Summer 2022 Sustainability Scholars Program Internship Opportunity

The UBC Sustainability Initiative (USI) is pleased to offer current UBC graduate students the opportunity to work on funded sustainability internship projects. Successful candidates work under the mentorship of a partner organization, and are immersed in real world learning where they can apply their research skills and contribute to advancing sustainability across the region.

- Visit the Sustainability Scholars Program website to learn how the program works and to apply.
- Be sure to review the application guide to confirm your eligibility before applying.

Applications close at midnight on Sunday January 30, 2022.

Research Project Title: Understanding energy usage and effectiveness of HVAC system technologies and protocols for enhanced Indoor Air Quality during COVID-19 pandemic and wildfire smoke events in health care facilities

Project Description

The Energy and Environmental Sustainability (EES) team for the Lower Mainland Health Organizations has a Smart Energy focus area with targets to decrease energy consumption and energy use intensity of core healthcare sites. As a Public Sector Organization, Health Authorities must also meet the greenhouse gas emissions reduction targets set by the BC Provincial Government.

Ventilation is the biggest energy use category within most healthcare facilities. However, COVID-19 Prevention Measures related to HVAC system operations may have led to an increase in energy usage and correspondingly, GHG emissions. This project will research the effect of measures such as increased ventilation, airflow pathways, advanced filtration and humidification effects on the health care facility's energy consumption.

In addition, as we will likely see an increasing number of wildfire smoke events across BC, it is paramount to the health, safety and wellbeing of our patients and staff that health care facilities provides 'clean and safe' air during these wildfire smoke episodes, while balancing the building's energy usage.

Results of the research will be used to inform retrofits of existing health care facility HVAC systems and protocols during a wildfire smoke event and possible hazardous contamination of indoor air from biological sources (e.g., COVID-19) such that indoor air quality meets safety requirements, while minimizing building energy usage. The research will also inform recommendations to update the CSA Z317.2 Special requirements for heating, ventilation, and-conditioning (HVAC) systems in health care facilities standard.

Scope of Work

1) Conduct a scan of technologies and protocols that are related to HVAC system operations (focusing on ventilation and air cleaning – passive and active filtration) that aim to reduce spread of COVID-19 and reduce air contaminants from wildfire smoke events; while paying special attention to their effect on energy consumption in the context of health care facilities.
2) Conduct interviews with HVAC operations staff to document protocols during past wildfire smoke events and COVID-19 pandemic, and any policies and protocols enacted moving forward.
3) Create a report identifying how changes to HVAC operations above affect the building's energy consumption which includes all background research and methodology.

4) Provide recommendations for future retrofit and operations of the building system, with special attention to the HVAC system.
5) Time permitting validate the aforementioned recommendations through interviews with HVAC operations staff to understand the potential limitations and/or challenges.

Key questions the Scholar will research include:

- What are the methods and technologies for the HVAC system that are commercially available to ensure 'clean and safe' indoor air quality in the context of the Covid-19 pandemic and wildfire smoke events?
- How does the above impact the healthcare facility's energy use and GHG emissions?
- What are the recommendations for future retrofit and operations of the HVAC system that balance the requirements of safety, resiliency, maintainability and minimal energy use?

Deliverables

- A final report with research findings and recommendations
- A presentation to EES Team
- A final report for the online public-facing Scholars Project Library.

Time Commitment

- This project will take **250** hours to complete.
- This project must be completed between May 2 to August 12, 2022
- The Scholar is to complete hours between 9am-5pm, Monday-Friday, approximately 17 - 20 hours per week.

Required/preferred Skills and Background

☒ Excellent research and writing skills
☒ Comfortable interacting with stakeholders to conduct informational interviews
☒ Ability to work independently
☒ Excellent analytical skills
☒ Deadline oriented
☒ Project management and organizational skills
☒ Familiarity with HVAC mechanical design, and ASHRAE codes and standards
☒ Familiarity with air quality data collection methods

Applications close **midnight Sunday January 30, 2022**
Apply here: Click here to apply
Contact Karen Taylor at sustainability.scholars@ubc.ca if you have questions

Useful Resources

We are holding a special **resume preparation workshop for prospective Scholars** on January 19. Click here for details and to register. Below are some links to useful resources to help you with your resume and cover letter (there are many more online). Some of these resources also provide information on preparing for your interview.

https://students.ubc.ca/career/career-resources/resumes-cover-letters-curricula-vitae
https://www.grad.ubc.ca/current-students/graduate-pathways-success
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