



The Texas Norther

Monthly Newsletter of the Dallas Chapter, Region VIII
www.dallas-ashrae.org

Volume 61, No. 3

November 2011

Chapter Meeting

November 10, 2011

11:00 a.m. Registration
11:30 a.m. -1:00 p.m. Luncheon Meeting

Where:

Royal Oaks Country Club
7915 Greenville Ave
Dallas, TX 75231

Lunch Session Topic:

Trends of Desiccant Dehumidification

Presenter:

Scott McGinnis, Des Champs

Reservations:

By Phone - 972/780-6019
On the web - <http://www.dallas-ashrae.org/reservations1.php>

Letters to the Editor should be sent via e-mail to aprile@ccrd.com

ASHRAE National Customer Service:
800/5ASHRAE

Message From the 2011-2012 Dallas ASHRAE President



The October meeting held at Royal Oaks Country Club was very well attended and we owe a special thanks to Felix Lopez with the State of Texas for updating us on the Texas Energy Code and changes in ASHRAE 90.1.

Our November meeting will feature Scott McGinnis of Des

Champs to speak to the trends of desiccant dehumidification.

Be aware of our second YEA happy hour on Wednesday November 9th. I encourage all young and old to attend and share fellowship with our engineering community. This month's happy hour will be generously sponsored by Texas Air Systems.

Everyone should start preparing for our annual golf tournament to be held in April of 2012. This event will help fund our chapter's contribution for ASHRAE research and so we need everyone's contributions.

We have a great online system to register for our monthly meetings. This system really speeds up the check in process and generally makes things easier. I would hope everyone will start utilizing this easy to use registration system.

Thanks for the large turn-out in October. Let's make it a bigger November.

Respectfully,

Preston Dickson
Dallas Chapter of ASHRAE
President 2011-12



2011-2012 ASHRAE PROGRAM SCHEDULE

Date	Meeting Topic/Speaker
09/14/2011	Carbon Media for Better Air Quality Nick Agopian, Circul-Aire
10/12/2011	TX Energy Code Update and Changes in ASHRAE 90.1 Felix Lopex, State of Texas
11/9/2011	Trends of Desiccant Dehumidification Scott McGuiness, Des Champs
12/14/2011	Future AC Drive Technologies for Building Automation Todd Thompson, Yaskawa
1/11/2012	Ethical Decision Making Barry Benator, BENATECH
2/8/2012	Technologies and Strategies for Ensuring Air Quality Jeff Watche, Dynamic Air Quality
3/14/2012	Air Terminal Selection Guideline for Consulting David John, Metal Industries
4/11/2012	Think Outside of (VAV) Box Chuck Weave, Accutherm
5/9/2012	TBD



ASHRAE President Member Bellenger Remembered

ATLANTA— Immediate past ASHRAE President Lynn G. Bellenger, who served as the first woman president in the Society's 116 year history, passed away Wednesday, Oct. 19. She was president for the 2010-11 Society year, with her term ending in June 2011.

Bellenger, P.E., Fellow ASHRAE, was a recognized expert in energy management, with a strong focus on the need for energy modeling to help create and refine more efficient buildings. She was a partner, Pathfinder Engineers & Architects, Rochester, N.Y.

"We at ASHRAE are greatly saddened by the death of our former president and our friend," Ron Jarnagin, ASHRAE president, said. "Her lifelong passion for engineering excellence resonated within our membership and our industry, inspiring us through her belief that engineers will lead an energy revolution with innovation. Through her service, she showed that there is a path available to all who wish to extend the influence of engineering principles to better serve the world we live in."



As ASHRAE president, Bellenger focused on Modeling a Sustainable World, sharing her thoughts about the role of modeling tools and how all involved in the built environment industry must come together to take advantage of "the rich opportunities for optimizing building performance through a collaborative approach from the beginning."

In an interview last year, Bellenger talked about her involvement in energy efficiency and how much has been put in recent years on the need to save energy.

