



Ottawa Valley Chapter

DATE: **Tuesday January 21, 2014**
(Social: 17:30, Dinner: 18:30, Program: 20:00)

LOCATION: **Algonquin College Restaurant International**
1385 Woodroffe Ave, Building H, Room H100

THEME: **Research**

PROGRAM: **Panel Discussion: The Construction Tendering Process**

OVERVIEW:

We have assembled representatives from the various players in the construction industry to discuss the construction tendering process from multiple perspectives; architect, mechanical engineer, general contractor, mechanical contractor and building owner. Panel members will be asked to comment on the various methods of tendering construction projects; plan and spec, design build, P3 and construction management. The discussion will begin with our moderator performing introductions followed by a brief description of each of the construction tendering methods and a review of our panel discussion format. There will be time allotted for some back and forth discussion between the panel members and audience participation will also be encouraged. Our esteemed panel members are as follows:

Mechanical Contractor - Brad McAninch - Modern Niagara
General Contractor - Mark Fazio - Ellis Don
Owner - Frank Jeffries - NRC
Consultant - Ross McIntyre - Goodkey, Weedmark & Associates Ltd.
Architect - David Bull - Cuhaci & Associates

Moderator - Roderic Potter - President ASHRAE Ottawa Valley Chapter

January Meeting Menu

Menu - To be Announced

Restaurant International is happy to accommodate ANY dietary needs with one week's notice. Please get in touch with Sandy Taylor. sandy@ashrae.ottawa.on.ca
If you are a vegetarian, ask the server for a list of options

Chapter Members: \$40.00 Guests: \$60.00
Student Members: \$30.00 Life or Fellow: \$40.00
Space is limited so please register online at:

<https://ashraeottawa.simplesignup.ca/en/81/index.php?m=eventSummary>

Registration will close 1 week prior to the event, on Tuesday January 14th. Pre-registration is required as the venue requires confirmed numbers that the chapter must commit to pay for at this time.

President's Message

So another year is upon us leaving behind the fug of Christmas Past and Year New, sweeping in under our door cracks with a frigid reminder that we live in a climate that often beats the North Pole for sheer audacity. I was watching BBC World News this morning and it turns out that this cold snap is actually being noticed on the other side of the pond – they covered it with on-street interviews with Boston citizens. Apparently the thermometer had dipped as low as -13C to the south of us and they were a little chilled. Interviews further north in Montreal had statements like "We're Canadian and used to it eh?" as you might imagine. I personally think this weather is particularly foul and have been doing my bit to add to the "global warming" fallout, by cranking my tired old furnace to achieve 22C in my living room, and rotating the return air humidistat to the point where condensation is creating lovely patterns on my inner windowsills. Bah Humbug!

Our first meeting of this New Year beckons on **January 21st**, with a panel discussion to discuss various aspects of the construction tender process. The planned group of guest panelists is stellar – and yours truly has been tasked with moderating the whole affair – so try to attend for an evening of light-hearted entertainment!

Earlier in this month I will be attending the **ASHRAE** Winter Meeting in New York City. A number of our members are attending, for various reasons. Past-Presidents **Lan Chi** and **Don Weekes** are both involved with Society-level committees, and I am part of the Electronic Communications Committee (ECC). I will meet with my peers on Saturday January 18th to discuss Social Media Policy and Website Guidelines for Chapters. At the recent Toronto Regional Conference a motion was accepted that the ECC should strive to create guidelines for the use of sites such as Facebook and Twitter,



President & CRC Delegate

Roderic Potter

2013-2014 OVC President

Rodders CAS

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by **ASHRAE** Chapters. Some basic guidelines already exist but they need to be updated – Social Media platforms can be very powerful but can also send the wrong message if not monitored appropriately.

I look forward to seeing a large turnout of our members for the January meeting, and it will be a good way to reconnect after the long Christmas break.

Cheers from the desk of Rodders CAS

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What You Missed November Meeting

The November meeting took place at **Algonquin College Restaurant International**. The meeting was called to order by President **Rod Potter** at 6:25pm and attendees were seated for dinner.

The business session commenced with President **Rod Potter** introducing the Board of Governors and Executive followed by **Abbey Saunders** introducing the evening's guests and **Georges Maamari** introducing the new members who recently joined the chapter.

