

# ASHRAE Ottawa Valley Chapter

## Chapter Meeting #2 – 16 October 2018

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Meeting Date:	16 October 2018
Location:	Centurion Conference & Event Center, 170 Colonnade Rd, Ottawa, ON
Attendance:	Total: 56
	Members: 47    Guests: 8    Students: 0
Theme:	Research
Tour:	None
Tech Session:	None
Table Top:	None
Program:	Designing Buildings for People
Speakers:	Liam O'Brian, P.Eng, Ph.D.
Prepared by:	Adrienne Mitani

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### **Social** (17:30 – 18:10)

### **Business Session** (18:10 –19:00)

- President Daniel Redmond welcome message, call to order, and spoke about research promotion and donor recognition.
- President Daniel Redmond introduced the Board of Governors and the Executive.
- Secretary Adrienne Mitani introduced the guests.
- Student Activities Chair Elizabeth Primeau spoke about an upcoming tour for the Earl of March school to Modern Niagara Mechanical's shop, as well as starting a new Student Branch at Queens University, and Algonquin College's ASHRAE student project with Chris Frauley mentoring the students.
- President-Elect Aaron Dobson spoke about the current Research Promotion campaign, and the raffle for two tickets to the Ottawa Senator's game against Tampa Bay, November 4th at Club Bell, donated by Andrew Klassen from Modern Niagara. The Research promotion has been formed and will soon be reaching out about donations to this year's campaign. Thanks to the committee for their time and commitment, the committee includes Frank Ban, Robert Lefebvre, Mike Swayne, Abbey Saunders, Adam Graham, Daniel Redmond, Georges Maamari, and Aaron Dobson. Last year the goal was \$30,100, and we raised \$66,000, which went towards our scholarship and to industry research within Canada.
- Aaron Dobson spoke about last year's research promotion campaign, and recognized companies and individuals who were major donors from last year. The campaign results from the 2017-2018 year was a record for the chapter, and the Ottawa chapter was recognized as being one of the top three of all ASHRAE chapters for funds raised.

Business Session Finished at 19:00 pm

### **Dinner** (19:00 – 19:55)

- Dinner started at 19:00 pm
- Dinner was an assorted buffet with cake and coffee served for dessert.

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

- Evening program started at 19:55pm
- Tickets were raffled off for research promotion, with \$550 raised. The ticket was chosen by Liam O'Brian, and tickets were won by Mike Swayne.
- President Dan Redmond announced the program topic of Designing Buildings for People and introduced the speaker, Professor Liam O'Brian, who is a past recipient of ASHRAE research funding. A Carleton Associate Professor in the Architectural Conservation and Sustainability Engineering Program, and principal investigator of the Human Building Interaction Lab consisting of a team of twelve researchers of diverse backgrounds. Approximately \$100,000 of ASHRAE Research funding from over the years has done towards Carleton graduate student projects, many who have gone on to become professors themselves.
- The presentation was on Designing Buildings for People. The majority of Liam's research incorporates using people as sensors, since building comfort is a subjective study. Building controls can be fully manual and controlled directly by building operators or users, or they can be fully automated with little input by those who operator or use them. Neither option is a perfect system, and the goal of the research is to balance between automation and user input. This is because people want control and are more comfortable when they are able to have control over their environment.
- People were asked what makes a good workspace, both in studies and in online polling that went across Canada, and many responses varied widely. Lighting for instance for a workplace is recommended to be between 400-500 levels, but preferred values are a wide range of preferences that make it hard to give an exact number that will meet everyone's needs.
- Thermal comfort as defined by ASHRAE 55 is an adaptive model for preferred indoor temperature and humidity, which is dependent on the outdoor temperature. This is due to the way that people dress and what temperature ranges are normal based on the season.
- The WELL standard, similar to LEED, is a standard for buildings that takes into account the qualities of air, water, nourishment, light, fitness, comfort, and mind for the occupants of a building. These are important because in the end a building is for people to reside within. These leads to two models of building design, one with the occupants as a boundary condition to the building, the other is a two-way interaction between the occupants and the building which adapts to the requirements of the users.
- When we look at ASHRAE 55, the definition of thermal comfort is inherently subjective and it is a condition of mind from the occupant to define what comfortable is. Therefore, without feedback from the occupant it can never be solved fully.
- Therefore, Liam proposes his concept of Humans as Sensors and the feedback loop of information from the occupant to the building automation and back. With system interaction with users to provide input, allow for logic of the building system to react, and to also provide feedback to the users to indicate that input is received and the system is reacting to accommodate. This includes:
  - o Human Interaction

- Interface design
- Login
- Building Systems
- Feedback
- One of the problems with energy efficient and automatic systems, is that there is no feedback to the users, with low temperature water system, not warming quickly to the touch, or quiet HVAC systems don't hiss air or rumble when turning on.
- When a building is normally fully occupied, Professor O'Brian stipulates that there is little benefit with individualized controls, small lighting zones, and demand ventilation, the benefit and savings only comes into effect when there are large swings in occupancy levels, and people constantly moving around which allows energy to be spent where the users are.
- There were ten questions for the speaker, including questions including:
  - Using an active cooling chair
  - Overhead versus task lighting with task is usually preferred to be able to customize requirements.
  - Heating and cooling people versus buildings, in the example of the individual heating and cooling chairs, which was an ongoing study and does not have enough data. He was asked about user interfaces and the ability for users to understand,
  - Energy literacy problem, which is why feedback to the user is important to ensure that the user is also learning how the system is working not just the system reacting to the user.
- President Daniel Redmond thanked Liam O'Brian and gave him a gift on behalf of the chapter.
- The attendees were reminded of the survey which will be emailed after the meeting.
- The next meeting is November 20th at the Centurion Conference and Event Center with presentations from ASHRAE President Sheila Hayter and Kurt Monteiro on a Canadian ASHRAE Technology Award winning project.

**Meeting adjourned 21:15 pm**