

ASHRAE Ottawa Valley Chapter

Chapter Meeting #6 – 19 March 2019

Meeting Date:	19 March 2019		
Location:	Centurion Conference & Event Center, 170 Colonnade Rd, Ottawa, ON		
Attendance:	Total: 49		
	Members: 31	Guests: 11	Students: 7
Theme:	Student Activities		
Tour:	None		
Tech Session:	None		
Table Top:			
Program:	MEC Headquarters Vancouver: 1st Place Technology Award Winner 2018		
Speakers:	Roland Charneux		
Prepared by:	Adrienne Mitani		

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, as well as guest from ASHRAE Society and Region. Including ASHRAE Society President-Elect Darryl Boyce who was in attendance.
- Secretary Adrienne Mitani introduced the guests.
- Membership Promotion Chair Andrew Brown introduced the new members to the Ottawa chapter.
- President Daniel Redmond spoke about the current Research Promotion campaign which is currently at 58% of our goal.
- Treasurer Adam Moons announce the raffle was for four tickets to see Senators vs Buffalo March 26th with two parking passes donated by Walmar.
- Abbey Saunders introduced herself and Steve Moons as the chairs for Honors, Awards and Nominations committee for this year. The committee builds the chapter's leadership of tomorrow and shape the direction of the chapter. For the eligible members to hold office for the executive the 2019-2020 season are President Aaron Dobson, President-Elect Adam Moons and Treasurer Adrienne Mitani. Positions currently seeking nominations for are Secretary and the Board of Governors. Abbey called for a motion to open nominations for the 2019-2020 season it was passed, and nominations are now open.
- Governor Peter Shaw-Wood spoke about student activities including the outreach to the local universities at Carleton and Algonquin. Looking to the future to integrate students into the chapter and industry afterwards, and upcoming is a student award and the Ottawa Science Fair ASHRAE awards coming up. Secretary Adrienne Mitani briefly spoke about the ASHRAE Career Fair in early March, the event was well attended with fourteen

booths and over 150 students attended from a mix of Algonquin, Carleton and Ottawa University.

- The curling bonspiel was held March 8th and \$1,400 was raised to a local charity and \$150 to ASHRAE research. The winning team was TotalHVAC 1 with Mark Gall.
- Secretary Adrienne Mitani spoke about the March seminar held March 13th presented by Ralph Kison on Business Development, as well as an upcoming seminar to be held April 17th to be presented by Bjarne Olesen of Denmark who was ASHRAE Society president last year. The seminar will be on The European Approach to Decrease Energy Consumption in Buildings.
- The table top for the evening Belimo, presented by Jenna Lyons, who will be taking over the Ottawa area representation from Clark Campbell.

Business Session Finished at 18:35 pm

Dinner (18:35 – 19:15)

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

Evening Program (19:15- 20:50)

- Evening program started at 19:55pm
- Tickets were raffled off for research promotion, with \$611 raised for ASHRAE research. They were won by student member Daniel Lowcay, with another gift bag donated by Belimo raffled off, won by Darryl Boyce.
- President Daniel Redmond introduced speaker Roland Charneaux and the award winning MEC headquarters building in Vancouver. Roland is from the Montreal office of Pageau Morel, and worked on the project from the original concept as part of an integrated design team.
- The approach for the project was to use an integrated design process and use many elements of sustainable design. With the integrated process brought all the consultants onboard at the beginning to give input into the orientation, shape and structure of the building by not having a sequential approach. This was to benefit project to design a high efficiency building
- The building was built for people and occupant comfort with WELL standards and the need for high quality environment as we are making higher density spaces. Employees as an investment.
- Integrated design process is based on the life cycle cost of the building from design construction, operation occupancy, environmental impact and end of life.
- Vancouver has 65% less heating and less cooling demand than Ottawa which was consider during the design.
- They decided to build a new building but it was for employee comfort in mind. The project goals were to include lots of daylighting with views to the exterior, high priority of indoor air quality, thermal comfort, acoustical comfort, and energy efficiency.
- What makes us comfortable in a room is not the air temperature but the radiation is 50% of a person's comfort.

- Reduce energy consumption of the building was integrated by reducing how much lighting is required through daylighting. The impact of this created an elongated building and limit the width of the building to get daylight to penetrate the interior of the building. It also effected the height of the floors to increase the light to the interior.
- After daylighting was to reduce direct sun gain minimize cooling load as passively as possible to not use energy. This was through exterior overhang and roller blinds that were split into upper and lower. The upper ones are motorized based on if there is direct sunlight, while the lower ones are manual by the occupants.
- They went with triple pane windows, which will save an equivalent of 24 tons of heat pumps, geothermal, and radiant panels not required. Overall this resulted in the windows upgrade was a wash, with annual operation savings.
- Walls were structural insulated panels just as wall and insulation to make R-50 walls. The roof was at R-70, when compared to the ASHRAE these values were almost three times the minimum values required.
- The building structure was wood due to the ground being of poor quality and concrete or steel piles would have been required due to the weight, which is not required for the lighter wood structure. Due to the high amount of rain in Vancouver had to be protected, with a built tent around the site to allow work to continue during the rainy weather.
- Concrete was poured on top of the plywood, with all of the electrical conduits in the raised floor.
- To use passive methods of lighting, heating, cooling, ventilation and then recover all energy losses possible such as accumulate excess energy during the day to use later in the day.
- Natural ventilation uses the wind to draw the air down a pipe with an exterior pipe which pushes exhaust out in the other direction. Natural hybrid ventilation with three shafts at low velocity at 100-150 fpm with the wind blowing the air down the shafts to the mechanical room and is filtered goes up to the raised floor then it is exhausted on the other side of the shaft. The shaft has dampers that open in direction of the wind. There are back up fans to provide ventilation when there is no wind available. Because Vancouver's temperature the high number of days with appropriate outdoor air temperatures.
- Radiant panels with heating and cooling take care of envelope loads internal loads are by the air. Thermal tanks are used with a hot side and a cold side to extract heat at night and then use the cold water to cool during the day, with thermal regeneration for the tanks.
- Rain water harvesting from the roof drains is used to flush toilets to reduce water usage.
- The results of the building, with the reference building was \$2/sqft with the proposed is \$1.07/sqft. There is a large difference between reference and actual building. Due to the design the building load even out to be fairly constant and not have peaks of energy usage. Some data measured was higher than the proposed energy model, some were due to occupant usage such as plug loads with over twice as much load.
- Conclusions: the building envelopes are increasing due to daylighting with a reduction in internal loads. Buildings that are built for the future not for today, buildings are obsolete as soon as the project is finished.
- President Daniel Redmond thanked Roland Charneaux, and gave him both a gift of a commemorative coin on behalf of the chapter. He reminded attendees of the survey

which will be emailed. The next meeting is April 16th at the Centurion Conference and Event Center.

- The attendees were reminded of the survey which will be emailed after the meeting, and a reminder that there was no meeting next month.
- President Dan Redmond also mentioned that the CTTC 2019 Technology Awards are now open for submissions and the deadline is May 2nd for the chapter awards.

Meeting adjourned 21:10 pm