

# ASHRAE Ottawa Valley Chapter

## Chapter Meeting #5 – 19 February 2019

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Meeting Date:	19 February 2019		
Location:	Centurion Conference & Event Center, 170 Colonnade Rd, Ottawa, ON		
Attendance:	Total: 43		
	Members: 32	Guests: 9	Students: 2
Theme:	CTTC		
Tour:	None		
Tech Session:	None		
Table Top:	Johnson Controls and Total HVAC		
Program:	Refrigeration Review		
Speakers:	Spencer Fuller		
Prepared by:	Adrienne Mitani		

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### **Social** (17:30 – 18:30)

### **Business Session** (18:35 – 18:45)

- President Daniel Redmond welcomed everyone and gave the call to order.
- President Daniel Redmond introduced the Board of Governors and the Executive.
- Secretary Adrienne Mitani introduced the guests.
- Michael Callaghan introduced the new members to the Ottawa chapter.
- President-Elect Aaron Dobson spoke about the current Research Promotion campaign and the evening raffle, which was for two tickets donated by Trane for an Ottawa Senators hockey game against St Louis.
- Governor Jacob Hough announced that the CTTC 2019 Technology Awards are now open for submissions and the deadline is May 2nd for the chapter awards.
- Elizabeth Primeau announced the upcoming February YEA event for archery tag will be held Friday, and the upcoming Career Fair being held at Carleton on March 5th, there are a few booths still available, and all students are welcome. President Daniel Redmond briefly spoke about the ASHRAE curling bonspiel on March 8th at the Nepean Sportsplex is almost full and people should register soon.
- Adam Moons spoke about the upcoming seminar presented by Ralph Kison, who does the Young Engineers in ASHRAE Leadership Weekends, for a one-day professional development crash course on March 13th.
- Table tops for the evening were Johnson Controls and TotalHVAC. For Johnson Controls was presented by Evans Mutua, who spoke about the York and BAS solutions. Andrew Douma presented the Aeon table for TotalHVAC about their broad range of HVAC equipment line including roof top units and packaged units.

Business Session Finished at 18:45 pm

### **Dinner** (18:45 – 19:55)

- Dinner served at 18:35 pm
- Dinner was an assorted buffet.
- Dessert was cake served with a choice of coffee or tea.

### ***Evening Program (19:55- 20:50)***

- Evening program started at 19:55pm
- Tickets were raffled off for research promotion, with \$475 raised. Tickets were won by Adam Moons.
- President Daniel Redmond announced the speaker Spencer Fuller and the topic of Refrigerant. Spencer is a Regional Sales Manager specifically for Chillers with Johnson Controls Inc. He is responsible for ensuring the chiller profile including both water and air-cooled chillers meet current and future customer requirements.
- Spencer started by addressing a common misconception that T-134A is being phased out. It is not currently being phased out however there is some legislations that will require new equipment sold cannot run on 134A or the amount being used will be controlled.
- The evolution of chillers starts with on/off systems, to part load systems, to modulating and magnetic bearing chillers. These changes have been driven by improving efficiencies, environmental, safety and reliability, availability and finally costs. The Montreal Protocol targeted Ozone Depletion Potential (ODP) which has phased out refrigerants like R-22, however ODP alone is not enough, and now lowering the Global Warming Potential (GWP) has led to targets for HFC's and HFO's. Unlike for ODP there is no agreed upon global approach, different jurisdictions handle the problem differently.
- Most legislations are focused on phasing down refrigerants like 134A, not phasing out. This means reducing consumption at percentage targets. Often this leads to lowering the economic viability to produce the product as the demand drops. These refrigerants are used by large industrial processes, and as they change to new refrigerants HVAC equipment suppliers will be forced to change to newer more readily available refrigerants.
- Alternative refrigerants that are being considered must be considered in terms of flammability, toxicity, capacity and GWP. These include:
  - o Ammonia which has a high toxicity and high degree of safety measures to be in place
  - o Propane, similar to ammonia has safety requirements, but is popular in Europe.
  - o CO2, which operates at such a high pressure that it cannot be used for chillers.
  - o Mildly flammable refrigerants, however there is currently no code for these, and government standards are required to be able to start using.
- Consideration needs to be given if the refrigerant leaks then what the effect will be the environment, however there are also indirect impacts if a lower GWP refrigerant is used with a lower capacity then the energy usage to get the same capacity will increase and possibly the carbon impact due to electricity usage is higher than the impact of higher GWP refrigerant.
- Spencer discussed viable options for refrigerants that can be dropped into existing systems, with the pros and cons typically that the new refrigerant would have less capacity or are mildly flammability.

- For Canada, ODSHAR regulation calls for the phasing down of refrigerants, reducing the amount of chillers being sold that uses these refrigerants by limiting the GWP of refrigerant used in a piece of chillers as of 2025. In December 2019 no new chillers can run on R-123. In December 2024 no new chillers can be manufactured with HFC's in Canada, including 134A or 410A. There is currently no drop in for 410A, which is the uncertainty of how that will be handled in the future. As per the Kigali Amendment there is a phase down of HFCs consumption based on the baseline in reduction steps from 2024 to 2045. Automotive will be one of the largest shifts off the HFC refrigerants, versus the HVAC chiller industry will be a very small portion of the shift off of HFCs.
- The attendees were reminded of the survey which will be emailed after the meeting, and a reminder that there was no meeting next month.
- The next meeting is February 19th at the Centurion Conference and Event Center with a presentation on Refrigerant.

**Meeting adjourned 21:00 pm**