# COBBUILD 2020 November Capital



# ASHRAE Ottawa Valley Chapter

DATE: **Tuesday November 17, 2020** 

1600 - 1730 Hrs EST

**LOCATION: Zoom Webinar** 

PROGRAM: **Transforming an Existing Building Into a High-Performing Facility** 

Most buildings, new or old, do not perform anywhere near their most efficient potential. HVAC systems deteriorate with time. Find out what to look for relative to improving the efficiency of the HVAC and lighting systems in a building, learn how to do it at minimum cost by taking advantage of incentives and rebates, and learn how to keep it performing at its potential to save your owner operating and utility costs.

SPEAKER: Jim Newman

Jim Newman is an active member of many technical societies, a member of the Construction and Design Committee and of the Speakers Bureau of the Engineering Society of Detroit (ESD), and ESD's spokesperson on energy and environmental issues. He is a Fellow of the ESD.

Jim is a trainer for ASHRAE Energy Standard 90.1 and has trained hundreds of architects, engineers, code officials, and contractors on the use of the Standard. He has been active in several ASHRAE TCs, was Vice-chair of the Industrial Air Conditioning TC in the 1970s, chaired many symposium and was responsible for the rewrite of 10 chapters in the Applications Guide and Data Book during that time. He has also been active on TC 5.5, Air-to-Air Energy Recovery, for the past 12 years. He was a member of the committee that developed ASHRAE's Energy Policy Document for 2008 and a Provisional Energy Auditor for the pilot program of the ASHRAE Building Energy Quotient (bEQ).

He is a member of the Energy and Environment Committee of BOMA International, Chair of the Sustainability Committee of the Detroit BOMA chapter, a past Board member of the Detroit Regional Chapter (DRC) of the U.S. Green Building Council (USGBC) and of the Detroit ASHRAE chapter. Jim is Past Chair of the Public Policy Committee of USGBC-Detroit Regional Chapter (DRC), and makes presentations to municipalities on how they can Green their cities and attract Green development.

(cont.)

Please register online at the link below

ASHRAE Associate/Affiliate/Member: \$0 Non-Member: \$10.00 ASHRAE Student: Non-MemberStudent: \$10.00 \$0

https://ashraeottawa.simplesignup.ca/en/4020/index.php?m=eventsList

Jim lectures at area colleges and universities, is a frequent speaker on radio and television programs, and provides webcasts and podcasts to varied audiences on Indoor Air Quality, Energy, Sustainable Buildings and Proper Operating and Maintenance Techniques.

Jim has published numerous papers on Indoor Air Quality, Energy Con-

servation and USGBC and LEED, and is an internationally recognized speaker on these issues and on Green Design and Efficient Operating and Maintenance practices. His most recent book, co-authored with two attorneys, Current Critical Issues in Environmental Law – Green Buildings and Sustainable Development, was published by Lexis Nexis in June 2008.

He writes a periodic column for the monthly Newsletter of the Detroit ASHRAE Chapter on LEED and Sustainable Design and is LEED Project Administrator for many LEED-certified buildings in the United States as well as elsewhere in the world, with certifications ranging from Certified to Platinum in many different categories.

#### **President's Message**

With another successful program behind us we move into the heart of the ASHRAE year. The manner in which your Ottawa Valley Team has responded to our present limitations has been remarkable. The year will be continuing to take shape, and will provide most remarkable opportunities for all.

November is a time for remembrance. It is a time where we reflect on challenges faced, and the manner and character in which those who faced challenge responded.

important to maintain perspective as life presents itself. While I applaud all the efforts of the OVC, and the HVAC/R community at large, in dealing with all of our current implications, it would serve us well to maintain perspective with a sense of gratitude. While we work to keep our communities safe and flourishing, we do with considerably more comfort and consistency than many have through the years.

With that thought, I would like to offer a reflection on one of our members who passed away earlier this year.

Dalton McIntyre was a fixture in the ASHRAE and other professional communities from 1949 and through his life. Mr. McIntyre was present at the '52 OVC charter meeting at the Prescott. When in Ottawa he served in every capacity in the Chapter. He was president of the Chapter in 82-83. His presence at our annual May meeting will be sorely missed, as will be the generous way with which he supported.

Again, perspective.

Previous to Mr. McIntyre's dedication and service to his professional world, he served with our Canadian Navy during World War II.

Remember. Service and sacrifice.



President
Adam Moons
2020-2021
OVC President
Master Group

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As we continue to drive our ASHRAE year forward, please remember to be thankful for the opportunities that we have the privilege of enjoying every day. There is not a better professional industry in which to work; no more giving and dedicated a group.

