



AMERICAN SOCIETY OF HEATING, REFRIGERATION AND AIR CONDITIONING ENGINEERS INC.

LONDON CANADA CHAPTER #116

<http://LondonCanada.AshraeChapters.org>

Mon Jan 23/2017

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Topic

Technical Tour

WESTERN - MUSIC BUILDING

with presentation on chilled beam cooling
then dinner afterwards

see attached campus map for building location and
proposed PAID parking lot to be used

5:30pm - Tour Start

6:15pm - Tour Ends

6:30pm - Presentation on chilled beam technology
(Classroom in Music/Talbot College)

7:00pm - Dinner (East Side Mario's)

Meeting - MONDAY JAN 23/2017

5:30 Tour Start

with diner after tour and presentation

PLEASE USE

PAYPAL

ADVANCED PAYMENT BEFORE MEETING

see chapter web site to register and pay
<http://LondonCanada.AshraeChapters.org>

Meal Location

EAST SIDE MARIO'S

94 Fanshawe Park Rd E, London

President's Message

On behalf of ASHRAE London Chapter Board of Governor and Executive Committee, I would like to wish each and every one of you a Happy New Year. As usual, the January chapter meeting is scheduled a week early on Monday January 23rd. This is due to the ASHRAE 2017 AHR Expo happening on January 30 – February 1, 2017 in Las Vegas.

The Theme of the January chapter meeting is a student night. This month we will be heading to Western University Music Building, it will be a tour at the newly renovated and expanded facility, 11000 m² LEED Gold Project. Tour will be followed by a short presentation on the Chilled Beams technology by Darren Alexander of TWA. Dinner will be at East Side Marios on Fanshawe Park Road East. Please see first page of the newsletter for further details on timing and location.

We look forward to seeing you all next week.

Best Regards,
 Khalid El-Kadri
 Chapter President 2016-2017
 ASHRAE London Canada Chapter

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Upcoming Meetings

(check chapter web site for latest information)

Mon Feb 27/2017 - Impacts of Climate Change and Urbanization on
 Future Building Performance

Mon Mar 27/2017 - Air Movement for Energy Efficient Comfort in Conditioned Spaces

Thu April 20/2017 - Society Webcast

Take Control: Using Analytics to Drive Building Performance

Mon June 5/2017 - Golf Tournament

Other Meetings

Jan 28 to Feb 1, 2017 = ASHRAE Winter Conference - Las Vegas, NV

Jan 30 to Feb 1, 2017 = AHR Expo - Las Vegas, NV (ahrexpo.com)

June 24 to 28, 2017 = ASHRAE Annual Conference - Long Beach, CA
 - 2018 -

Jan 20 to 24, 2018 = ASHRAE Winter Conference - Chicago, IL

Jan 22 to 24, 2018 = AHR Expo - Chicago, IL

June 23-27, 2018 = ASHRAE Annual Conference - Houston, TX

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Tech Tour

WESTERN - MUSIC BUILDING

This \$18 million, 11,000 m² LEED Gold project included a near complete replacement of Western's Music Building. The project includes a large Performance Hall designed to achieve acoustic performance on par with Toronto's new Four Season Centre. A custom displacement diffuser was used for the Performance Hall that was designed and tested to project specific requirements. This is the first chilled beam project for the London area. Construction was completed in 2015.

Architect John Nicholson of Nicholson Sheffield Architects, said, "The building is a silent participant in the learning of music."

"When the Music Building opened in 1972, it was designed for an enrolment of 400-450 students. Today, with 700 students, more space was needed. In addition, as with any building, HVAC systems wear out and materials need to be upgraded to meet current environmental codes. The layout, as envisioned by Professor Don McKellar and then Dean Clifford von Kuster, is extremely functional, hence part of the current building was renovated. On either side of the renovated building, new towers were built.

Nicholson, Dean Betty Anne Younker and two former deans, Bob Wood and Jeff Stokes, worked on a renovated and new design. The planning was in close consultation with the Sector Planning Committee, faculty, staff and students via various meetings and Town Hall settings.