"One of the cool things about the sustainability movement is that it has ignited a passion in people that is changing the world. That passion has brought a sense of energy and excitement to the industry and attracted people who are committed to designing and operating sustainable buildings. I don't see that changing in the future," she said.

Bellenger was a recipient of an ASHRAE Exceptional Service Award, a Distinguished Service Award, two first-place ASHRAE Technology Awards and the Lincoln Bouillon Membership Award.

She received a Bachelor of Science in mathematics from Principia College and a Master of Science in environmental science from Rutgers University.



ASHRAE and Penn State Partner on Building Efficiency Hub

Philadelphia – A newly signed memorandum of understanding brings together ASHRAE and Pennsylvania State University (Penn State) to improve energy efficiency and reduce the environmental impact of buildings through the Greater Philadelphia Innovation Cluster (GPIC) for Energy-Efficient Buildings.

ASHRAE and Penn State signed the memorandum today to pursue common objectives related to GPIC. GPIC is a 24-member consortium, being led by Penn State, which has been designated as an Energy Innovation Hub of the U.S. Department of Energy and is located at the Navy Yard in Philadelphia, Pa. The goals of GPIC are to transform the building retrofit industry from serial fragmentation to integrated systems methods, to improve design tools, building systems, public policies, market incentives and workforce skills needed to achieve a 50 percent reduction of energy use in buildings, and to stimulate private investment and quality job creation in Greater Philadelphia and beyond.

“ASHRAE is looking forward to working closely with Penn State and other GPIC members on improving energy efficiency and reducing carbon emissions,” Ron Jarnagin, ASHRAE president, said. “GPIC represents an exciting step forward in finding ways to increase energy efficiency. ASHRAE is happy to bring the knowledge and technical expertise of its volunteer members to the table to help create a broader knowledge of energy efficient and sustainable building practices.”

“ASHRAE brings a tremendous amount of technical knowledge and experience that will be very useful to the GPIC as we strive toward solving one of the nation’s most serious energy problems by dramatically reducing energy consumption in commercial buildings. Together, we can create quality jobs in the region and boost the building industry,” Henry Foley, executive director of the GPIC and vice president for research for Penn State, said.

ASHRAE will assist in the GPIC effort in several areas, including research, education, certification, standards and guidelines and by applying the society’s Building Energy Quotient (bEQ) program to buildings at the Navy Yard. ASHRAE may also help obtain As-Designed and In-Operation bEQ ratings for buildings in Greater Philadelphia and can ensure that GPIC considers use of ASHRAE certifications to support its objectives.



DOE Updates National Reference Standard for Commerical Buildings to 90.1-2010

ATLANTA – Following preliminary analysis that ASHRAE/IES's 2010 energy efficiency standard contains significant energy savings over the 2007 standard – 18.2 percent source energy savings and 18.5 site energy savings – the U.S. Department of Energy (DOE) has issued a ruling that establishes the 2010 standard as the commercial building reference standard for state building energy codes.

In an announcement in the Oct. 19 edition of The Federal Register, DOE attributes the greater energy savings to improvements in ANSI/ASHRAE/IESNA Standard 90.1-2010, Energy Standard for Buildings Except Low-Rise Residential Buildings, related to better lighting, daylighting, controls and building envelope and better mechanical systems and application to more systems.

With the Oct. 19 ruling, Standard 90.1-2010 serves as the commercial building reference standard for state building energy codes under the federal Energy Conservation and Production Act. As a result, states are required to certify by Oct. 18, 2013, that they have updated the provisions of their commercial building code regarding energy efficiency to meet or exceed 90.1-2010.

"The foundation of energy efficient buildings continues to grow stronger with the news that DOE is now referencing the 2010 standard," Ron Jarnagin, ASHRAE president, said. "ASHRAE hopes to make that foundation even stronger through our current work with IES developing the 2013 standard."

