with our first double header of the year and our first ASHRAE distinguished lecturer of the year. Please see page 1 for more information on the afternoon seminar and dinner meeting.

This month's meeting is also our annual donor recognition night. Regional Vice Chair for Research Promotion, Sherry Abbott-Adkins, will be in attendance as our Chapter Research Promotion Chair, Gary Debes, recognizes our corporate sponsors. To go along with the theme of research promotion, members of Drexel University's Building Science & Engineering Group will also be in attendance to gather survey data on energy-efficient building retrofits. A laptop will be set up at the check-in table if you would like to participate in the survey which is part of the Energy Efficient Buildings Hub (EEB Hub) project headquartered at the Philadelphia Naval Yard. There is also a link later in this newsletter if you would prefer to take the survey on your own time. Our afternoon seminar in February will feature members of the EEB Hub discussing building energy benchmarking. In the mean time I encourage everyone to head over to www.eebhub.org for the latest information.

I hope to see everyone at the Holiday Inn on November 8th.

Jim Piscopo
Philadelphia Chapter President
c021@ashrae.net

It's not too late!

ASHRAE Philadelphia Corporate Sponsorships Available

The Philadelphia Chapter invites your company to join as a Corporate Sponsor for the 2012-2013 year. Your firm's participation in this program would enable us to make a wonderful donation to ASHRAE Research Promotion which includes over $ 1.5 million in local research funding.

Corporate Sponsors are listed on our web site, in our newsletter, and in our annual directory. They receive free copies of our directory and recognition at all of our events. With the ease of one payment, you may get all this, as well as free dinner tickets good for our monthly meetings, and make a valuable contribution to ASHRAE Research at the same time.

Since not all companies have the same financial capabilities or quantity of employees, we offer a few different levels of corporate sponsorship. Each level will receive the same types of benefits, with some differences in quantities and discounting.

We hope you will decide to join us as a Corporate Sponsor. If you are interested, please email us at philachapter@mail.ashrae.org.

The Board of Governors thanks you for your continued support of ASHRAE. We hope that this year is successful for your firm.

November Speaker Bio

TODD L. RINDLISBAKER, P.E., QCxP, HBDP, LEED® AP, CDP

President of Rindlisbaker Commissioning, Inc.
Salt Lake City, Utah

Todd L Rindlisbaker, Vice President of Total Building Commissioning, Inc. is a principal commissioning authority. He is currently serving on the Utah ASHRAE Chapter Board of Governors and as the ASHRAE liaison to the Utah Engineers Council. He received his degree in Mechanical Engineering from Utah State University 1993, and is a registered professional engineer in 2 states. He is a member of the Board of Directors and treasurer for the Southwest chapter of the Building Commissioning Association. He also serves on the Building Commissioning Association's Best Practices for Commissioning of New Buildings.

Todd has worked in as a mechanical HVAC and Plumbing design engineer specializing in large hydronic systems, central plants and building management control systems. He was worked for over 5 years commissioning new and existing buildings. He consults with building owners, design teams, and contractors to build sustainable, energy efficient, functional buildings that cost less to build and operate so they attract more business, make more profits and have buildings that will last a lifetime.

He has been training owners, contractors, design professionals, and other commissioning authorities in various sustainable design topics such as LEED building rating systems, the Integrated Project Delivery Process, and Commissioning Practices. He has lectured at the Salt Lake City Sustainable Building Conference, Western conference of the National Association of State Facility Administrators, Rocky Mountain APPA conference, Salt Lake City Engineering, University of Utah Facility Managers, Utah ASHRAE chapter and many private organizations. Todd has been honing his presentation skills for many years as an Associate member of the Rocky Mountain Chapter of the National Speakers Association.