The project added 9,500 square feet of usable space, taking the Faculty from 28,165 square feet to 42,050 square feet. (Gross square footage, which includes mechanical, grows by about 19,000 square feet.) In addition to space, the HVAC system servicing the buildings is failing and causing serious damage to delicate instruments.

The \$25-million project involved three main components:

- * A new, five-storey tower constructed in the courtyard space between the east wing of Music Building and Talbot College, housing mostly practice rooms, teaching space, studios and piano technology space;
- * The renovated wing (Block B) houses studios, offices, practice rooms, seminar rooms, Early Music Ensemble Suite, and the main lobby. The tower (Block A) between the Music Building and Talbot College houses the Percussion Suite, Piano Technology Suite, classrooms, offices, studios, practices rooms, rehearsal spaces, and a new 45 seat recital hall. The tower on the west side of the renovated section (Block C) houses rehearsal halls, a newly built von Kuster Hall, and recording studio spaces.
- * A three-storey structure housing added performance space.



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CONNECT-A-COLLEAGUE

Informing colleagues about ASHRAE takes less than 1 minute now with Connect-a-Colleague. During #MarchIntoMembership contest you could win a \$500 American Express gift card when your colleagues join ASHRAE through your customized email referral. Connect-a-Colleague simply creates an automated email on your behalf and the more people you invite during the month of March, the more chances you have to win.

ASHRAE member referrals continue to be the top reason new members join. As an ASHRAE member, your referral is a very powerful tool that can benefit your colleagues, your Society, and the HVAC&R industry. Please take a minute to Connect-a-Colleague today.

Get started now: Connect-a-Colleague
ashrae.org/connect

ASHRAE JOB BOARD

Having trouble finding the time to search through all of the available jobs on ASHRAE Job Board? Let ASHRAE do the work for you! Create a personal job alert and new jobs that match your search criteria will be emailed directly to you.

Our Job Alerts will: match jobs to your customized criteria; notify you when potential opportunities become available; allow you to focus on other career-building activities, such as networking

Sign up for job alerts today on ASHRAE Job Board and you will be notified as soon as the jobs you want are posted!

Research

The following have contributed to ASHRAE Research so far this fiscal year. Honor Roll level contributors will be listed in the ASHRAE Journal. All honour roll donors will be listed in the Newsletter and on the website for the duration of the fiscal year. Donate early!

Individual Donors - \$100-\$249 (Honor Roll Level)

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As the cold weather nears remember to thank ASHRAE Research for keeping your family warm at night! In fact there's currently 20 research projects underway doing just that. At any given time ASHRAE is supporting about 140 different research projects totaling about \$13 million. These projects not only directly support our industry, but continually push it forward. In Region II alone there are 10 projects with over \$600,000 worth of funding in progress. These projects are directly funded with the donations to ASHRAE Research Canada. Our goal as a chapter this year is to raise \$13,000 and we are currently 9% of the way there. When choosing where to donate this holiday season, keep in mind the one donation that not only benefits your family's wellbeing, conserves the environment and protects our future, but also directly accelerates the industry we rely on to make a living.

A couple of interesting facts that are new options to the Chapter this year... We have created a couple of endowed research funds named below. One is general endowment for the Chapter and the other is specifically for Past Chapter Presidents. When you are considering a donation to ASHRAE Research please consider making a donation to either one of these endowed research funds. Let me know if you have any questions about this or how you do this.

<http://www.ashrae.org/contribute>

Jordan Foster
 Resource Promotion Chair FY2016/2017



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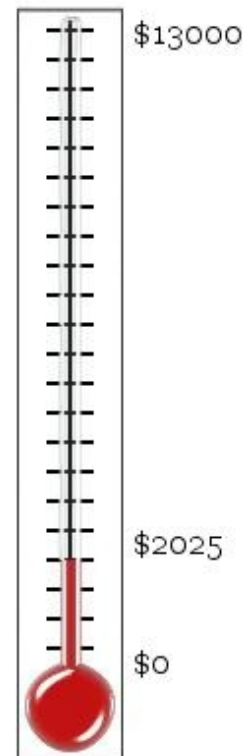
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SAVE THE DATE

ASHRAE Webcast - Thur April 20
Using Analytics to Drive Building Performance

FREE PDHs for your participation! The Webcast has also been approved for three (3) AIA HSW Learning Units (LU/HSW) and three (3) GBCI Continuing Education Hours (CEs).

