



ASHRAE Ottawa Valley Chapter

- DATE:** Thursday January 23, 2020
Social: 17:30, Dinner: 18:30, Program: 20:00
- LOCATION:** Centurion Conference & Event Center
170 Colonnade Rd, Ottawa, ON K2E 7J5
- THEME:** Young Engineers in ASHRAE (YEA)
- PROGRAM:** ASHRAE Society President's Address - "Building For People And Performance. Achieving Operational Excellence"

Operational performance is an important process in the management of a building. Buildings often fall short on operating to the expectations of the building **designers** and **operators**. This is because designers are not always focused on **operability** during the design process and operators frequently do not possess the proper skills to adequately operate the technology incorporated into today's buildings. **ASHRAE** and its members must take an active role in the ongoing **training, engagement** and **action** toward reducing the gap between design, construction and operations. This presentation will explore what **ASHRAE** is doing to achieve effective operational performance and operator experience that is good for buildings, good for those who live and work within those buildings and good for the planet.

SPEAKER: Darryl K. Boyce, P.Eng.
2019-2020 ASHRAE President

Darryl K. Boyce, P.Eng., Fellow/Life Member ASHRAE, is **ASHRAE's** President for the 2019-2020 term. **Boyce** has previously served on the board of directors as treasurer, vice president and director-at-large. He is the recipient of **ASHRAE's Distinguished Service Award, Exceptional Service Award** and **Regional Award of Merit**.

His theme for the Society year is "**Building for People and Performance. Achieving Operational Excellence.**"

In addition to his time served on the **Board of Directors**, **Boyce** has served as chair and coordinating officer for the **Finance Committee** and chair of the **Members Council, Appointments Roadmap Committee** and President-Elect **Advisory Committee**. He has held **ASHRAE** Society-level leadership roles on many **standing committees, technical committees** and **presidential ad hoc committees**.

Space is limited so please register online at the link below

Chapter Members:	\$48.00	Guests:	\$65.00
Student Members:	\$35.00	Life/Fellow:	\$48.00

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

President's Message

Season's greetings from the **ASHRAE Ottawa Valley Chapter Executive** and **BOG**. We hope your holidays will be filled with joy and laughter through the **New Year**. I would like to thank everyone for joining us at the **Centurion Centre** for the **November** meeting. Thank you to our speaker **Frédéric Lavallée-Trubiano** for presenting for the evening program and **Joel Primeau** who provided an excellent technical session before the meeting on **refrigeration systems**. Thank you to **Longhill Energy** for their donation of **Ottawa Senators** tickets to help raise money for the **Research Promotion** campaign. Congratulations to **Evans Mutua** who was the lucky winner. The monthly raffles help the **Research Promotion** committee reach their annual target. We appreciate all donations that are made to this cause. Our bowling social took place on **December 4th**. This annual event is enjoyed by all and this year the **OVC Exec** team took home the cup.

This was the first time that a team other than **Walmar** and **Ainsworth** has won. Thank you to **Michael Callaghan** for organizing this event. Our next program meeting is **January 23rd** (the day of the meeting is on a **Thursday**) at the **Centurion Center** with **ASHRAE** Society President **Darryl Boyce** as he delivers his Presidential Theme – **"Building for People and Performance. Achieving Operational Excellence"**. Our theme for January is **YEA (Young Engineers in ASHRAE)**. The **YEA** committee enhances member benefits for young professional **ASHRAE** members, **35** years old and younger. Our Chapter supports activities for our **YEA** members through **networking** and fun **social events** and provides **leadership development** opportunities that is funded by the Chapter's Endowment. **YEA** is an important part of our membership and are the future leaders of the **Ottawa Valley Chapter**. We look forward to seeing all our **YEA**



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members as well as our Student members at the next meeting. The **ASHRAE Winter Conference & Expo** is from **February 1-5, 2020** in **Orlando, Florida**. The 5-day event is packed with technical sessions, education, industry-advancing committee meetings, social events and the world's largest HVAC&R marketplace – the **AHR Expo**. To learn more about our January program please go to our website at www.ashrae.ottawa.on.ca and click on the January meeting link for more information and to register. Thank you and I look forward to seeing you soon!