Wishing you all a splendid November!

http://www.ashrae.ottawa.on.ca/ashrae-ovc history/Spotlight/Dalton McIntyre/Spotlight Dalton McIntyre-Feb2009.shtml









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#### What You Missed

The second program meeting of the 2020/2021 ASHRAE season was held on October 20, 2020 via the virtual platform Zoom. The theme for the meeting was Research Promotion. The meeting had 88 registered attendees. The program for the evening was Burj Khalifa: Engineering the World's Tallest Building, presented by Luke Leung.

President Adam Moons welcomed everyone and started the Webinar. He is proud of the team and hard work that people are doing in order to keep the Chapter alive during these times. Adam emphasized that if you are new to the organization, to please feel free to reach out to anyone currently involve to learn about their experience and the value they receive of ASHRAE.

President Adam Moons gave thanks to Governors Joe Della Valle and Trevor Thomson for organising the Fall golf tournament. Congratulations to Marc Parent who took home the trophy. Adam then introduced the Executive and Board of Governors. President Adam Moons introduced two new members that joined our Chapter since the last program meeting on behalf of Membership Promotion Chair Josh Bourbonniere. Do not hesitate to reach out to Josh for any questions regarding your membership.

President-Elect Adrianne Mitani spoke about this year's Research Promotion campaign. The Research Promotion committee is planning on reaching out to members and companies for donations starting in the next upcoming weeks. Adrianne indicated that 300\$ has been raised from raffle tickets at the golf tournament to win a tablet that was donated by EngAir.

President Adam Moons the introduced CTTC Chair Elizabeth Primeau. Elizabeth followed with a few housekeeping items regarding the webinar. The attendees were reminded of the survey which will be emailed after the meeting. CTTC Chair Elizabeth Primeau announced the program topic for the evening, Burj Khalifa: Engineering the World's Tallest Building, and introduced the speaker, Luke Leung.

Luke Leung is a Director of the Sustainability Engineering Studio for Skidmore, Owings and Merrill LLP. His work includes Burj Khalifa, the world's current tallest man-made structure; Multiple times "Excellence in Engineering" award from the American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE); 2 awards from National Institute of Building Sciences, among others. Selected projects also include Pertamina Tower (Net Zero Supertall), General Motors Global Headquarters, Roche Diagnostic in Indianapolis, Beijing Finance Street, Embassy of Ottawa in Canada, Embassy in Beijing, Lakeside - 55 million sqft low energy development, a LEED Platinum building with the first large scale horizontal wind turbine in the city of Chicago; etc., and has served as a member of the editorial team for the CTBUH guide Natural Ventilation in High-Rise Office Buildings, ASHRAE



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"Design Guide for Tall, Supertall, Megatall Building Systems", among other publications.

Luke Leung started the presentation mentioning that one of the first building in his career was in fact the US Embassy in Ottawa.

He was part of the American firm was hired to design the tallest building in the world in Dubai. But why build this building in a desert? Dubai needed this building for many reasons. The main reason the developers came up with is if they build a really tall building there, all the other buildings around will be worth more and increase in value. Which was a great success, indeed.

The Burj Khalifa includes one of the first of the Giorgio Armani hotels. Luke then talked about the different levels in elevation. One of the top revenues for the tower is from the sale of tickets to go up the observation deck at the top of the building.

The HVAC design of the building was a challenge due to the height impact of the environment. The cooler the air is farther away from the ground level and less humid at higher level and colder temperature. Then what design temperatures do we use?



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ASHRAE states that "... rates may be adjusted for actual density, but such adjustment is not required...".

Many tests were completed to acquired data such as curtain wall testing for air and water penetration levels.

A study from Switzerland stated that living at higher elevations will breath cleaner air and live longer. The building total outdoor air requirement is almost 1 million cfm. The chilled water system consists of a 460psi (3.1MP) express riser system, with incoming pumps and exchangers at the lower level and a second set of pumping system at floor 75. The cooling load is 12,500 tons of cooling, provided by central plant with ice storage. The building egress system is designed with cooling. It will provide 4 hours of cooling to safely bring people out without heat exertion.

About 250,000 gallons (946,000 Liters) of domestic water is consumed per day. The building has a gravity type domestic water system. All the domestic cold water system is on emergency power. The fire protection system is also by gravity. The water storage tank provides up to 90 minutes of

protection.