This webcast will feature industry experts who will define the importance of, and why we should strive for, better building operations through improved controls and analytics. Viewers will be able to describe key elements of controls and analytics for building operations, and identify steps required to deploy analytics in building projects, including commissioning. This program will quantify how applying best practice controls improve building performance, and will recognize the value of analytics in building operations to achieve a reduced cost and increased performance.

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NEW DOE-aligned Commissioning Certification (BCxP)

Application is now open for computer-based testing (CBT) of the new, DOE-aligned Building Commissioning Professional (BCxP) certification exam in the United States beginning February 2. Application will open April 1 for computer-based testing world-wide.

"Adoption of the Building Commissioning Professional scheme requirements is one more example in a very long list of ASHRAE's commitment to continuous improvement and adding value for members," says Certification Committee Chair, Rich Rose.

This new ASHRAE program validates competency against the National Institute of Building Sciences (NIBS) Better Buildings Workforce Guidelines scheme requirements for the Building Commissioning Professional certification, with the goal of achieving by June, 2017 Department of Energy (DOE) recognition of services provided by BCxP certificants.

With over 2,500 certifications earned to date, ASHRAE certifications increasingly have become the must-have credential for built-environment professionals.

web link:

<https://www.ashrae.org/education--certification/certification/bcxp-building-commissioning-professional-certification>

Other Certifications

<https://www.ashrae.org/education--certification/certification>

Energy Assessment, High Performance Building Design, Energy Modeling, Healthcare Facility Design, Building Operations

2017
Winter
Conference
Jan. 28 – Feb. 1
Las Vegas, NV



AHR
Expo
Jan. 30 – Feb. 1
Las Vegas, NV



Register Now for the 2017 ASHRAE Winter Conference and AHR Expo

The largest gathering of HVAC&R professionals in the world is taking place January 28 – February 1 in Las Vegas. Join us at Caesars Palace and the Las Vegas Convention Center to learn the latest in technology, earn PDH's, and help guide the industry by taking part in a standards or technical committee meeting.

8 Conference Tracks | 2000+ AHR Exhibitors | 20+ ASHRAE Learning Institute Courses | Social Events | Tours | 600+ Technical Meetings

ASHRAExCHANGE

Want to stay updated with ASHRAE instantly? Log onto to ASHRAExCHANGE to ask questions, discuss industry news and connect with other engineers!



YEA & STUDENT ACTIVITY "For the Love of HVAC"

16 Feb 2017 6:30 PM ASHRAE Toronto Chapter
Battle Archery - 8052 Torbram Rd, Brampton ON.

Calling all Young Engineers in ASHRAE! We are announcing our second formal event of the year on Thursday Feb 16th. Our Valentines week event will be held at Battle Archery and the activity will be archery tag games. It is open to our YEA and student chapter members. The cost is \$20 including pizza and the fee for the game. Please make sure to register and submit payment to confirm your spot as soon as possible. Registration is limited to 23 people.

Details: We will start the preparations at 6:30 pm sharp at Battle Archery (8052 Torbram Rd, Brampton). Games begin at 7pm with one hour of play time and followed by a complementary pizza dinner.

Come out to meet your fellow student and YEA members, network and have fun! Any questions please email your YEA chapter chair Teresa Jiang at Teresa.jiang@uponor.com.

More information and online registration:
<http://torontoashrae.com/event-2430592>

ASHRAE Toronto Chapter

Engineering Employment Event

OSPE is hosting an Engineering Employment Event (E3) on February 15 in Windsor! This E3 welcomes OSPE and PEO members who are recent graduates, EITs, young professionals along with those with 5+ years of engineering experience. E3's are designed to bring together top notch engineering employers and qualified job seekers. You will be able to meet hiring employers, view their organization's job ads and connect with employers about their current opportunities.