Mr. Rindlisbaker is a member of the Utah Engineer's Council (UEC), the American Society of Heating, Refrigeration, and Air-Conditioning Engineers (ASHRAE), U.S. Green Build Council (USGBC), the Building Commissioning Association (BCA) and the American Society of Plumbing Engineers (ASPE). His is a recipient of the 2007 Valley Forward Award of Merit for Buildings and Structures-Industrial and Public Works—East Valley Bus Operations and Maintenance Facility, Tempe, AZ (provided commissioning), the Intermountain Electrical Association Electrical Industry Best Projects 2007 Award for Renovations/Restorations—Utah State Capitol Restoration and Seismic Upgrade, Salt Lake City, UT, and the 2008 ACEC-UT Engineering Excellence Grand Award – Utah State Capital Restoration and Seismic Upgrade, Salt Lake

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YEA Bowling Night

Sponsored by Del-Ren Associates, Inc.

The YEA Fall Social will take place at Lucky Strike Lanes in Center City Philadelphia on Thursday, November 15, 2012 from 6 PM to 9 PM. The bowling alley is located at 1336 Chestnut Street, Philadelphia, PA 19107. Pizza and appetizers will be provided.

If you are 35 years old or under, please join us!

Please contact Jeffrey Pisarek at c021yea@ashrae.net if you did not receive the CVENT email invite and would like to receive it or have any questions!

Presentation Summaries — November 8, 2012

"Who Sabotaged My High-Performance Building" - Afternoon Seminar

There are many items that show up again and again in design and construction practices that guarantee low performance, waste energy, and drive occupants crazy. This presentation covers: It's in the details! - 10 drawing details that make the difference between a functioning system and a non-functioning system. The "key" design items that will save 20-30% energy above the insulation and high efficiency equipment, OR waste up to 50% if they are missed! The "Key" coordination items that are missed and result in costly change orders are discussed. Two items to include in the project that will make you a hero with the building operating staff are also discussed.

"Design Engineers Working with a Commissioning Agent" - Dinner

This talk explains how the ASHRAE Guideline 0 and 1.1 commissioning processes apply to design engineers and how to utilize the commissioning agent's services to reduce the design engineer's work and increase profits. It also provides the information and services that the commissioning agent should provide that will assist the design engineer during design, construction, and warrantee periods. Then how to integrate the commissioning process into the contract documents so it is not an additional "add-on" service, but an integrated quality control process. Also, how to apply the commissioning process to LEED Projects is discussed.

Do you have experience with energy-efficient building retrofits? Take this Drexel University survey and receive a $20 gift card.

As part of its research on building retrofits, the Building Science & Engineering Group at Drexel University has developed a 20-minute online survey for "stakeholders" involved in the energy-efficient building retrofit process (i.e., building owners, project managers, architects, engineers, vendors, consultants, facilities/property managers, building operators, etc.).

The only eligibility requirement is that *respondents must have some experience with a building energy retrofit in a non-residential setting* – so that they can answer questions from a commercial/institutional building owner's point of view. All respondents who successfully complete the survey will receive a $20 gift card to Starbucks, Amazon, or Target.

To access the online survey, send an email to mah364@drexel.edu or visit:

http://tinyurl.com/drexel-retrofit-survey

Drexel University Building Science & Engineering Group

http://bseg.cae.drexel.edu/

PHILADELPHIA CHAPTER PROGRAMS CALENDAR 2012-2013

Date	Location	Topic	Theme
11/8/12	Holiday Inn Historic District	Afternoon Seminar: Who Sabotaged My High Performance Building	
		Dinner Meeting: Design Engineers Working with a Commissioning Agent	Research Promotion Night
12/13/12	Union League	Variable Frequency Drive Application for HVAC Presented by Michael McGovern of Schneider Electric Global Product Design Team	Breakfast Meeting
1/23/13	Wells Fargo Center	Night at the Flyers	
2/13/13	Dave & Buster's	Afternoon Seminar: Benchmarking presented by Energy Efficient Buildings Hub	
		Dinner Meeting: Future of Refrigerants	Student/ YEA Night
March	Fisher's Tudor House	Methods of Effective Room Air Distribution Presented by Dan Int-Hout of Krueger	Trade Show
4/11/13	Holiday Inn Historic District	Afternoon Seminar: Moisture Problems in Buildings	
		Dinner Meeting: Geothermal Heating and Cooling Systems Fail on Two Commercial Projects	Membership Promotion Night
April 29	Northampton Valley Country Club	Golf Outing	
May	Holiday Inn	Fire & Life Safety	Past Presidents' Night

Program calendar is subject to change. Please refer to ASHRAE Philadelphia Website for up to date information.