ASHRAE Table Top Displays

Engineered Air is proud to announce our recent acquisition of **BKM Reverse Flow Technology**. Many of you are familiar with this product already as one of the most efficient **energy recovery** technologies available in the **HVAC** industry. For those of you who are not, we would like to offer you the opportunity to be introduced to it at the **January ASHRAE** Meeting. Please visit us at our Table Top

Display on **January 23rd, 2020**.

Please contact **David Michelin** (david.michelin@hts.com) to secure yours today!

Cost for a table-top is **\$225**.

Payment is to be made through the online system prior to the date reserved. Follow the link below:

<https://ashraeottawa.simplesignup.ca/en/3654/index.php?m=eventSummary>



Table Tops
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What You Missed

The **November** program meeting of the **2019/2020 ASHRAE** season was held at the **Centurion Conference and Event Center** on **Colonnade Road**, and the theme for the evening was **Research Promotion** and **Donor Recognition**. The meeting was attended by **fifty-three** guests, which consisted of **thirty-one** members, **sixteen** guests and **six** students. The program for the evening was **Transcritical CO₂ Systems**, presented by **Frederick Lavallee-Trubiano**. A tech session was delivered by **Joel Primeau** on **Cooling Systems 101** before the meeting. **Joel** will be presenting several **tech sessions** in this upcoming **ASHRAE** year.

President **Aaron Dobson** called the meeting to order. Aaron introduced the **Executive, Board of Governors** and **Chapter Chairs** and **Volunteers**. Secretary **Ryan Dickinson** introduced the guests for the evening. **Andrew Brown**, the membership promotion chair, welcomed two new members to the Chapter.

Elizabeth Primeau, Student Activities Chair talked about the upcoming Career Fair at **Carleton University** Fenn Lounge, **March 10** from **3-6pm**. It's expected to have a similar turn-out as last year, with **200** students and **15-17** booths; **10** booths are still available.

Michael Callaghan, student activity committee, talked about the upcoming annual **ASHRAE** bowling tournament at the **Merivale Bowling Lanes**.

Past President and Regional Vice Chair, **Daniel Redmond**, and **Jacob Hough**, presented the first place CTTC award for the **2018-2019** chapter competition to **Daniel Roy** of **CIMA+** for the **Giant Tiger**, as well as first place for the **New Commercial Buildings** category in **Region II**.

Adam Moons, President-Elect and Research Promotion Chair, talked about the reasons to invest in **ASHRAE**, and presented the major donor awards.

There was one table top for the evening. **Frederick Lavallee-Trubiano** from **LMP** talked about his table top as a manufacturer of refrigerant systems, specializing in **CO₂**.

Dinner was salad with chicken with vegetables and potatoes, with cake and coffee served for dessert.

Raffle tickets were sold to win two tickets to the Ottawa Senators vs. the Columbus Blue Jackets donated by Longhill Energy. A total of **\$570** was raised for ASHRAE research. **Evans Mutua** was the lucky winner of the **Senators** tickets.

President **Aaron Dobson** announced the program topic for the evening, **Transcritical CO₂ Refrigeration Systems**, and introduced the speaker, **Frederick Lavallee-Trubiano** from **Montreal**. **Frederick** is the Director of Engineering at **LMP Systems**.

Frederick started off by talking



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about the regulations of refrigerants. The **Montreal Protocol** is phasing out refrigerants by **2020** and **2025**, and the allowable limit on the **global warming potential (GWP)** will differ depending on the type of system installation. **R404** has a GWP around **4000** and is being replaced with **R448A** and **R449A** with a GWP around **1000**. **R-410A** has a GWP around **2000**. **R-134A** has a GWP around **1500**, and is being replaced with **R513A** with a GWP around **600**. Natural refrigerants with a GWP of **1** or **2** include **ammonia**, **propane** and **CO₂**. **Ammonia** is toxic, **propane** is flammable, and **CO₂** is high pressure, **CO₂** is a class **A1 non-flammable non-toxic** refrigerant.