"The DOE has determined that the quantitative analysis of the energy consumption of buildings built to Standard 90.1-2010, as compared to buildings built to Standard 90.1-2007, indicates national source energy savings of approximately 18.2 percent of commercial building consumption," according to DOE. "Additionally, DOE has determined site energy savings are estimated to be approximately 18.5 percent."

The DOE noted that the newer version of the standard contains 19 positive impacts on energy efficiency. These impacts included changes made through the public review process in which users of the standard comment and offer guidance on proposed requirements. Specifically the positive impacts include:

- Requirements for daylighting controls under skylights and commissioning of daylighting controls; increased use of heat recovery; cool roofs in hot climates; lower illuminance in certain exterior zones; skylights and daylighting in some building types; reduced ventilation energy; supply air temperature reset for non-peak conditions; efficiency requirements for data centers; lower lighting power densities; control of exterior lighting; occupancy sensor for many specific applications; daylighting control requirements for side-lighted spaces; and daylighting controls in more spaces.
- Updated chiller efficiency requirements.
- Extension of VAV fan control requirements.
- Expansion of new lighting power densities to more retrofits and automatic damper requirements and use of economizers.
- Minimizes exceptions to switched receptacle requirement.

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The ruling comes on the heels of a July announcement that established the 2007 standard as the commercial building reference standard for state building energy codes. The DOE noted that because the 2010 determination was published prior to the two-year deadline states have to demonstrate that their energy code meets or exceeds the stringency of the 2007 standard, states are allowed to file just one certification to address both determinations.



Since being developed in response to the energy crisis in the 1970s, Standard 90.1 now influences building designs worldwide. It has become the basis for building codes, and the standard for building design and construction throughout the United States. ASHRAE and IES publish a revised version of the standard every three years.
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Student Activities

By: Josh Yeary, 2011-12 Student Activities Chair

This past Tuesday the 25th of October we had an excellent presentation by Peter Quinn of Trane to the UNT Student Chapter of ASHRAE. He presented on the basics of building heating and cooling load analysis as well as basic equipment selection. We also presented the upcoming scholarship opportunities to the students and will be expecting applications to start coming in shortly for review.

We are in the process our kick starting a similar student group in the SMU Engineering department. Assisting us in this process are Faculty Advisor Dr. Volkan Otugen and Student President Whitney Davis.

And finally remember to like us on Facebook, and follow us on twitter. We will be posting pictures of our student activities events, including the presentation at UNT on our Dallas Chapter of ASHRAE Facebook site.



TEGA News Updates

By: Matt Short, 2011-2012 TEGA Officer

Connecticut, Maryland, Pennsylvania, and Vermont Have/Are Preparing to Modify their Building Energy Codes

- Connecticut will finalize its adoption of the 2009 IECC today (October 7);
- Maryland is in the process of adopting the 2012 IECC and expects to finalize the process early next year. The Department of Housing and Community Development (DHCD) is holding public hearings to discuss the update with stakeholders;
- Pennsylvania's new Uniform Construction Code Review and Advisory Council will hold hearings this fall on the new ICC model codes, including the 2012 IECC. This will be the first set of codes to be considered by the new council;
- Vermont's updated Residential Building Energy Standards (RBES), based on the 2009 IECC, took take effect on October 1.



Additional, in-depth information is available at <http://www.energyefficiencymatters.org/needs-policy-tracker/>.

DOE Officially Determines ASHRAE Standard 90.1-2010 Saves More Energy than 2007 Version; States Required to Certify Compliance by October 18, 2013

This week the U.S. Department of Energy (DOE) issued its final determination that ANSI/ASHRAE/IES Standard 90.1-2010 *Energy Standard for Buildings Except Low-Rise Residential Buildings* saves more energy than Standard 90.1-2007. Specifically, DOE found national source energy savings of approximately 18.2 percent, and site energy savings of approximately 18.5 percent, when comparing the 2010 and 2007 versions of Standard 90.1.

Please note: When comparing Standard 90.1-2010 with the 2004 version, site energy savings for Standard 90.1-2010 are 32.6 percent and energy cost savings are 30.1 percent (without plug loads). With plug loads, site energy savings are estimated at 25.5 percent, and energy cost savings are 24 percent.