Future City Philadelphia

Greetings from Future City Philadelphia! The school year is off to a great start. So far teams from 38 area schools have signed up and have started designing their cities of the future. Here is the current list of schools that need mentors:

Coventry Christian School	Pottstown, PA
Easton Area Middle School	Easton, PA
Education is the Key Learning Center	Philadelphia (North Broad)
Grover Washington	Philadelphia (Olney)
Mayfair Elementary	Philadelphia (Mayfair)
St. Catherine of Siena School	Reading, PA
St. Francis de Sales School	Philadelphia (Queen Village)
St. Helena/Incarnation Regional School	Philadelphia (Oak Lane)
St. Mark Catholic School	Bristol, PA
St. Thomas the Apostle	Glen Mills, PA
Springfield Twp Middle School	Oreland, PA

Our greatest need at this stage of the competition is for mentors. Remember back to when you were in school – imagine how much having a mentor with real world experience would have helped you design that big project. This is what you can provide to these teams. Just a few hours a month can make a big difference in how students approach their project and how they start to address it. Please let me know if you are interested in working with any of the schools above and I will get you in touch with the team's teacher. If you'd like to be a mentor but don't see a school in your area, send me an e-mail and I'll keep you posted as schools register.

Please visit our website at www.futurecityphilly.org and click on On-Line Volunteer Form. There you can register to be a mentor, judge, or general volunteer. You can also check out the complete list of registered schools if you click on Schools Registered (near the bottom of the page). Sign up now and put Saturday, January 26, 2013 on your calendar!

Any questions please contact me via e-mail or phone. Please feel free to forward this e-mail to your friends, co-workers, and technical society members.

Thanks.

Jennifer
Philadelphia Regional Volunteer Coordinator
Director, Design & Construction
University of Pennsylvania
Facilities and Real Estate Services
Office: 215-573-3935
Mobile: 215-768-6164
jwetzel@upenn.edu

This article was submitted by Steve Solotist of Del-Ren Associates.
Please submit articles highlighting novel HVAC technologies to Chapter Technology Transfer Committee Chair Eric Zanolini (c021cttc@ashrae.net) for consideration in future newsletters.

ACTIVE BEAMS SELECTION CRITERIA

Transfer Efficiency

Julian Rimmer, P. Eng., LEED AP
Senior Product Manager, Sustainable Technologies,
Price Industries

In an active beam system, the performance of the beams has a significant impact on the overall system efficiency and occupant comfort. Since beams combine hydronic cooling and an air outlet, beams require the engineer to balance many relevant beam characteristics:

1. **Capacity**
2. **Configuration**
3. **Size (cost)**
4. **Quantity (cost)**
5. **Pressure drop (air and water)**
6. **Flow rate (air and water)**
7. **Primary air dry-bulb temperature**
8. **Primary air wet-bulb temperature**
9. **Chilled water supply temperature**
10. **Air pattern / throw**
11. **Noise**

The importance of all of these factors varies from job to job. Capacity and cost, for example, are always relevant and do necessarily influence the system design. One easy way to increase the capacity of the beam is to increase the primary air volume supplied to the beam. This has a two fold effect: first, it increases the cooling capacity of the supply air due to increased volume. Secondly, this increased air volume will induce more room air through the coil, increasing its heat in/output. The induction ratio, defined as the ratio of the induced mass air flow to that of the primary air coil, is a function of the nozzle size and the plenum pressure and is determined with the following equation:

$$induction\ ratio = \frac{Q_{induced\ air}}{Q_{primary\ air}}$$

Where the design must use caution, is in using this path for capacity increase too liberally. An increase in beam air flow also affects all other performance factors, most notably:

1. **Pressure drop (air)**
2. **Air pattern / throw**
3. **Noise**

Furthermore, it increases the percentage of the beam's performance that is attributed to the air system. This can cause control issues due to the number of annual hours that zones operate under part load. Considering that active beam systems are typically constant volume, this can pose a considerable risk of overcooling zones. A good measure for the overall performance of an active beam is known as the transfer efficiency, which is the ratio of total heat transferred by the coil per unit volume of primary air:

$$\eta = \frac{q_{sensible}}{Q_{primary\ air}}$$

Typical values for transfer efficiency vary by application type, but in general, the higher the efficiency, the more energy savings are available for a given system. The transfer efficiency is largely dependent on the air-side load fraction, the minimum ventilation requirement as a percentage of total load, and the sensible heat ratio, the sensible load as a percentage of the total load. The higher the sensible heat ratio, the smaller the beam nozzle can be. This metric allows the designer to evaluate how much coil capacity is available for a given primary air volume, thereby empowering them to make decisions on how much primary air is appropriate for the application.

(continued on next page)

In general, the selection of smaller nozzles results in higher plenum pressures for a fixed primary air flow rate. Larger nozzles will have a lower induction ratio, but will allow more primary air to be supplied, though at a lower transfer efficiency, as shown in **Figure 1.**

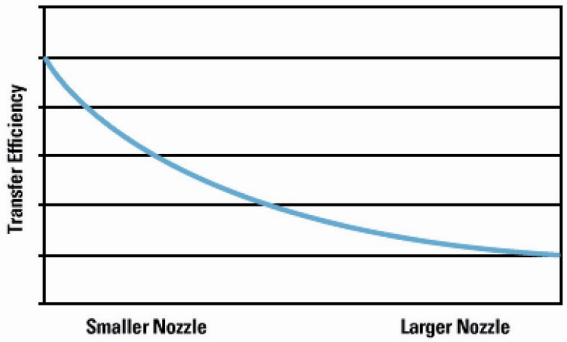


Figure 1: Transfer efficiency is reduced by increasing nozzle size.

Figure 2 shows the water-side performance of a typical beam vs. air flow. The curves correspond with various nozzle sizes increasing in diameter from left to right. The length of each curve is defined by standard operating pressures. It is noted from the graphs that the capacity of the beam increases as more air is supplied, though not in a linear fashion. Due to the amount of information provided, this chart is useful when selecting beams.

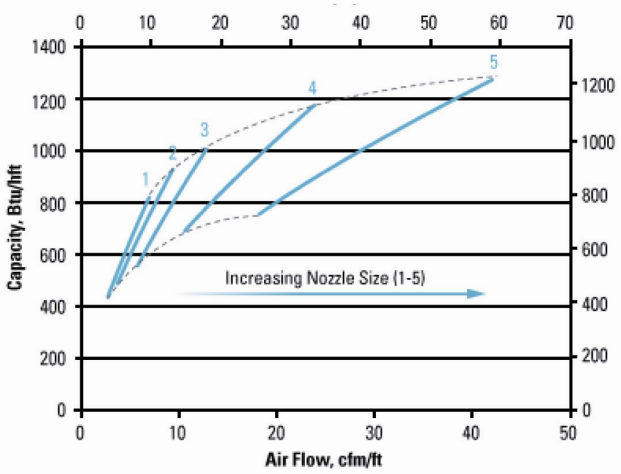


Figure 2: Capacity of a typical active beam v. primary air flow according to nozzle size.

Another way to show the same information is with the curves below. This graph shows how the increase in capacity is dependent on the air volume. As the nozzle size increases to provide a five-fold (500%) increase in air volume, only a 175% increase in the water-side capacity is realized, while the transfer efficiency reduces by 65%.