CO₂ has a critical point of **87** degrees Fahrenheit. Above that point, it becomes transcritical, and the **supercritical** fluid is a foggy gas. Standard refrigerants operate around **400psi**, while **CO₂** operates under **2** stages, with **low pressure** up to **600psi**, and **high pressure** up to **1600psi**.

A typical **CO₂** schematic includes medium pressure compressors, a gas cooler/condenser, throttling valve, flash tank, flash gas by-pass

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valve, expansion valves, medium and low temperature evaporators, and low pressure compressors. On the P-h diagram, from points 1-2, **CO₂** passes through the medium pressure compressors where it becomes a **supercritical** fluid. From points 2-4, **CO₂** passes through the gas cooler at **constant pressure**, and from points 4-7, **CO₂** passes through the **throttling valve** to reduce the pressure where the fluid becomes part liquid and part gas. The flash gas by-pass valve takes all the gas back into the medium pressure compressors, while the subcooled liquid goes to the expansion valves and evaporators.

The medium temperature **CO₂** evaporator operates between **-4F (285psi)** to **68F (830psi)**, and the low temperature **CO₂** evaporator operates between **-58F (98psi)** up to **5F (332psi)**. The maximum **CO₂** condensing temperature is **60F**.

On the gas cooler/condenser side, under subcritical conditions, the gas cooler return temperature is **70F (852psi)** with an air temperature of **60F**. As the outdoor air temperature rises above **80F**, the **CO₂** becomes **transcritical**. The advantage of operating in the transcritical range is that the **CO₂** doesn't condense, so there's no **latent heat**, only **sensible heat**. This reduces the required temperature difference between the air and gas cooler return to **5F**, which also reduces the size of the equipment. At an air temperature of **110F**, the gas cooler return temperature is **115F (1513psi)**.

Above **110F**, there is a lot of capacity since the **CO₂** is not condensing and there is no phase change. Heat reclaim can use a heat exchanger between the gas cooler and medium temperature to increase efficiency.

Another point that is particular with **CO₂** systems, is that since the temperature in the flash tank is around **30F**, if the system stops

running, heat will enter the flash tank from the surrounding mechanical room which may be around **70-80F**. The **CO₂** liquid will start boiling and pressure will increase. To maintain the temperature and keep the pressure low in the flash tank, a small condensing unit connected to a backup generator is used to keep the liquid cool.

Ways of increasing the energy efficiency of the **CO₂** system include:

- **Parallel compression** using dedicated separate (auxiliary) compressors to remove the flash gas from the receiver tank instead of using the medium temperature compressors for this purpose. Advantages are that the parallel compressors work at a higher suction group up to **45F**, while the other compressors work on the medium temperature suction group of **20F**. This is more efficient in warm periods, and increases the efficiency by **15%**. Disadvantages are more suction groups and **VFD** application is required for parallel compressors.
- **Mechanical sub cooling** uses another refrigerant, like **propane** or **ammonia**, which moves points 4-7 on the P-h diagram further to the left, resulting in more liquid to the flash tank and a very small amount of flash gas. Parallel compressors are not needed. This results in a **17%** reduction in energy consumption, **35%** improvement of the **EER** of compressors operating in **transcritical** mode, and a decrease in the number of refrigeration compressors dedicated to keeping the system in positive temperature mode.
- **Ejectors** may be used to replace the throttling valve and take **CO₂** from the medium temperature compressors and

injects it into the parallel compressors, resulting in **10%** in energy savings in transcritical phase. Parallel compressors and **VFDs** are also required.

Using two examples, **Frederick** demonstrated how transcritical **CO₂** systems are more efficient with higher EER values and lower peak energy consumption when compared to **R404A** systems.

Installation of transcritical **CO₂** systems consists of **Type L** and **Type K** copper, **XHP 90** and **XHP 130** copper-iron alloy, and **schedule 40** or **80 stainless steel**, depending on the pipe size and pressure. Fittings need high pressure CRN ratings, and all lines need to be insulated including liquid lines.

Stuart Parson, President of **Parson Refrigeration**, presented a case study on the **Sysco Tannis** facility in **Ottawa**, which consisted of **120,000SF** of new refrigerated space. The system was originally intended to be **ammonia**, but a **transcritical CO₂** system was installed. The design included **6** racks, **4** on the freezer and **2** on the medium temperature side. The freezer has a penthouse style evaporator system, with **sixteen 12.5 ton** capacity air handlers, and the evaporators ducted down into the space.