Steve Moons recapped the success of the recent Bowling Social and announced the Direct Energy Team maintained their title of champions for the third consecutive year.

During social hour the research committee raffled off Sens tickets, donated by Trane. The raffle raised \$365 for **ASHRAE** Research. **Don Weekes** of In Air Environmental was the lucky winner of the tickets who graciously donated the tickets to provide an evening of entertainment for a student.

Following the business session, attendees enjoyed a 4-course à la carte menu which featured an assortment of crostini appetizers, potato leek soup, a main entrée of slow roasted striploin, roasted potatoes and vegetables followed by a cronut espresso for dessert. Dinner was well received by attendees, especially those trying their first cronut.

After dinner, the main program event took place, speaker **Bruce Majer's** presentation topic was HVAC noise and vibration control: compliance strategies and tactical resources. The presentation commenced with Acoustics 101 whereby various terms and definitions impor-

tant to understanding sound were introduced. First the characteristics of sounds and how they are expressed were reviewed. Sound is described by the amplitude and frequency of a wave. Frequency basically measures air pulsations and is expressed in octave bands, and amplitude measures the linear distance between the air pulsations. During the discussion on the characteristic of sound waves we were reminded that based on these properties attenuation of low frequency noise is much more difficult when compared to attenuation of mid and high frequency noises.

The final part of the Acoustics 101 session outlined the important difference between sound power and sound pressure. Understanding the difference in the definition of these terms is critical in understanding noise control. Sound power is defined as the acoustic energy emitted by a sound source that has an absolute value and is unaffected by environmental conditions or distance from the source. Sound pressure on the other hand is the local pressure deviation from the ambient (average, or equilibrium) atmospheric pressure, caused by a sound wave that is greatly affected by environmental conditions, and distance from the source. The ability to convert between sound power and sound pressure allows environmental factors, such as distance and obstacles adjacent a source to be factored in. Using the A-weightings of sound measurements provide the best approximation of the human hearing response across the various octave bands. For equipment performance in terms of noise characteristics, ARI-370: Sound Rating Standard for Large Outdoor Refrigerating & Air Conditioning Equipment requires that manufacturer's express data in un-weighted sound



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power octave bands, with the overall sound level expressed as an A-weighted value. Mr. Majer cautioned that not all manufacturers represent their data in similar manners, thus stressing the importance of understanding the difference between sound power and sound pressure especially when comparing equipment of different manufacturers.

Following the Acoustic 101 session we moved onto the Noise Control Engineering session where we were introduced to the source – path – receiver model for sound propagation, hence leading into the typical options for noise control being categorized as either source or path control measures. Source controls incorporate strategies such as acoustic lagging, silencers, etc., whereas path transmission controls include the erection of barriers and sound absorptive materials between the source and the observer. Typical acoustic materials include: absorbers, barriers, composites (which combine absorbers and barriers), dampening, electronic (noise cancelling), and flow control (silencers).

Common acceptance criteria for noise include: NC, RC, PNC, ANSI, project specifications, OSHA, regulatory mandates, company policies, and good neighbor concerns. Documentation is available in guidelines and standards that publish recommended NC levels for various activities and miscellaneous room uses. Standardized NC curves are plotted against with frequency spectrum data for a particular room application. These standardized NC curves allow us to determine actual required attenuation for a space at

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each given octave band. Caution that NC curves should not be used when evaluating environments with dominant low frequency levels as the standardized curves do not extend down into the 16 Hz and 31.5 Hz octave bands.

Next we reviewed a case study of an outdoor chiller with and without the sound kits against a 65dBA day and 50dBA night standard compliance v. non-compliance. Outcome of the case study: non-compliance noise levels can result in unwanted publicity or worse.

General Noise Suppression Best Practices and Strategies for Chillers were then discussed by **Mr. Majer**. Typically a 3 – 5 dBA safety factor should be utilized and a cursory review of noise for a site should be conducted to determine if a more detailed in-depth review is necessary. If a more detailed review is required, the generally accepted three step problem identification model is a good place to start.

Step 1: Where Are We Now?

Obtain a baseline for the particular application, the unmitigated noise (baseline) level. This can include review of published data and sound ratings for new equipment proposed for installation, or review of sound measurements obtained from an existing installation.