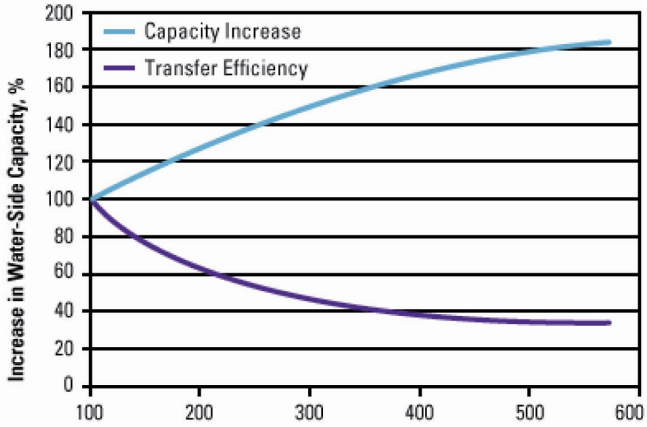


Figure 3: Capacity vs. air volume.

With the overall efficiency driven by the beam selection, it is critical that the beam meet the design intent of the job. An increase in the primary air volume will increase the capacity of the beam, to the detriment of the beam efficiency. While this may reduce the cost of the beam by reducing the length, so long as there is no penalty in draft, it will add to the cost of the primary air unit. The cost of the beam tends to be ~$5-$10 Btu/h, whereas the cost of an air handler can range from $2.5-$7 Btu/h, ignoring the cost of additional ductwork and large distribution equipment. This indicates that reducing the length of the beam may not achieve the cost savings sought.

In addition, this type of cost reduction approach can come at the cost of occupant comfort. By increasing the primary air volume, the overall discharge air from the beam is increased according to the induction ratio. For example, if the primary air volume is increased by 10 cfm and the induction ratio is 4:1, the actual increase in air volume from the beam is 50 cfm. If the length of the beam is reduced due to the increase in capacity, this additional air volume is discharged from a smaller slot length, increasing the throw and risk of draft, as well as noise levels.

In the end, selection of active beams by meeting the design requirements and the highest transfer efficiency possible under those conditions, as well as considering draft, will ensure that the design will be as efficient, comfortable and cost effective as possible.

For all chapter member planning to attend the winter meeting in Dallas, see the listing of seminars and courses available. Registration can be done on the internet or by calling the numbers listed.

ASHRAE Learning Institute

Seminars & Courses at ASHRAE's Winter Conference and AHR Expo in Dallas, TX

2 WAYS TO REGISTER

Internet: www.ashrae.org/dallascourses

Phone: Call toll-free at 1-800-527-4723 (US and Canada) or 404-636-8400 (worldwide)

Full Day Professional Development Seminar

$485/$395 ASHRAE Member -- Earn 6 PDH/.6 CEU or 6 AIA LU credits

CEU/PDH Credits Available!

The Commissioning Process in New & Existing Buildings
Saturday, Jan 26 – 8:00 a.m. to 3:00 p.m.

Data Center Energy Efficiency
Saturday, Jan 26 – 8:00 a.m. to 3:00 p.m.

Healthcare Facilities: Best Practice Design & Applications
Saturday, Jan 26– 8:00 a.m. to 3:00 p.m.

Complying with Standard 90.1-2010
Tuesday, Jan 29 – 9:00 a.m. to 4:00 p.m.

Energy Modeling Best Practices and Applications: HVAC/Thermal
Tuesday, Jan 29 – 9:00 a.m. to 4:00 p.m.

Half Day Short Courses

$159/$119 ASHRAE Member -- Earn 3 PDH/.3 CEU or 3 AIA LU credits

Air-to-Air Energy Recovery Fundamentals
Sunday, Jan 27 – 2:00 p.m. to 5:00 p.m.

Humidity Control: Applications, Control Levels and Mold Avoidance
Sunday, Jan 27 – 2:00 p.m. to 5:00 p.m.

Air-to-Air Energy Recovery Applications: Best Practices NEW
Monday, Jan 28 – 8:30 a.m. to 11:30 a.m.

Application of Standard 62.1-2010: Multiple Spaces Equations & Spreadsheet
Monday, Jan 28 – 8:30 a.m. to 11:30 a.m.

Combined Heat & Power: Design through Operations NEW
Monday, Jan 28 – 8:30 a.m. to 11:30 a.m.

Understanding Standard 189.1-2011 for High-Performance Green Buildings
Monday, Jan 28 – 2:45 p.m. to 5:45 p.m.