President **Aaron Dobson** thanked **Frederick Lavallee-Trubiano** and reminded attendees of the survey which will be emailed. The next meeting is scheduled for **Thursday January 23rd** at the **Centurion Conference and Event Center**.



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2019 Bowling Recap

Another year and another successful **bowling tournament**. The event was again held at the **Merivale Bowling Centre**, on **December 4th**. I would like to thank all who made it out to the event. I'd also like to announce our champions for the year of 2019, the **ASHRAE Ottawa Valley Chapter Executive** team!

The continued support and participation of the chapter members in this event is encouraging to see. Hope to see you all again next year.



Special Events

Michael Callaghan

2019-2020

OVC Special Events

Master Group

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News Update

ASHRAE and NIST Strengthen Partnership with Signing of New MoU Agreement

ATLANTA (November 22, 2019) – **ASHRAE** and the U.S. Department of Commerce's **National Institute of Standards and Technology (NIST)** have signed a new Memorandum of Understanding (MoU) formalizing the organizations' relationship.

The MoU was signed by **Darryl K. Boyce, P.Eng., 2019-20 ASHRAE President** and **Dr. Walter G. Copan, Under Secretary of Commerce for Standards and Technology and NIST Director**, on **Nov. 4**. The agreement outlines how **ASHRAE** and **NIST** will work cooperatively to improve **HVAC&R** technologies and their applications. Cooperation will focus on the following key areas:

- Improving **performance** and building cost effectiveness, including through increases in energy and water efficiency and storage technologies, and the health, well-being, and productivity of building occupants
- Improving **interoperability** of building systems as well as building **integration** with the electric grid
- Supporting **innovation** and standards development
- Strengthening **resiliency** of

the built environment

- Bolstering **cybersecurity** of HVAC&R infrastructure

"The missions of **ASHRAE** and **NIST** reflect our collective efforts to advance building performance and support integrated solutions to improve health and productivity in buildings," said 2019-20 ASHRAE President **Darryl K. Boyce, P.Eng.** "NIST staff have long been involved in ASHRAE through participation in the development of standards, serving on numerous technical committees and sharing many of their research results in ASHRAE publications. We are excited to formalize our partnership with NIST as we strive to collectively build a more **sustainable future** and enhance the **wellbeing** of building occupants in the communities that we serve."

"This MoU confirms the many areas of mutual interest between NIST and ASHRAE as we work to advance energy-efficient technologies and improve indoor environments," said **Copan**. "We look forward to working with our ASHRAE colleagues to promote public-private partnerships and technology transfer to improve the performance, resilience, sustainability and cybersecurity of the built environment."

NIST has a long history of developing measurement science, predictive models, and performance metrics to improve the energy efficiency of



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building components and systems, reduce building related **CO₂** emissions, enhance the quality of the indoor environment, and improve the building design and construction process. As a nonregulatory agency of the Department of Commerce, NIST promotes U.S. innovation and industrial competitiveness to enhance economic security and quality of life.

ASHRAE and American Chemistry Council Sign Memorandum of Understanding to Advance Sustainability in the Building Sector

ATLANTA (November 20, 2019) – **ASHRAE** and the **American Chemistry Council (ACC)** have signed a Memorandum of Understanding (MoU) formalizing the organizations' relationship. The MoU was signed by **2019-20 ASHRAE President Darryl K. Boyce, P.Eng.** and **ACC President & CEO Chris Jahn** on **November 19** in **Atlanta**. The agreement defines parameters on how the two organizations will collaborate more



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closely to continue promoting the advancements of a more **sustainable** built environment. The organizations have committed to work together on the following shared objectives:

- Engaging in **projects** and **activities** whose purpose is to help improve the health, safety, and welfare of communities through the built environment.
- Supporting the development, adoption, and enforcement of **building codes standards** that support those improvement goals.
- Promoting the use of sound science in the development and **assessment** of building standards and codes.
- Enhancing building performance by fostering **improvements** in energy efficiency, resiliency, indoor air quality, and the health, well-being, and productivity of building occupants.
- Increasing **communication** between professionals of the building, design and construction industry and chemistry industry to promote **innovation** and sustainability.