Step 2: Where Do We Need to Be?

Determine the appropriate acceptance criteria for the particular application. Whether it be NC for indoor applications or ordinance for outdoor applications, understand what these criteria are and meet or exceed any regulatory requirements.

Step 3: How Do We Get There?

Evaluate the project specific treatment options to determine the best solution to mitigate the noise concerns. Remember that overall system noise should be targeted, and that by simply reducing the noise from a single component of a system may not have a very large impact on overall system noise reduction. Similarly, consider that equal isn't always equal and the proposed mitigation measures should be designed so that they allow easy maintenance and re-instatement. For example, acoustic blankets held on with tie straps are likely to be just left hanging over the component after the first service is required, whereas acoustic blankets held in place with Velcro and D-rings are easily manipulated and more likely to be installed properly following maintenance.

Next, a quick summary of Indoor Equipment Best Practices were reviewed. Examples of the strategies discussed include, but are not limited to the following:

- Use of a combination of source and path mitigation measures such as thickened walls, slabs and roof structures, silencers, barriers, etc.
- Vibration Isolation: follow guidelines for static deflection. Isolate miscellaneous mechanical / electrical elements such as ducts, conduits, etc., avoid cantilevered loads, avoid suspension mounting in mechanical rooms if spaces above room are noise sensitive, similarly avoid floor mounting if spaces below are noise sensitive. Diligence to ensure vibration isolation systems

are installed correctly is critical. Otherwise short circuiting with structural elements can eliminate or significantly reduce the effectiveness of vibration isolation measures.

An even shorter summary of Outdoor Equipment Best Practices were reviewed. Examples of the strategies discussed include, but are not limited to the following:

- Thickened structural elements, such as roof slabs, floors and walls.
- Elastomeric mounts.
- Special consideration for remote evaporator piping systems.
- Optimized aerodynamic performance to ensure laminar flow and total system loss is within the manufacturers' allowable limits is crucial.
- Consideration of allowable building and property line noise levels.
- Barriers or enclosures.
- Splitter baffles or silencer banks.

During a Q&A period **Mr. Majer** discussed that although sometimes the proposed strategies for noise attenuation on particular projects may not initially be well received by the equipment manufacturer, in general if the noise consultant works alongside the manufacturer a mutually agreed upon noise attenuation strategy can usually be developed.


Following the presentation, President **Rod Potter** thanks **Mr. Bruce Majer** for his presentation, and the meeting was adjourned at approximately 8:55pm.



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News Update

ASHRAE PUBLISHES 2013 VERSION OF THERMAL COMFORT STANDARD ATLANTA

Major revisions for design and measurement of comfortable spaces are included in a newly published 2013 standard from **ASHRAE**. ANSI/ASHRAE Standard 55-2013, Thermal Environmental Conditions for Human Occupancy, combines the 2010 standard and 18 published addenda into a consolidated standard. The core of the standard in Sections 4 and 5 specifies methods to determine thermal environmental conditions (temperature, humidity, air speed and radiant effects) in buildings and other spaces that a significant proportion of the occupants will find acceptable at a certain metabolic rate and clothing level.

Section 7 of the standard includes new requirements for the measurement and evaluation of existing thermal environments and is also applicable to commissioning. The standard has been re-written with a renewed focus on application by practitioners and use of clear, enforceable language. Requirements are now clearly stated and calculation procedures appear sequentially.

Other noteworthy additions to the standard include an allowance for the cooling effect of air movement as a way to extend the upper limit of the comfort zone in naturally conditioned spaces and addition of a predictive model for occupant clothing behavior based on extensive field research. These additions provide new methods for improving occupant comfort while minimizing energy use, according to **Gwelen Paliaga**, chair of the committee that wrote the standard.

Documentation requirements to show that a design meets Standard 55 are contained in Section 6 and a sample compliance form is provided

in appendix J. Both of these sections are clarified and streamlined for use by owners and third party rating systems.