See web site for more information, location, fees and registration
<https://www.ospe.on.ca/events#489/E3-JSK-0217>

New Duct Sizing Calculator Available

ATLANTA – A new duct sizing calculator from ASHRAE and the Air Distribution Institute (ADI) allows HVAC air distribution system designers to more accurately size ducts, especially flex ducts under varying amounts of compression, based on research results.

The Duct Size Calculator is a quick reference tool for approximating duct sizes and equivalent sizes of sheet metal duct vs. flexible duct. The calculator uses information from ASHRAE Research Project 1333, HVAC Duct Efficiency Measures, and was developed with funding support from ASHRAE and ADI. ASHRAE Technical Committee 5.2, Duct Design, sponsored the project.

"While the calculator resembles a wheel type ductulator similar to those used during the days of slide rules, it incorporates three new fields for equivalent duct sizing," Chris Van Rite, developer of the calculator, said. "These new fields help demonstrate the significant loss of airflow due to improper installation of flexible ducts."

The calculator includes fields for 4, 15 and 30 percent compression in flexible ducts. Van Rite notes that the calculations used to create these size references are based on straight line compression as performed in the laboratory on a flat surface. Field installed flexible ducts with bends, kinks and excessive lengths will have additional resistance, which will result in diminished airflow.

"The use of this tool allows duct designers to account for less than optimum installation and gives a more accurate design to installed performance correlation," Van Rite said.

ASHRAE research has quantified the effects of compression (not stretching) flexible duct, which increases the roughness and therefore the friction loss inside a flexible duct. Airflow testing follows protocols prescribed by ANSI/ASHRAE Standard 120-2008, Method of Testing to Determine Flow Resistance of HVAC Ducts and Fittings.

Testing at Lawrence Berkeley National Laboratory and at Texas A&M University along with data analysis by Tennessee Technical University has quantified the adverse effects of compression on airflow. Those correlations agreed closely with the equations published in Chapter 21 of the 2013 ASHRAE Handbook, Fundamentals, so the equations were used to create the new calculator, he said.

The Duct Size Calculator features inch-pound (I-P) units on one side and the International System of Units (SI) on the other.

The cost of the calculator is \$34, ASHRAE members (\$40, non-members). To order, visit www.ashrae.org/bookstore or contact ASHRAE Customer Contact Center at 1-800-527-4723 (United States and Canada) or 404-636-8400 (worldwide) or fax 678-539-2129.

2016 Versions of ASHRAE Refrigerant Standards Published

ATLANTA – The 2016 editions of ASHRAE's major refrigerants-related standards have been published as a package with 30 new refrigerants and refrigerant blends added.

ANSI/ASHRAE 15, Safety Standard for Refrigeration Systems, and its sister standard, ANSI/ASHRAE 34, Designation and Safety Classification of Refrigerants, constitute a complete set of requirements for the safe design, construction and application of refrigeration systems used in a wide variety of residential, commercial and industrial applications.

For both of the standards, the updates come from a continuing stream of changes made based on new science and research, experience, and proposals from designers, manufacturers and users.

The 2016 edition of Standard 15 incorporates addenda a, b, c, e and g to Standard 15-2013, which comprise the following changes:

- * Incorporated changes to ensure improvement in the safe design, construction, installation and operation of refrigeration systems
- * Updated requirements for safety relief systems, including revisions to relief vent pipe discharge locations and design provisions for headered relief vent systems
- * Updated design pressure requirements applicable to systems using carbon dioxide
- * Modified overpressure protection for heat exchangers and pressure limiting devices for positive displacement compressors

The 2016 edition of Standard 34 incorporates 35 addenda to the 2013 edition. Among the key changes to the 2016 edition are the following:

- * Added three new refrigerants and 27 new refrigerant blends
- * Changed the source of the WEEL (Workplace Environmental Exposure Levels) values from AIHA (American Industrial Hygiene Association) to TERA OARS-WEEL (Toxicology Excellence for Risk Assessment/Occupational Alliance for Risk Science)
- * Changed requirements for the refrigerant application process
- * Changed the requirement for submission of standard test result data to validate the method used to determine burning velocity
- * Changed units required for refrigerant designation to require the submission of dual units
- * Revised R-744 toxicity data for the RCL, LC 50, cardiac sensitization NOEL, anesthesia NOEL, ATEL, RCL and ATEL source

The cost of ASHRAE Standards 15 and 34, which are packaged together, is \$95 for ASHRAE members (\$112, non-members). To order, visit www.ashrae.org/bookstore or contact ASHRAE Customer Contact Center at 1-800-527-4723 (United States and Canada), 404-636-8400 (worldwide) or fax 678-539-2129.

Free Residentially-Focused Sessions Offered by ASHRAE at AHR Expo

ATLANTA – An in-depth look at ASHRAE's work in the residential market as well as guidance on several aspects of residential design is offered in four free seminars at the 2017 AHR Expo. The four seminars are free, and no badge is required to attend. They take place Tuesday, Jan. 31, from 11 a.m. until 5 p.m.

Did It Really Work? Theory vs. Practice in Residential HVAC. The late, great Yogi Berra once said: "In theory, there's no difference between theory and practice. But in practice... there is." The speakers at this seminar agree with Yogi. Using measured data from both dry and humid climates, they show how actual energy and thermal comfort in real-world houses differs from expectations. But beyond the problems, the speakers also show data from specific designs and installation practices that have helped contractors meet and exceed customer expectations with simple, low-cost, reliable equipment instead of whiz-bang, expensive stuff that too often fails to deliver comfort and low energy performance.

ASHRAE's Residential Initiative: Why We Care. Although ASHRAE historically has not focused on residential HVAC energy use, the residential sector consumes at least as much energy as the commercial sector, and approximately one-fifth of all primary energy in the United States. Three Presidential Fellows will present on ASHRAE's recent endeavors into the residential sector. The session covers how the Residential Ad Hoc Committee became the newly established Residential Building Committee (RBC), what purpose the RBC serves, the importance of residential design in ASHRAE standards and a summary of ASHRAE's residential market advocacy efforts with government agencies.

International Experience and Contractors Perspectives on Residential Aspects that Need to be Considered on Every Job. It has long been recognized that design and installation faults have an impact on HVAC system capacity and efficiency. However, the magnitude and consequences of these fault impacts was unknown. This seminar provides insights from a recently concluded four-year investigation that quantifies the consequences of failing to observe the design and installation elements contained within the industry's HVAC Quality Installation Specifications. It also highlights steps taken in Europe that are relevant to the North American market to reduce residential energy consumption, including deep retrofit strategies and incremental options with large market uptake for overall large impact.

Flex Ducts, Hard Ducts and No Ducts: Migration Patterns for Duct Hunters (or not) in the Land of Thermal Comfort. In the land of comfort, educated homeowners are changing their thermal expectations from HVAC systems, and contractors are on the front line hunting for the best solutions. Regardless of ducts or pipes, the "migration" of heat takes a basic understanding of what works and what doesn't. It is not easy to figure out the right design for the application, especially as homes get more efficient. Low-cost ducted systems may not always work right or be the best fit. This seminar looks at best practices for distributing heat in residential air and hydronic systems, including ducted and radiant design options.

User's Manual for 2016 IAQ Standard Published by ASHRAE

ATLANTA – A manual to help users navigate the changes in ASHRAE's 2016 ventilation standard is now available.

The User's Manual for ANSI/ASHRAE Standard 62.1-2016, Ventilation for Acceptable Indoor Air Quality, provides information on the requirements of the standard and includes tables, illustrations and examples to aid users in designing, installing and operating systems for ventilation in buildings.

"The manual elaborates on the requirements in the standard published earlier this year," Hoy Bohanon, chair of the Standard 62.1 committee, said. "The standard contained changes that impact high rise residential spaces, the indoor air quality procedure, laboratory exhaust and demand control ventilation. The manual provides guidance on how to incorporate those changes and others."