This week's DOE determination compared Standard 90.1-2010 with the 2007 version.

As a result of this week's DOE final determination, states are required to certify by October 18, 2013 that that have reviewed the provisions of their commercial building code regarding energy efficiency and updated their code to meet or exceed Standard 90.1-2010. States may request extensions of this deadline from DOE if a state can demonstrate that it has made a good faith effort to comply with this code update.

To view the PDF file containing DOE's notice of its final determination, please visit <http://1.usa.gov/nQUugb>.



Membership Promotion

By: Brandon Damas, 2011-12
Membership Promotion Chair

Great job everyone! There are a couple things to be proud of. First, for our membership report, as of 10/21/2011 there are 59 current members delinquent between 1 and 6 months. 10 of you paid your dues since the last newsletter! Again, great work and keep it up! Give yourself a pat on the back. If you know anyone that is past due please remind them to pay their dues as soon as possible. **Seven** people are still delinquent as much as 6 months and are at risk of their membership being terminated and losing a combined

membership year total of nearly **10** years! If you are one of those members, you should have received an email on how to renew the easiest way but more information can be found on ASHRAE's website at <http://www.ashrae.org/members/page/149>. If you did not receive a notification but fear you are delinquent, please contact me so I can check your membership status. Additionally, you can reinstate your membership by logging onto www.ashrae.org with your primary email and password or you can reinstate over the phone by calling us them at 678-539-1118. If there are any additional questions about your membership status or how to renew your membership, please contact me at brandond@htseng.com.

The second thing to be proud of is our first YEA event was a huge success. There will be another meeting of the Young Engineers in ASHRAE (YEA) event happening Wednesday, November 9th so don't miss out. It will be at the [Flying Saucer](#) from 5 pm until 7 pm. It will be sponsored by Texas Air Systems so all you have to do is show up and be ready to have a good time. If you would like to be a part of the elite YEA email distribution list (after last meeting you would be missing out if you didn't), please email me at brandond@htseng.com or visit www.dallas-ashrae.org to sign up for this list. You can enter your email address on the home welcome page and there are a few additional steps that need to be completed to get you in our system. (*tip: Check your spam filter if you are not receiving any emails to continue the constant contact registration. The email will come from brandond@htseng.com.) Keep in mind that YEA isn't just for members under the age of 35 so feel free to sign up regardless of experience. The real value comes when young and seasoned members unite to share knowledge and help each other become better in the industry. I hope to see many of you at the next meeting and please let me know if you need any help from me in the meantime.



DALLAS ASHRAE 2011-2012 BOARD OF GOVERNORS MEETING NOTES

Date: October 12, 2011

Time: Immediately following the General Meeting Session

**Location: Royal Oaks Country Club
7915 Greenville Ave
Dallas, TX 75231-3204
(214) 691-6091**

IN ATTENDANCE:

Preston Dickson; Brandon Damas; Josh Yeary; Charles Crawford; Gene Lowery;
Shelley Zhao; Ben Bain

COMMITTEE CHAIRS AND OFFICERS:

1. President – Preston Dickson
 - A. RVC contacts to be made by each board member.
 - B. Preston to send BOG agenda to BOG before the meeting.
 - C. Audit committee for 2011-2012 to be assembled.
2. President Elect/CTTC – Shelley Zhao
 - A. All programs for the year are set.
 - B. Budget for luncheons are set.
3. Secretary – Charles Crawford
 - A. Charles to create Welcome slides for November meeting (YEA Event; Golf; etc.)
 - B. Charles to create ASHRAE Dallas Chapter LinkedIn group.
4. Treasurer – Gene Lowery
 - A. Gene now has check signing privileges.
 - B. 2010-2011 audit needs to be finalized.
 - C. Tax procedures will be implemented.
5. Membership – Brandon Damas
 - A. YEA Happy Hour will be sponsored by Charles Crawford with Victaulic tonight.
 - B. Next YEA Happy Hour will be sponsored by Anne Berry with Texas Air Systems in November. Date, time and location to be determined.
 - C. Facebook and Twitter accounts created for ASHRAE Dallas by Shelby Felix with Trane.
 - D. Today's meeting had 114 RSVP; 104 attended; 10 were guests.
6. Student Activities – Joshua Yeary
 - A. PN Vinter funding for 2011-2012 scholarship is expected around \$2,000.
 - B. Mark Walker on PN Vinter Trustee Board has been updated on 2010-2011 awardee.
7. Newsletter – April Eisenhauer
 - A. Article deadline is 10 days from now. Friday, October 21, 2011.
8. Webmaster – Julie Short
 - A. Charles will send Julie this month's presentation for posting to the website.
 - B. Julie will post LinkedIn, Twitter & Facebook links to the chapter website.
 - C. Julie will update webmaster name on contact page of website.
9. Historian – Marc Tompkins
 - A. Monthly article for newsletter needed.
10. Research Promotion – Ben Bain
 - A. Gene will serve as RP assistant for Spring Golf Tournament.
 - B. Spring Golf to be held at Lantana G.C. and will advertise as \$125 per golfer. Looking at Monday, April 23rd for the event to be held on. Ben to confirm.

Next BOG Meeting: Wednesday, November 9th immediately following the General Meeting at Royal Oaks.



DALLAS ASHRAE BUDGET 2011-2012

Official Starting Balance

\$12,798.00

*9/30/11 Balance

2011-2012 Annual Budget	Budget for '11-'12	Actual YTD	Percentage of Budget
Income			
(1) - Chapter dues	\$ 13,000.00	\$ 2,910.00	22%
(2a) - Money Market interest	\$ 100.00	\$ -	0%
(2b) - Regular Share Interest	\$ 1.00	\$ -	0%
(3) - Meeting - meals, bar	\$ 18,500.00	\$ 2,190.00	12%
(4) - Roster sponsors	\$ 1,500.00	\$ -	0%
(5) - Golf tournament	\$ 25,000.00	\$ -	0%
(6) - RP Events	\$ 500.00	\$ -	0%
PN Vinther	\$ 1,700.00	\$ -	0%
Miscellaneous	\$ 100.00	\$ -	0%
Total Income	\$ 60,401.00	\$ 5,100.00	8%
Expense			
(7) - CRC representation	\$ 500.00	\$ 540.00	108%
(8) - Student Activities	\$ 500.00	\$ -	0%
(9a) - Meetings-meals,bar,room	\$ 18,500.00	\$ 3,800.00	21%
(9b) - Meetings - audio/visual	\$ 2,700.00	\$ -	0%
(10) - Research Promotion - Matching Fund	\$ 6,000.00	\$ -	0%
(11) - RP Events - Webcast	\$ 300.00	\$ -	0%
(12a) - Seminar - Fall	\$ 500.00	\$ -	0%
(13b) - Seminar - Spring	\$ 500.00	\$ -	0%
(14) - Website Charges	\$ 500.00	\$ 239.85	48%
(15) - Miscellaneous	\$ 1,000.00	\$ -	0%
(16) - Golf tournament	\$ 20,000.00	\$ -	0%
(17) - CRC Host Fund	\$ -	\$ -	
(18) - P.N Vinther Scholarship Fund	\$ 1,700.00	\$ -	
(19) - Printing - Roster	\$ 650.00	\$ -	0%
(20) - Regional Dues/Award	\$ 1,800.00	\$ -	0%
(21) - CPA Fees	\$ 125.00	\$ -	0%
(22) - USPS P.O. Box	\$ 204.00	\$ -	0%
(23) - Membership promotion	\$ 50.00	\$ -	0%
(24) - Bank service charges/check printing	\$ 50.00	\$ -	0%
(25) - Awards	\$ 400.00	\$ -	0%
(26) - Scholarships	\$ 500.00	\$ -	0%
(27) - AnswerFirst	\$ -	\$ 176.40	
Total Expense	\$ 56,479.00	\$ 4,756.25	8%