Introduction to Ultraviolet Germicidal Irradiation (UVGI) Systems NEW
Monday, Jan 28 – 2:45 p.m. to 5:45 p.m.

Commissioning Process & Guideline 0
Monday, Jan 28 – 2:45 p.m. to 5:45 p.m.

Evaluating the Performance of LEED®-Certified Buildings
Monday, Jan 28 – 2:45 p.m. to 5:45 p.m.

Optimization of HVAC Systems & Components: Techniques & Real-World Examples NEW
Tuesday, Jan 29 – 9:00 a.m. to 12:00 p.m.

Energy Management in New and Existing Buildings
Tuesday, Jan 29 – 9:00 a.m. to 12:00 p.m.

Avoiding IAQ Problems
Tuesday, Jan 29 – 9:00 a.m. to 12:00 p.m.

Designing Toward Net Zero Energy Commercial Buildings
Tuesday, Jan 29 – 1:00 p.m. to 4:00 p.m.

Understanding & Designing Dedicated Outdoor Air Systems
Tuesday, Jan 29 – 1:00 p.m. to 4:00 p.m.

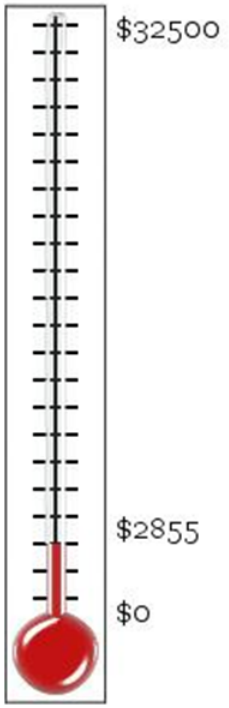
Laboratory Design: The Basics and Beyond NEW
Tuesday, Jan 29 – 1:00 p.m. to 4:00 p.m.

Research Promotion

By Gary C. Debes, Philadelphia Chapter RP Chair

I would like to thank the following contributors for their support of ASHRAE Research Promotion campaign:

Robert Finkboner
Robert Seeler
Wayne Holmes
Stephen Piccolo
Clifford Woodbury, III
James Piscopo
Kevin Collins
Erik App
Michael Witkowski
Jared Johnson
Casey Younkins
Ashley Lester
Michael Beck
Michael Calabrese
Gary Debes
Eric Zanolini
Brian Kenneth Dail
Daniel J. Ebbert
Daniel Bergey



These contributors have donated $2855 toward our Chapter goal of $32,500. Those individuals in **bold** are Board of Governors members that have fulfilled the Full Circle requirement of and Honor Roll level contribution of at least $100 from the BOG and RP Chair to show support from the Chapter leadership. As you can see by the thermometer we have a long way to go, please be generous when you are contacted by a committee member.

Design on the Delaware — Discover Tools for Your Next Project

Design on the Delaware is a collaborative conference examining the issues and opportunities of the built environment for design and building professionals in Eastern Pennsylvania, New Jersey and Delaware. The 10th annual conference will take place November 14-16 at the Sheraton Philadelphia Downtown Hotel and the Center for Architecture.

Register online! Early Registration ends October 31st. Take advantage of discounted registration starting at $190 for members of AIA and collaborating building and design professional associations, including APA, ASLA, ULI, GBCA, ABC, and the Engineers Club. Registration options are available for the entire conference, single day, individual Friday programs, reception, and trade show. For more registration and a full listing of conference programs and events, visit www.designonthedelaware.com.

Join them to connect with regional and national exhibitors who will be showcasing the latest industry products and services at the Design on the Delaware Trade Show. Trade Show Hours are November 14 & 15, 11:45 a.m. to 2:15 p.m. Entrance to the Trade Show is free, pre-registration is requested. Find the complete list of exhibitors online at www.designonthedelaware.com/exhibitors.

EnergySense Conservation Rebates

Facts For Commercial and Industrial Contractors

Through EnergySense rebates and incentives, you can provide commercial and industrial customers lower cost energy-saving services. When you show customers savings, they'll show you more contracts and larger-scale projects.

