

## MAE Departmental Seminar

**Date:** 2018-09-21

**Title:** Increasing Passive Solar Gains in Canadian Homes Using a Passive-Active Solar Collection System

**Abstract:** Passive solar gains through windows can significantly reduce the need for active space heating systems in buildings. In many cases, however, there is a mismatch between when passive solar gains occur and when space heating is required. For this reason, window areas in low-energy buildings are typically restricted to modest amounts to avoid overheating during times when space heating is not needed but the potential for passive solar gains is high. A novel idea is being investigated at Carleton University's Urbandale Centre for Home Energy Research (CHEER) that would allow for significant window area increases in buildings to maximize the use of passive solar heating. The concept couples passive solar heating with an active hydronic floor/heat pump system. Results from full-scale experiments conducted at the CHEER facility on this passive-active system will be presented. Future work on the system will also be discussed.

**Speaker Bio:** Sarah is a mechanical MASc candidate working under the supervision of Professor Beausoleil-Morrison at the CHEER facility at Carleton. She completed her BEng at Carleton in spring 2017 and started her MASc the following fall.