The electricity consumption of the building peaks at 50 MVA, which is equivalent of 500,000 light bulbs at 100 Watts each. There are 6 generators in the building, five at 11kV, 2150 kW each and one at 400V, 525 kW. The emergency lighting system includes a central battery system and provides 3 hours of continuous operation for egress.

The building lightning protection is another important system, due to the height of the building. The designers assumed that due to its height, 1 in 4 lightning in the area will hit the Burj Khalifa. A Faraday cage has been implemented connecting the entire building to the ground. The top of the building has a lightning attractor.

The condensate recovery system retrieves about 9.8 million gallons annually. It collects cold water condensate from the top and bring it down to cool down the incoming domestic water during the summer and it is also used for irrigation.

Due to the high wind at the higher levels of the building, there are devices that warn the occupants when it is not safe to go outside on the balconies.

High strength concrete was used to building the building. Penetrations could not be drilled once the concrete has been set, its almost like stone. All penetrations were coordination in the floor plan before. Standardize apartments layouts were used to make the process easier. A total of 150,000 penetrations were coordinated which took about 6 months to do this.

Luke encouraged that if you have chance to visit please do!

Fun fact, Luke asked how long do we think it took to sell all the apartments? The answer is 2 days! The building structure was designed to last 100 years, but could last longer, other than typical MEP system replacement every 20-30 years.

The presentation finished with a question period. Elizabeth read the questions to Luke that were sent from attendees via the webinar chat.

President Adam Moons thanked Luke Leung, ended the webinar with closing remarks and reminded attendees of the survey which will be emailed. The next meeting is scheduled for Tuesday, November 17th.

## **Membership Update**

I would like to introduce and welcome the following new members:

- Dave Wilson

these times.

At any time, if you have any questions or comments regarding your ASHRAE membership, please do not hesitate to contact me. Thank you all for the continued support and participation in your local ASHRAE chapter during

Looking forward to seeing everyone at the next ASHRAE virtual meeting in November.



Membership Promotion Josh Bourbonniere 2020-2021 OVC Membership Committee TRANE

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#### **News Update**

#### ASHRAE Recognizes 2020 LowDown Showdown Modeling Challenge Teams

ATLANTA (October 19, 2020) -2020 ASHRAE recognized the LowDown Showdown modeling competition teams. The competition was held virtually for the first time in conjunction with the virtual 2020 <u>Performance</u> Building <u>Analysis</u> Conference Simbuild and **ASHRAE** co-organized by and IBPSA-USA.

The LowDown Showdown engages architects, engineers, designers and energy modelers by working on integrated teams in the creation of outstanding designs that solve in real-world building efficiency challenges.

"Each year of the LDSd competition, we ask participating teams to take on a new challenge in building performance analysis, said John Bynum, competition chair. "The teams presented outstanding ideas for designing a new building that has a low carbon or carbon neutral footprint, this year's challenge."

This year's competition took a page from New York City's groundbreaking new Climate Mobilization Act that requires building owners to reduce their carbon footprint. Participating teams designed a 300,000 sf, 15 story mixed-use building located anywhere in the five boroughs of New York City. The building contained retail space, residential space and a full-service restaurant. Teams were evaluated in six categories:

• Carbon Neutral Approach/Energy Use

- Creativity
- Innovative Approaches
- Sustainability/Durability
- Indoor Environmental Quality
- Workflow and Teamwork

First place was awarded to team "Aequitas" for designing a net-zero-energy building that balanced contextual neighborhood

cues and functional performance. building's primary facade captured the design of nearby warehouses. Functional elements augment the building's performance and comfort included narrow floorplates for ample daylight and ventilation, a dichotomous façade on the northwest that acts as a sound barrier to adjacent vehicle and train noise, and a diaphanous open facade on the southeast, aimed at maximizing daylight and solar energy captured through a PV integrated window system. Resiliency measures were incorporated, HVAC systems minimized use of fossil fuels and mass timber was utilized as the primary structural system, which at 15 stories made this building one of the tallest mass timber structures in North America.

"Our building integrates occupant comfort, beautiful and functional design, and healthy materials, said Elizabeth LeRiche, team captain. "Residents and neighbors can gather in outdoor green spaces and community gardens, fostering bonds through a shared appreciation of food production and our connection to our collective impact on the environment."

second-place team, "Carbonbusters," chose an adaptive reuse design strategy restoring a brick power plant that had been abandoned, with a focus on energy efficient construction and locally materials. The sourced project included 1,500 feet deep geothermal wells acting as a reliable source of energy for heating and cooling, glazing high-performance minimizes heat transfer and energy loss, a green roof and public garden and supplemental power production using hydrogen.