"We are pleased to collaborate with ACC as we work toward our shared goal of achieving optimal building performance," said **Boyce**. "ASHRAE and ACC are on the forefront of developing innovative technologies that are significantly impacting the building industry. This partnership signifies our commitment to broadening industry knowledge of energy efficient and sustainable building solutions to support the health and well-being of building occupants everywhere."

"The products of chemistry, from foam insulation and silicone caulks and sealants to plastics pipes and next-generation refrigerants, provide a range of benefits that help enable energy-efficient, sustainable buildings," **Jahn** said. "We look forward to collaborating with ASHRAE to advance solutions that help enhance sustainability, health and wellness in building performance."

About The American Chemistry Council

The American Chemistry Council (ACC) represents the leading companies engaged in the **business of chemistry**. ACC members apply the science of chemistry to make innovative products and services that make people's lives better, healthier and safer. ACC is committed to improved environmental, health and safety performance through **Responsible Care®**; common sense advocacy designed to address major public policy issues; and health and environmental research and product testing. The business of chemistry is a **\$553 billion** enterprise and a key element of the nation's **economy**. It is among the largest exporters in the nation, accounting for **ten percent** of all U.S. goods exports. Chemistry companies are among the largest investors in research and development. **Safety** and **security** have always been primary concerns of ACC members, and they have intensified their efforts, working closely with government agencies to improve security and to defend against any threat to the nation's **critical infrastructure**.

ASHRAE Releases Updated Versions of Standards 62.1 and 62.2

ATLANTA (November 8, 2019) – **ASHRAE** has released updated editions of its standards for **ventilation system design** and acceptable indoor air quality (**IAQ**). **ANSI/ASHRAE Standard 62.1-2019, Ventilation for Acceptable Indoor Air Quality**, specifies minimum ventilation rates and other measures for new and existing buildings that are intended to provide **IAQ** that is acceptable to human occupants and that minimizes adverse health effects. Significant changes to **Standard 62.1** include:


- New informative tables of **ventilation rates** per unit area for checking new and existing building ventilation calculations
- **Simplified** version of the Ventilation Rate Procedure, improving calculations for system ventilation efficiency and zone air distribution effectiveness
- Modified **Natural Ventilation** Procedure calculation methodology
- Revised **scope** to specifically identify occupancies previously not covered
- New requirement that natural ventilation consider the **quality** of the outdoor air and interaction of the outdoor air with mechanically cooled spaces
- Humidity control requirements now expressed as **dew point** instead of relative humidity



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ANSI/ASHRAE Standard 62.2-2019, Ventilation and Acceptable Indoor Air Quality in Residential Buildings, defines the roles of and minimum requirements for **mechanical** and **natural ventilation systems** and the building envelope intended to provide acceptable **indoor air quality** in residential buildings.

The 2019 edition of **Standard 62.2** adds a **compliance path** that gives

credit for particle filtration, distinguishing between **balanced** and **unbalanced** ventilation system interactions with **natural infiltration**, requiring compartmentalization limits for new multifamily dwellings, and allowing for single-point envelope leakage test results to be used when calculating **infiltration credit**.

"These standards have undergone key changes over the years,

reflecting the ever-expanding body of knowledge, experience and research related to **ventilation** and **air quality**," said **Jennifer Isenbeck**, chair of **SSPC 62.1**. "The purpose of both standards remains unchanged, yet the means of achieving this goal have evolved. These updated standards will provide greater clarity, with the hope of creating healthier indoor environments for people in buildings."

Membership Update

Greetings Everyone, **Happy New Year!** I hope you all had a relaxing holiday season. Thank you to all our members for your support in 2019. We had some great discussions and a lot of laughs. Hopefully 2020 yields the same results.

At this time we are sitting with 427 members excluding students. Our goal for the year is to reach 436 total members. We don't have far to go so please speak with your colleagues and friends in the industry. If you don't know what your membership status is feel free to give me a call or you can check by logging into your account on ASHRAE.org. Keeping your personal information

upto date is also important as this is the most efficient method of communication.