2011-2012 Dallas Chapter Officers and Board of Governors

The Officers, Board of Governors and Committee Chairs may be contacted via the following phone numbers or at the Chapter address; P.O. Box 802426, Dallas, 75380-2426

		Phone	Email
President	W. Preston Dickson	214.349.2320	pdickson@timberlakedickson.com
President-Elect/Programs	Shelly Z. Zhao	817.912.0800	shelleyz@mjec.com
Research Promotion	Ben P. Bain	972.570.4700	benb@texasairsystems.com
Secretary	Charles Crawford	214.676.4134	ccrawford@victaulic.com
Treasurer	Gene Lowery	972.395.6189	glowery@texasairsystems.com
Immediate Past President	Ben P. Bain	972.570.4700	benb@texasairsystems.com
Governor Membership Program	Brandon Damas	469.263.1000	brandond@htseng.com
Governor TEGA	Matt Short	469.222.8489	matt.short@acts29consulting.com
Student Activities	Joshua Yeary	214.485.6429	jly@goetting.com

2011-2012 Dallas Chapter Committee Chairs

Historian	Marc Tomkins	972.571.8977	marct@htseng.com
Webmaster	Julie Short	972.652.3006	julie.short@texasairsystems.com
Newsletter Editor	April C. Eisenhauer	214.521.1661	aprile@ccrd.com
Photographer	Paul LeMaire	214.765.8731	PWLeMaire@lan-inc.com
Honors & Awards	David Arbaiza	214.350.6871	darbaiza@verizon.net
Publicity	Leo Stamaugh	214.739.1777	leostambaugh@cs.com
Refrigeration	Chris Carr	972.395.6162	ccarr@brandteng.com

Date: Wednesday, November 10 2011

Time: 11:00 am Registration
11:30-1:00 pm Luncheon Meeting

(1 PDH)

Location:

Royal Oaks Country Club
7915 Greenville Ave.
Dallas, Texas 75231

Reservation Line: (972) 780-6019

Or online: www.dallas-ashrae.org

SEPTEMBER CHAPTER LUNCHEON

ASHRAE DALLAS-CHAPTER

Luncheon Presentation

Trends of Desiccant Dehumidification

Topic Description:

In the ongoing struggle to build cost-effective buildings in accordance to ASHRAE standards, designers often do not consider newer technologies that reduce energy consumption and improve productivity. When applied and utilized properly, desiccant technology and energy recovery methods provide opportunities to increase building comfort and save energy.

This session highlights some of the basic design practices to observe when sizing and selecting an HVAC system.

Presenter:

Scott McGinnis has over a decade of experience in designing energy recovery and desiccant dehumidification systems across North America. McGinnis is a LEED Green Associate and holds an Engineering Degree from Texas A&M University as well as a Master's of Business from Leslie University in Cambridge, MA. An ASHRAE member since 1996, he has served on the Board of Governors for the Dallas, TX chapter and was selected to be a member of the Project Monitoring Sub-Committee for ASHRAE's Design Guide for Dedicated Outdoor-Air Systems. Scott has presented across the country on subjects ranging from proper design of ventilation systems, dehumidification products, psychometrics, and energy codes.

Lunch Program with reservations - \$25.00

Lunch Program without reservations- \$30.00

Lunch Program only (no meal) - \$10.00

Student Member Lunch Program - \$10.00

Non-Student Member Lunch Program - \$25.00 (includes free student membership)

1 PDH Credit will be available for Luncheon Presentation.



The Dallas Chapter of ASHRAE Has Gone Social!!!