The 18 addenda published since 2010 are summarized in detail in Informative Appendix M, and the most noteworthy changes are summarized here:

- The normative body of the standard, comprising Sections 3 through 8, have been rewritten and reorganized.
- Requirements are more clearly stated, definitions are added to Section 3, and informative supporting information has been moved from the body to informative appendices.
- Procedures are clarified and appear in a more sequential manner. For example, a "representative occupant" with representative "clothing insulation" and "metabolic rate" shall be defined as input into thermal comfort calculations.
- The cooling effect of air movement now applies to naturally conditioned spaces as well as mechanically conditioned spaces, and in each case correction factors are given that adjusts the comfort boundaries when air movement is present.
- A new alternate procedure for estimating occupant clothing insulation based on outdoor weather was added. This procedure is based on extensive field research and can be used for design calculations, annual simulations and control of occupied spaces.
- Major revisions to Section 7 procedures for measuring comfort in existing spaces including survey and physical measurement methods and a new section on evaluating and reporting results.



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- The standard now requires that two of the key comfort parameters, air speed and air temperature, must be calculated as an average that the occupant experiences at three heights across the body and over a period of time.

The cost of ANSI/ASHRAE Standard 55-2013, Thermal Environmental Conditions for Human Occupancy, is **\$95** (**\$81**, **ASHRAE** members). To order, contact **ASHRAE** Customer Contact Center at **1-800-527-4723** (United States and Canada) or **404-636-8400** (worldwide), fax **678-539-2129**, or visit www.ashrae.org/bookstore.

ASHRAE, IAQA SIGN MEMORANDUM OF UNDERSTANDING ATLANTA

Through a memorandum of understanding, **ASHRAE** and the Indoor Air Quality Association (IAQA) are working together to promote better indoor air quality in the built environment.

The agreement was signed on **Oct. 15, 2013**, during ASHRAE's IAQ 2013 Conference held in **Vancouver, British Columbia, Canada**. The agreement commits **ASHRAE** and IAQA to working together in the areas of consistent leadership communication, chapter collaboration, advocacy, technical activities coordination and research.

"As professionals responsible for environmental control of buildings and transportation systems, our first priority must be making those environments safe, healthy, productive



Chris Harrison
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and comfortable," **ASHRAE** President **William "Bill" Bahnfleth** said. "This partnership between **ASHRAE**, a worldwide organization with a scope to broadly promote the arts and science of HVAC&R and allied arts and science for the benefit of the general public, and **IAQA**, an organization focused on services to ensure good indoor air quality, will enhance the ability of both to achieve their shared goals. We welcome the opportunity to combine the resources of **ASHRAE** with the expertise of **IAQA** to strengthen our effectiveness in this critical area."

"This agreement is a great step forward for **IAQA** and the indoor air quality field. **ASHRAE** and **IAQA** have agreed to work closely on issues that are of mutual interest," **Donald M. Weekes**, CIH, CSP, **IAQA** President, said. "I am personally looking forward to working with **ASHRAE** in the coming year."

Founded in 1998, the Indoor Air Quality Association (**IAQA**) is dedicated to bringing practitioners together to prevent and solve indoor environmental problems for the benefit of customers and the public.

ASHRAE JOINS EFFORT TO PROMOTE BETTER PREPARED WORKFORCE ATLANTA

ASHRAE has accepted an invitation from the U.S. Department of Energy (DOE) to join an effort that will improve building performance through a better prepared workforce. The goal is to advance the skill sets of engineers and other professionals involved in building design, operation and commissioning.

Under DOE leadership, a Board of Advisors has been created for the Commercial Workforce Credentialing Council (CWCC). This Board will be led by the National Institute of Building Sciences (NIBS) with the participation of **ASHRAE** and other credentialing and professional development organizations. They will work to establish a set of voluntary national guidelines to improve the quality and consistency of commercial building workforce credentials.

The Better Buildings Workforce Guidelines will reduce the confusion and uncertainty around workforce credentialing; lower costs; and support better credentials, better workers and better buildings. The Guidelines will set an industry-validated Job Task Analysis (JTA) for each job title, as well as certification schemes (blueprints) and learning objectives for training programs.

Initially the Guidelines will address commercial building workforce training and certification programs for five key energy-related jobs: energy auditor, commissioning professional, building/operations professional, facility manager and energy manager.



Three of **ASHRAE's** certification programs are part of this initial development:

- Commissioning Process Management Professional
- Building Energy Assessment Professional
- Operations & Performance Management Professional

Once implemented, industry certification programs must then receive accreditation from the American National Standards Institute (ANSI) in order to be recognized by DOE as meeting voluntary guidelines for the Better Buildings Workforce. This accreditation provides independent verification that the certifications are developed, maintained and administered according to the highest standards of the testing industry. **ASHRAE** has already begun the process of seeking ANSI accreditation in anticipation of this requirement.