The next meeting will be help on **January 23rd** which is a **Thursday**. Please mark this in the calendar. I hope to see everyone in **January**.

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

Kevin Lamarche
Yusuke Irokawa
David Oberholzer
Boris Pobric
Nicholas Seale
Glen Clarke
Heather Knusden



Membership Promotion
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Master Group

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CRC 2021

Each year delegates from **ASHRAE** chapters meet at the **Chapter Regional Conference (CRC)** with regional officers and society representatives to review the past year's activities and to plan for the future.

In **August 2019**, **OVC** Members attended a successful **Region II CRC** Meeting in **Halifax, NS** and are looking forward to attend this year's conference around the same time in **Quebec City, QC**

The **Ottawa Valley Chapter** will be hosting the **2021 CRC** for **Region II**.

Region II is comprised of all of the **Canadian** chapters east of

Winnipeg. In total there are **nine** chapters in Region II. Each year the CRC is hosted by a different chapter. The last CRC hosted in **Ottawa** was in **2012**.

In attendance will be people from each of the **ASHRAE** chapters in Region II as well as some people from **Society** in **Atlanta**. While a large part of the CRC is focused on motions reviewing and improving the way regional council or society operates, it is also a valuable opportunity for **training** of the chapter committees as well as a chance for **ASHRAE** Chapter **volunteers** to connect with **ASHRAE Society**.



Communique Chair
Evans Mutua
2019-2020
OVC CRC
Co-Chair
City of Ottawa

E-mail: evans.mutua@ottawa.ca

The **2021 CRC** will be held in **Ottawa** and we are seeking **volunteers** to assist with the successful operation of the **CRC** in many different roles.

Contact **Evans Mutua** regarding volunteering opportunities.

Student Activities

For the first time ever the **Ottawa Construction Association** has a **youth engagement** section at the tradeshow on **February 26th** and **27th** at the **EY Centre**. The objective of these dedicated booths is to give high school students, grade **7 to 10**, the chance to try the trades in a safe and fun environment.

The **OVC**, along with the **Mechanical Construction Association**, is putting on a **HVAC, Sheet Metal and Plumbing** booth. This is an exciting opportunity for us to reach out to **hundreds** of students over **two** days. If you are interested in lending a hand at the booth, or helping out with the planning please send me an email

at elizabethp@totalhvac.com.

The **Student Activities** committee has been reaching out soon to fill up our **Career Fair** for **March 10th, 2020** at **Carleton University**. We hope to repeat the success of the past few years and see over a **dozen** employers and near **200** students. If you are would like to reserve a booth please email **Jayson Bursill** at JaysonBursill@cmail.carleton.ca or **Chris Habets** at chris.habets@condair.com. The link to register is up on the **ASHRAE OVC** website.

On **December 5th**, **17** students from **Earl of March High School**



Student Activities
Elizabeth Primeau
2019-2020
OVC Student Activities
TOTAL HVAC

E-mail: elizabethp@totalhvac.com

attended a presentation and shop tour at **Modern Niagara**. They got to witness firsthand how **fittings** and **ductwork** are made, and all the technology that **Modern** is integrating into their processes. Thank you to the teachers at **Earl of March** for coming and **Modern Niagara** for hosting this event!

ASHRAE Curling Bonspiel

Save The Date

The **2019 ASHRAE Curling Bonspiel** will be held again this year on **Friday March 13th**.

Check the **ASHRAE OVC Website** (www.ashrae.ottawa.on.ca) and subsequent **Capital Communiqué** issues in the coming weeks for details.

Contact **Colleen Fox** for any questions.



Special Events
Colleen Fox
2019-2020
OVC Special Events
TRANE

E-mail: cfox@trane.com

Research Promotion

Thank you very much for your continued support of **ASHRAE Research Canada!**

ASHRAE Research plays an important role to improve the quality of life and to answer tomorrow's questions through research today. For every dollar raised towards Research Promotion in **Canada**, four dollars are invested towards research projects in Canada by ASHRAE Society.