The Dallas Chapter of ASHRAE is on Facebook, Twitter, and LinkedIn. This is a work in progress but all the social sites are up in running. Like us on Facebook, follow us on Twitter, and join our group on LinkedIn. Meeting invites and other information will be sent out through these avenues as well as through constant contact. The goal is to integrate chapter information across multiple media platforms to help get it to the members on the go. Feel free to click the links on the left to get connected with the Dallas Chapter of ASHRAE. Use these media outlets however you wish keeping in mind a professional atmosphere. Start a discussion on LinkedIn, upload photos from events to Facebook, and sign up for meetings with a link provided by a Tweet.

If you have any suggestions we would love to hear from you to help us improve how we are managing the chapter. A special thanks goes out to Shelby Felix for starting up the Facebook page and Twitter account and also to Charles Crawford for starting up the LinkedIn account. Great work guys! No let's start being social.

Brandon Damas
Membership Promotion Chair
ASHRAE Dallas Chapter
brandond@htseng.com

Like us on **Facebook** 

Follow us on **twitter**

View our profile on **Linked in**

ASHRAE Learning Institute

2 WAYS TO REGISTER

Internet: www.ashrae.org/lasvegascourses

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



Full Day Professional Development Seminar

\$485/\$395 ASHRAE Member -- Earn 6 PDHs/AIA LUs or .6 CEUs

The Commissioning Process in New & Existing Buildings

Saturday, Jan 21 – 8:00 a.m. to 3:00 p.m.

Data Center Energy Efficiency

Saturday, Jan 21 – 8:00 a.m. to 3:00 p.m.

Integrated Building Design

Saturday, Jan 21 – 8:00 a.m. to 3:00 p.m.

Using Standard 90.1 to Meet LEED Requirements

Tuesday, Jan 24 – 9:00 a.m. to 4:00 p.m.

Energy Modeling Best Practices and Applications: HVAC/Thermal

Tuesday, Jan 24 – 9:00 a.m. to 4:00 p.m.

Half Day Short Courses

\$159/\$119 ASHRAE Member -- Earn 3 PDHs/AIA LUs or .3 CEUs

Understanding Air-to-Air Energy Recovery Technologies & Applications

Sunday, Jan 22 – 2:00 p.m. to 5:00 p.m.

Understanding & Designing Dedicated Outdoor Air Systems (DOAS)

Sunday, Jan 22 – 2:00 p.m. to 5:00 p.m.

Application of Standard 62.1-2010: Multiple Spaces Equations & Spreadsheet Calculation

Sunday, Jan 22 – 2:00 p.m. to 5:00 p.m.

Basics of High-Performance Building Design

Monday, Jan 23 – 8:30 a.m. to 11:30 a.m.

Complying with Standard 90.1-2010: Envelope/Lighting

Monday, Jan 23 – 8:30 a.m. to 11:30 a.m.

Energy Management in New & Existing Buildings

Monday, Jan 23 – 8:30 a.m. to 11:30 a.m.

Advanced High Performance Building Design

Monday, Jan 23 – 2:30 p.m. to 5:30 p.m.

The Commissioning Process & Guideline 0

Comply with Standard 90.1-2010: HVAC/Mechanical

Monday, Jan 23 – 2:30 p.m. to 5:30 p.m.

Evaluating the Performance of LEED-Certified Buildings

Monday, Jan 23 – 2:30 p.m. to 5:30 p.m.

Combined Heat & Power

Tuesday, Jan 24 – 9:00 a.m. to 12:00 p.m.

Healthcare Facilities: Best Practice Design

Tuesday, Jan 24 – 9:00 a.m. to 12:00 p.m.

Project Management for Improved IAQ

Tuesday, Jan 24 – 9:00 a.m. to 12:00 p.m.

Healthcare Facilities: Best Practice Applications

Tuesday, Jan 24 – 1:00 p.m. to 4:00 p.m.

Design Toward Net Zero Energy Commercial Buildings

Tuesday, Jan 24 – 1:00 p.m. to 4:00 p.m.



ASHRAE HVAC Design Essential Workshop

January 11-13, 2012 • ASHRAE Foundation Learning Center • Atlanta, GA

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.

Visit www.ashrae.org/hvacdesign to register