"**ASHRAE's** involvement in this process is very important," **William "Bill" Bahnfleth**, **ASHRAE** president, said. "Participating in the development of the Guidelines gives us a voice in how the workforce of our industry will be developed. These Guidelines will ensure that quality services are provided by professionals with recognized certifications to increase consumer confidence in the service provided and ultimately to ensure the quality of our future building stock."

ASHRAE representatives recently attended an initial workshop to bring together industry stakeholders; explain the purpose of the newly created CWCC; discuss high-level questions; and provide input into the composition of the subject matter expert committees.

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Steve Moons

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Advertising

Advertising career opportunities on the **ASHRAE** Ottawa Valley website makes good business sense. We offer a unique way to reach technical professionals and make your ad dollars work hard for you.

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To discuss your needs, contact one of our chapter officers, via our "This Year" page. Increase the impact of your advertising through the **ASHRAE** Ottawa Valley website today.

Rates for career opportunities ads are as follows:

Chapter Member: \$50/month

Non-member: \$250/month

Placement of an Ad

We suggest that you complete and submit our advertisement form to speed up the processing of your request. If you have provided your e-mail address, a confirmation receipt e-mail will be sent to you for reference.

Please note that ads require prepayment made to the treasurer. For payment and other information contact **Steve Moons** at stevem@totalhvac.com.

The ads will appear on the website until the end date for publication provided in the submitted form. To extend the ad, please resubmit the form with the new publication dates and the required prepayment amounts.

ASHRAE Table Top Opportunity

We currently have table-top availability for several of the 2013-2014 **ASHRAE OVC** meetings.

Cost for a table-top is \$200 and spaces are starting to fill up.

Please let **Adam Graham** (adam.graham@hts.com) or **Steve Moons** (stevem@totalhvac.com) if you are interested and we will ensure that you are booked in accordingly.

Rod Lancefield

2013-2014 Publicity Committee Co-Chair

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Business Card Ads

You can support your chapter and promote your business by placing your business card in the Capital Communiqué. It will also appear on the chapter website.

The cost is \$225.00 for the year. Please contact **Rod Lancefield** at rod@htseng.com for more details.

2013-2014

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Roderic Potter

LMC INVESTMENTS PRESS RELEASE

December 17, 2013

LMC acquires X-L Air and Hydroplumb.

LMC Investments expands to Ontario with the acquisition of a commercial HVAC contractor as well as a commercial plumbing contractor operating in the Ottawa region.

Saint John, New Brunswick – Styve Dumouchel, CEO of LMC Investments Ltd. (“LMC”), the parent company of Lorneville Mechanical Contractors, Qualmec, Master Mechanical and LOMA, announced today that LMC has closed the acquisition of X-L Air Energy Services Ltd. (“X-L Air”) and Hydroplumb Mechanical Ltd. (“Hydroplumb”), Ottawa based commercial HVAC and plumbing contractors.

“We are excited to welcome the X-L Air and Hydroplumb teams to the LMC family. Both organizations share a commitment to quality and a strong focus on customer satisfaction.” said Styve Dumouchel, CEO of LMC. “Given the deep experience and business relationships of the two companies and the strength of LMC, we expect new opportunities for growth and better capacity to serve our customers going forward.”

X-L Air commenced operations in 1995 and Hydroplumb began operations in 2008. Under the guidance of its founder Nick Haitas, the companies’ design capabilities and technical knowledge are well-suited to handle complex projects such as LEED certified initiatives, as well as renovations to sensitive environments such as historical and heritage sites. The Companies have worked on several significant and heritage-sensitive projects in the Ottawa area, including: the new 20-storey offices for Export Development Canada building, the Canadian Broadcasting Corporation Building, the Canadian Parliament Centre Block and West Block, the DeMarais and Biology ‘A’ buildings at Ottawa University, the 1,400,000 sq. ft. Target Distribution Centre in Cornwall, the National Gallery of Canada, and others. The companies are currently working on the Rideau Centre Mall renovation and on the Lansdowne Park redevelopment project including the CFL Stadium, its Parking Garage and three buildings.