To date, the RP campaign has raised 46% of our **\$34,650** goal for 2019-2020. We have exceeded our target of 30% by **December 31st**. Thank you to everyone who made this possible.

Thank you to **Longhill Energy** for donating **Ottawa Senator** hockey tickets which helped raise **\$590** towards the RP campaign.

Congratulations to **Evans Mutua** who was the lucky winner!

The following list of current **2019-2020** RP campaign **donors** will be provided in each monthly newsletter and updated on the website, so donate quickly to see your name appear!

Two of the easiest ways to make your donation to the **2019-2020 RP Campaign** are by clicking either of the links below.

Should you wish to donate by **cheque**, please make payable to **ASHRAE Ottawa Valley Chapter**. My contact details are below, and I will gladly make arrangements to pick-up any cheques if needed.



Research Promotion
Adam Moons
 2019-2020
 OVC Research Promotion
Master Group

E-mail: amoons@master.ca

Adam Moons
The Master Group
25 Northside Rd
Ottawa ON
K2H 8S1
amoons@master.ca
p: 613.829.2816



ASHRAE Partner \$5,000-\$9,999	ASHRAE Associate \$2,500-\$4,999	Major Donor Silver \$1,000-\$2,499
Major Donor Bronze \$500-\$999	Major Donor Antique \$250-\$499	Honor Roll Individuals \$150-249
	Daniel Redmond Aaron Dobson	
<p>Special Thank-You to the following Donors for their contribution Michael Swayne, Ryan Dickinson, Adrienne Mitani, Joe Della Valle, Jacob Hough, Celine Baribeau, Adam Moons, Peter Shaw-Wood</p>		

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

ASHRAE OVC link: <https://ashraeottawa.simplesignup.ca/en/4883/index.php?m=eventSummary>



2020 ASHRAE Winter Conference

The 2020 ASHRAE Winter Conference technical program is comprised of eight tracks, selected to represent areas of focus common among ASHRAE membership. The track focus areas include HVAC&R fundamentals and applications, systems and equipment, refrigeration and refrigerants, and other specific topics including novel approaches to HVAC&R systems and buildings for contemporary concerns and analytical techniques to economically automate buildings.

The 2020 ASHRAE Winter Conference will feature a strong technical program including presentations and discussions on best design practices and standards, incorporation of innovative technologies, and cutting edge approaches applicable to a wide range of buildings-related engineers, architects, and professionals.

- 1. HVAC&R Fundamentals and Applications**
- 2. Systems and Equipment**
- 3. Refrigeration and Refrigerants**
- 4. Cutting Edge Approaches:**
- 5. High Efficiency Design and Operation:**
- 6. Big Data and Smart Controls:**
- 7. Ventilation, IAQ and Air Distribution Systems:**
- 8. Standards, Guidelines and Codes:**

For additional information on the conference visit ashrae.org/orlando

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.

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: <https://ashraeottawa.simplesignup.ca/en/2590/index.php?m=eventSummary>

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

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

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 Communiqué for the first month of this year to allow time for payment for the upcoming year. Ads will be refreshed accordingly in the second Communiqué.

Publicity 2019-2020 Publicity Committee Co-Chair

HTS Engineering Ltd.
E-mail: rod.lancefield@hts.com



Treasurer
Adrienne Mitani
2019-2020
OVC Treasurer
Smith+Andersen

E-mail: adrienne.mitani@smithandandersen.com



Publicity
Rod Lancefield
2019-2020 Publicity
Committee Co-Chair
HTS Engineering Ltd.

E-mail: rod.lancefield@hts.com

2019-2020

President

Aaron Dobson

President-Elect

Adam Moons

Treasurer

Adrienne Mitani

Secretary

Ryan Dickinson

Governors

Joe Della Valle

Jacob Hough

Celine Baribeau

Mike Swayne

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Committees

Attendance

Sandy Taylor

Audit

Abbey Saunders

Capital Communiqué

Evans Mutua

CRC

Evans Mutua

Steven Lynch

CTTC

Trevor Thomson

Grassroots

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Adam Moons

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Sandy Taylor

Greeter

Mike Swayne

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Andrew Brown

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Steve Moons

Abbey Saunders

PAOE

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