What Rebates are Available?

- 85% Et boilers are eligible for up to $6,300, based on the size
- 90% Et boilers are eligible for up to $8,400, based on the size
- Residential-sized furnaces & boilers are eligible for up to $500 & $2000
- High-efficiency cooking equipment is eligible for up to $1,200

What Project Incentives are Available?

- Up to $75,000 for comprehensive retrofits to existing buildings providing whole-building savings
- Up to $60,000 for new-construction & gut-rehab projects for reducing energy use below code
- Up to $750 for new home and per-new commercial property for reducing energy use to 20% below code

Who is Eligible?

- Existing PGW firm rate customers
- New construction projects
- Rehab construction projects

How Long Will it Last?

- Current promotions will last through August 31, 2013
- The promotion deadline may be extended, check-back if you miss it

How To Apply: Please visit **www.PGWEnergySense.com** for all applications, instructions and further information.

Annual Multi-Society Dinner Meeting
SAVE THE DATE
December 13, 2012
Loews Hotel, 12th and Market St, Philadelphia, PA

Please join the Engineers' Club, Society of American Military Engineers (Philadelphia Post), American Society of Civil Engineers (Philadelphia Section), and the Construction Management Association of America (Mid-Atlantic Chapter) in the annual Multi-Society Dinner Meeting.

This is a good opportunity to kick off the holiday season by networking with engineers that you might not normally see at your society meetings.

Philadelphia Flower Show Planning and Logistics

presented by

Sam Lemheney, Chief Designer and Coordinator, Philadelphia Flower Show
Pennsylvania Horticultural Society

The Philadelphia Flower Show, presented annually by the Pennsylvania Horticultural Society for over 100 years, is a nationally-recognized nine-day event. However, the coordination of hundreds of displays, vendors and suppliers requires careful planning and scheduling, particularly as the setup and breakdown periods are very short to work within the windows of availability of the Pennsylvania Convention Center, the Show's venue for the past 15 years. Mr. Lemheney will outline in detail the numerous meetings, planning sessions, and scheduling reviews necessary to make the Show happen successfully.

5:30 Networking
6:30 Dinner
7:30 Program

Once again, CMAA will be coordinating a Toys for Tots collection with the Marine Toys for Tots Foundation.

Sponsorships Available

Technical societies are encouraged to co-sponsor this meeting as their December meeting, at no charge.

Financial sponsorships are available to help reduce the meeting cost to encourage additional attendance.

All sponsors will be listed in the meeting announcements and recognized that night. Contact Susan Best at sbest@engrclub.org for more information

The Philadelphia Chapter
of the
American Society of Heating,
Refrigerating and Air
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P 610-971-2169
F 610-971-4859

Click here to visit our web site at:

http://phila.ashraechapters.org

Hope Silverman
P 610-971-2169
hope@mmco1.com

Material can include letters to the editor, member news, upcoming events, comments on chapter programs or issues, etc.

Ideas for Seminars?

The Chapter Technology Transfer Committee is responsible for providing educational programming in the form of several seminars per year. Last year, the committee presented three half-day seminars on timely HVAC topics: data center cooling, lab design and energy modeling. The committee is planning similar events for the 2012-13 Chapter year, and we want to hear from you about content you would find relevant for a half-day seminar. Please send ideas to the Chapter Technology Transfer Committee at c021cttc@ashrae.net.

New Members

Associate Members:
Dawn Muccigrosso
Kathryn Sheehan
David Potchak
Vlad Ciobanu
Chad Kellett
Robert Hesley

Members:
Don Tomovich

Student Members:
Hayden Karlheim
Taylor Wright
Elena Fravel
Kristina Gans
Nicholas Rekstad

The New 2012-2013 Directory is here!

The latest edition of the Directory of Associations, Consulting Firms, and Manufacturers' Representatives in the Philadelphia Area is now available. It sells for $23 each. Please contact Hope Silverman at hope@mmco1.com or 610-971-2169 to order yours today!