Door Sweet Product Testing Project Description

Multi unit residential buildings (MURBs) are becoming increasingly popular due to global urbanization and increasing population densities. Ventilation strategies for these buildings typically rely on pressurized corridors with door undercuts, where air is blown into the building corridors and is allowed to flow under the entry door to each suite. When operating correctly, this ventilation technique prevents odour transfer between adjacent suites along with sufficient suite ventilation [1]. However, due to air pressure fluctuations throughout buildings, occupant behaviour, maintenance issues, and weather phenomenon, this ventilation strategy doe not always perform as intended [2]. Some problems that result from these issues include incorrect ventilation rates, inter-suite air and odour transfer, along with increased building energy consumption [2]. To alleviate these issues, a new door undercut product has been developed, and the testing of this product is the focus of this project.

This door undercut product uses an activated charcoal filter and a door sweep to reduce air contaminant and noise transfer, while still allowing adequate air flow rates [3]. The main purpose of this project will be to carry out blower door testing of this product, and potentially others, in a laboratory environment. Characterization of the flow characteristics of the product, along with creating recommendations regarding the effectiveness of the product, will also be carried out. Familiarization with air leakage testing will be developed during the work term, including field studies and laboratory testing, along with the skills needed to analyze air leakage within buildings.

[1] L. Ricketts, “A Field Study of Airflow in a High-Rise Multi-Unit Residential Building,” University of Waterloo, 2014.

[2] M. Carlsson, “IMPACT OF A COMPARTMENTALIZATION AND VENTILATION SYSTEM RETROFIT STRATEGY ON ENERGY USE IN ... by,” Ryerson University, 2017.

[3] “Door Filter Product Home Page.” [Online]. Available: http://doorfilter.com/.