Also receiving second place, the "Parametric Posse Recharged" team focused on using parametric design tools to strategically enhance the performance of the building type with respect to climate response, energy efficiency, carbon mitigation and



CTTC Chair Elizabeth Primeau 2020-2021 CTTC Chair Total HVAC

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occupant well-being. The project included 3D façade providing external shading and aesthetic interest, a high-COP centralized GSHP system to provide hot/chilled water to individual air-handling units in the apartments and restaurant spaces and sky gardens configured to reduce horizontal circulation.

The fan favorite team, the "Carbon Lighters", followed a tiered design process on a 41,860 square feet fast food chain drive thru building. The project included a generous central courtyard configured to open to the East to catch the predominant southeastern summer wind based on Brooklyn climate data, residential units with access on one side and photovoltaics atop a continuous roof canopy.

The competition results were announced during the virtual conference. See complete project overviews, including team posters on the 2020 ASHRAE LowDown Showdown Modeling Challenge results webpage.

#### ASHRAE Introduces Remote Online Proctored Exams

ATLANTA (October 14, 2020) – ASHRAE announced that a new testing method is now available for completing certification exams.

ASHRAE launches Remote Online Proctored examination as a safe, secure and convenient certification exam delivery mode. ASHRAE candidates are now able to schedule and sit for a certification exam from their home or office.

"This new exam delivery mode not only will expand the market for

Rēgulvar

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ASHRAE certification to every built-environment professional in the world with a desktop or laptop and a stable internet connection, but it also demonstrates yet again ASHRAE's ability to pivot in the face of a challenge and emerge a more nimble organization, even better equipped to meet industry needs," said 2020-21 ASHRAE President Charles E. Gulledge III, P.E., HBDP.

Candidates will utilize a remote testing platform which features 100% live proctoring staff and lock-down browser to ensure reliable

monitoring and security risk throughout mitigation the examination process. Remote online proctored exams require a desktop or laptop, a stable internet connection, Google Chrome browser, a working webcam, and microphone. intuitive user interface and live chat assure a seamless and supported experience.

ASHRAE Remote Online Proctored exam security features are as follows:

- Live check-in
- Identity authentication measures

- Scanning of the test taker's environment
- Lock-down browser
- Experienced proctors monitoring audio and video

At an exam's conclusion, candidates will be able to view their Pass or Fail result on their screen. Successful results are posted to the ASHRAE website by the 15th of the month following a candidate's examination, by which time successful candidates also will be invited to download their ASHRAE certification digital badge.

### **Stroke Play Golf Recap**

Hi OVC!

I would like to thank all of those who participated in the ASHRAE stroke play golf tournament.

This was a great day on the golf course with many returning players and new faces as well.

With the low score of 79, **Marc Parent** (inset) was this year's

tournament winner!

Special thanks go out to Metcalfe Golf. They were a extremely accommodating host with great staff helping us throughout the day and leading up to the event.

Trevor and I are looking forward to continuing this tradition again next year!

Thanks again OVC for your continued support.



Governor
Joe Della Valle
2020-2021
OVC Governor
WALMAR

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#### Research Promotion

Thank you for your continued support of the ASHRAÉ Research Canada! All of the money donated to ASHRAE research goes back to the support of our community, and you can control exactly where that goes.

Thank you to the RP Campaign Committee for volunteering their time. This year's team includes: Aaron Dobson, Joe Della Valle, Frank Bann, and Michael Swayne.

Engineered air generously donated a tablet for the Spring Golf tournament, which raised \$300 to ASHRAE Research Canada.

The Ottawa Valley Chapter goal is \$37,700 and we are confident that our chapter and committee can achieve this committee. The Society

RP campaign raises over \$2.2 million each year from over 6,000 donors.

The following list of current 2020-2021 RP Campaign donors will be provided in each monthly newsletter and updated monthly on the website, so donate quickly to see **E-mail:**adrianne.mitani@smithandandersen.com you name appear! The easiest ways to donate to the RP Campaign are through the links below.

Or a cheque can be sent made payable to ASHRAE Ottawa Valley Chapter, please contact me if you would like to make any arrangements sending а check. adrianne.mitani@smithandandersen. com or 613-762-4260.



