Summer 2023 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 on the Apply page to confirm your eligibility before applying.

Applications close at midnight on Sunday January 29, 2023.

Project Title: Research on energy usage & effectiveness of HVAC systems & protocols for enhanced indoor air quality in healthcare facilities.

Project description

The Energy and Environmental Sustainability (EES) team is a regional collaboration team that provides a service to Fraser Health, Providence Health Care, Provincial Health Services Authority and Vancouver Coastal Health. The EES team collaborates with clinical and non-clinical departments and staff to implement a regional approach to low-carbon, climate-resilient and environmentally sustainable health systems through planning, design, procurement, construction and operations.

The Energy and Carbon focus area seeks to reduce our carbon footprint by increasing energy efficiency and reducing reliance on fossil fuels.

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 provide 'clean and safe' air during these wildfire smoke episodes, while balancing the buildings' energy usage.

Results of the research will be used to inform retrofits of existing health care facilities' HVAC system 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. Time permitting, the scholar may be asked to co-present findings at CHESBC (Canadian Healthcare Engineering Society BC) conference.

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 the 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. Time permitting validate the aforementioned 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 1 to August 15, 2023
- The Scholar is to complete hours between 9am-5pm, Monday-Friday, approximately 16 hours per week.

Required/preferred Skills and Background

☒ Excellent research and writing skills
☒ Ability to work independently
☒ Deadline oriented
☒ Project management and organizational skills
☒ Must be comfortable interacting with stakeholders to conduct informational interviews in-person
☒ Must be comfortable with entering mechanical and/or electrical rooms and spaces on site
☒ Ability to interpret mechanical drawings
☒ Ability to generate mechanical drawings, an asset
☒ Degree or equivalent experience in Mechanical Engineering and/or Building Sciences
☒ Familiarity air quality data collection methods
☒ Familiarity with active HVAC mechanical design, and ASHRAE/CSA codes and standards that pertain to healthcare facilities, an asset

Applications close **midnight Sunday January 29, 2023**
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 23, 2023. 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

https://www.grad.ubc.ca/cover-letter-cv-resume-templates-ubc-career-services