“The addition of X-L-Air and Hydroplumb is part of LMC’s long-term growth strategy” said Styve Dumouchel. “LMC operates throughout Atlantic Canada and in Quebec. Ontario seems like a natural next step for us. Ottawa is a strong and stable market with a significant amount of large projects on the horizon”

“This acquisition offers significant synergies with LMC’s commercial plumbing contractor, Master Mechanical.” said Todd Bethune, Chief Financial Officer of LMC. “The combined strengths of the three companies should lead to process improvements and new business opportunities as the companies pool their collective resources.”

Financial details of the transaction are not being disclosed.

About LMC

LMC was founded in 1977 offering field mechanical construction services to industrial customers. Today the company is one of the largest Atlantic Canadian-based mechanical construction companies, offering a full range of engineering, fabrication and mechanical construction services to clients throughout Eastern Canada.

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www.x-l-air.ca

www.hydroplumb.com

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Air-to-Air Energy Recovery Applications: Best Practices

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Mathematical Optimization Techniques and their Applications: to HVAC&R Systems and Components

Sunday, Jan 19 – 2:00 p.m. to 5:00 p.m.

Combined Heat & Power: Design through Operations

Monday, Jan 20 – 8:30 a.m. to 11:30 a.m.

High-Performance Building Design: Applications and Future Trends

Monday, Jan 20 – 8:30 a.m. to 11:30 a.m.

IAQ Best Practices for Design, Construction and Commissioning **NEW!**

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Commissioning for High-Performance Buildings

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Designing High-Performance Healthcare Facilities **NEW!**

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Exceeding Standard 90.1-2013 to Meet LEED® Requirements **NEW!**

Monday, Jan 20 – 2:45 p.m. to 5:45 p.m.

Data Center Energy Efficiency

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Fundamentals and Applications of Standard 55 **NEW!**

Tuesday, Jan 21 – 1:00 p.m. to 4:00 p.m.

Design of Commercial Ground Source Heat Pumps **NEW!**

Tuesday, Jan 21 – 1:00 p.m. to 4:00 p.m.

Applications of Standard 62.1-2013: Multiple Spaces Equations and Spreadsheets **NEW!**

Wednesday, Jan 22 – 9:00 a.m. to 12:00 p.m.

Troubleshooting Humidity Control Problems

Wednesday, Jan 22 – 1:00 p.m. to 4:00 p.m.

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In two days, gain an in-depth look into *Standards 55, 62.1, 90.1, and 189.1* and the *Advanced Energy Design Guides*. Training will focus on a range of topics including: HVAC equipment and systems; energy modeling; designing mechanical spaces; designing a chiller plant; and BAS controls.

Visit www.ashrae.org/hvacdesign to register

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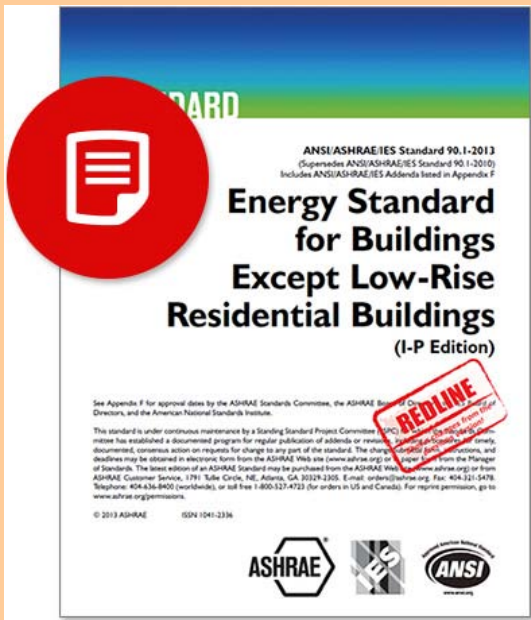
Take advantage of ASHRAE's special administration of the certification examinations on January 23, 2014. All exams will begin at 9:00 a.m. (candidates must report to the testing room at 8:30 a.m.). These exams are being offered in conjunction with the 2014 ASHRAE Winter Conference and AHR Expo in New York City. Refresh your knowledge in preparation of earning an ASHRAE certification with learning opportunities at the show and conference.



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