Research **Promotion** Adrianne Mitani 2020-2021 **OVC Research** Promotion Smith+Andersen

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<b>ASHRAE Partner</b> \$5,000-\$9,999	<b>ASHRAE Associate</b> \$2,500-\$4,999	Major Donor Silver \$1,000-\$2,499
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**Special Thank-You to the following Donors for their contribution** David Michelin, Chris Brown

ASHRAE Society link: https://xp20.ashrae.org/secure/researchpromotion/rp.html

ASHRAE OVC link: https://ashraeottawa.simplesignup.ca/en/6557/index.php?m=eventSummary

ASHRAE Research to address Covd 19: https://xp20.ashrae.org/secure/foundation/covid.html

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# **2020-2021 Government Affairs Committee**

To stay current on ASHRAE COVID-19 Response resources check out <a href="https://www.ashrae.org/technical-resources/resources">https://www.ashrae.org/technical-resources/resources</a> including guidance's on infection aerosols, position documents and more.

**Energy Efficiency Training Opportunities in Canada** 

Last month we spoke about Efficiency Canada and Carleton University's energy codes report, and now Energy Canada has also has compiled a database of online training opportunities in energy efficiency. Now is a great time to plan ahead for what the workforce might look like for next year, and to upgrade or learn new skills in our sector. You can browse courses, including those from ASHRAE here.

#### Canada Infrastructure Bank Announces \$10 Billion in Infrastructure Investments

On October 1, Canadian Prime Minister Justin Trudeau announced the creation of an infrastructure "Canada program called the Infrastructure Growth Plan," which will invest in high-speed internet, renewable energy generation, agriculture improvements, low-carbon transportation and building retrofits. Specifically, \$2 billion from the fund will be used for large-scale building retrofits to increase energy efficiency

improve community sustainability. More information about the program can be found here.

#### IEA Releases "World Energy Outlook 2020"

The International Energy Agency released its flagship publication, "The World Energy Outlook 2020." The report focuses on forecasts over the next decade: strong growth in renewables are expected, but these investments need to be paired with investment in electricity grids to ensure reliability and security of the electricity supply. The COVID-19 pandemic has triggered deep cuts in energy demand, with an expected global drop of 5 percent this year. To view the full report click here.

# Interest in Green Bonds Increases in Response to COVID-19 Pandemic

Interest in green bonds has increased in recent months as investors seek out securities that can generate both economic and environmental returns. Governments are increasingly offering green bonds to help meet ambitious climate goals companies are also using them to reduce the impact of their business on the environment. Green bonds are similar to traditional fixed-income securities, but the money they raise must be spent on climate, environment or renewable energy products. Governments around the



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world are including environmental projects in their coronavirus recovery plans, which need to be financed by taking on new debt. At the same time, the upheaval caused by the pandemic is encouraging companies to intensify their focus on addressing societal and environmental issues. The value of green bonds issued in the first nine months of 2020 surged 12% over the previous year to more than \$200 billion, according to research company BloombergNEF. 30% of the European Union's \$882 billion Coronavirus recovery package will be raised via green bonds and the German government also issued a \$7.7 billion green bond in September, the largest to date.



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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.

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.



Treasurer
Ryan Dickinson
2020-2021
OVC Treasurer
V&R Engineering

E-mail: ryand@vreng.ca

Rates for **career opportunities** ads are as follows:

**Chapter Member:** 

\$50/month \$80/2 months \$100/3 months

Non-member:

\$250/month

Note: Purchase of additional months will only have a discounted rate if purchased up front. Otherwise the standard rate will apply for additional months.

#### 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. Please register and pay through the online system and contact **Adam Moons** (amoons@master.ca) with any questions. Follow the link below for payment.

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.`

Link: <a href="https://ashraeottawa.simplesignup.ca/en/2590/index.php?m=eventSummary">https://ashraeottawa.simplesignup.ca/en/2590/index.php?m=eventSummary</a> Link: <a href="https://ashraeottawa.simplesignup.ca/en/2593/index.php?m=eventSummary">https://ashraeottawa.simplesignup.ca/en/2593/index.php?m=eventSummary</a>

#### Business Card Ads

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

The cost is \$250.00 for the year. Please contact **Rod Lancefield** at *rod.lancefield@hts.com* for more details.



E-mail: rod.lancefield@hts.com

Payment will be made through the online system. Follow the link below for payment.

https://ashraeottawa.simplesignup.ca/en/2591/index.php?m=eventSummary

Ads will **now require prepayment**. All of last year's ads will appear in the Communique for the first month of this year to allow time for payment for the upcoming year. Ads will be refreshed accordingly in the second Communique.

Publicity 2019-2020 Publicity Committee Co-Chair

HTS Engineering Ltd.

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Ryan Dickinson