The manual also contains:

- Information on the intent and application of Standard 62.1
- Sample calculations and examples
- Best practices examples complying with the requirements of this version of Standard 62.1
- Useful reference materials
- Guidance for building operation and maintenance personnel
- Instructions for the user in the application of tools used for compliance with Standard 62.1

Also included is a link to newly revised web-based spreadsheets that aid in ventilation rate procedure calculations.

The cost of Standard 62.1-2016 User's Manual is \$80, ASHRAE members (\$95, non-members). To order, visit www.ashrae.org/bookstore or contact ASHRAE Customer Contact Center at 1-800-527-4723 (United States and Canada) or 404-636-8400 (worldwide) or fax 678-539-2129.

Smart Grid Standard Adopted by International Organization for Standardization

ATLANTA – A smart grid standard published earlier this year by ASHRAE and the National Electrical Manufacturers Association (NEMA) has been approved as an International Organization for Standardization (ISO) standard. ANSI/ASHRAE/NEMA Standard 201-2016, Facility Smart Grid Information Model (FSGIM), provides a common basis for electrical energy consumers to describe, manage and communicate about electrical energy consumptions and forecasts. On Nov. 17, ISO/TC 205 Building Environment Design unanimously approved the FSGIM standard in a draft international standard ballot. Because there were no negative votes and no comments to resolve, the standard can move directly to the publication process without an additional international vote, according to Standard 201 committee chair Steve Bushby. The standard will soon be published as ISO 17800.

"This approval is important given that the standard provides one piece of a larger ecosystem of standards that support the global transformation of the current electric grid into a new smart grid," Bushby said. "This grid will support the two-way flow of both information and electricity as well as widespread use of distributed, renewable generation sources."

The FSGIM standard builds upon the work of the Smart Grid Interoperability Panel (SGIP) Priority Action Plan 17 and several other smart grid standards, including the standards that support Green Button. The FSGIM standard defines key information that must be shared between electricity providers and electricity consumers along with internal operational and control information needed to control loads and generation sources in facilities (from homes to manufacturing plants) in cooperation with a smart grid. The FSGIM is a seed standard intended to guide the evolution of control technology specific standards, such as ANSI/ASHRAE Standard 135, BACnet – A Data Communication Protocol for Building Automation and Control Networks, for use in various locations. Standard 201 joins three other ASHRAE standards that have been adopted by ISO. Two of these standards, both direct adoptions, ISO 16484-5, a direct adoption of Standard 135, and ISO 16484-6, ANSI/ASHRAE Standard 135.1, Method of Test for Conformance to BACnet, are already being modified to include new features that would support the functionality defined in FSGIM. Standard 201 is part of ASHRAE's efforts to support SGIP in accelerating the development of interoperability for a nationwide smart electric power grid.

Since being named in the Energy Independence and Security Act of 2007 as a participant in federal efforts to enhance the productivity, efficiency, and sustainability of the electric grid NEMA and its members are leading the way in Smart Grid Technologies by encouraging investment in the national electricity grid, research and development, and developing new product standards. This was first evidenced when NEMA developed a standard describing requirements for Smart Meter upgradeability as well as a recent standard that contains testing and certification recommendations and best practices that promote the introduction of interoperable products in the marketplace. NEMA represents nearly 400 electrical, medical imaging, and radiation therapy manufacturers at the forefront of electrical safety, reliability, resilience, efficiency, and energy security. NEMA's combined industries account for more than 400,000 American jobs and more than 7,000 facilities across the U.S. Domestic production exceeds \$117 billion per year.

SGIP is an industry consortium representing a cross-section of the energy ecosystem focusing on accelerating grid modernization and the energy Internet of Things through policy, education, and promotion of interoperability and standards to empower customers and enable a sustainable energy future. SGIP's members are utilities, vendors, investment institutions, industry associations, regulators, government entities, national labs, services providers, and universities. A nonprofit organization, SGIP drives change through a consensus process. Visit www.sgip.org. Follow SGIP on LinkedIn and Twitter.



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