

Campus Sustainability Fund Final Report

1.0 - Project Report

1.1 - Project Title:

UVic Energy Audit: Engineering Lab Wing

1.2 - Report Prepared by:

Please indicate which leader is the main contact person

Name: Harsh Rathod

UVic affiliation: PhD Student

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1.3- Key Accomplishments

Please describe your projects key accomplishments.

The project's key accomplishments include creating 3D thermal imaging models of nearly 100 exterior-facing rooms in the ELW, determining the rate of heat transfer between the building and outdoor air, creating a temperature map of the building's exterior thermal envelope, and determining the building performance during winter and summer hours.

1.4- Student Learning:

Please describe how the expected student learning opportunities were realized.

The expected learning opportunities were to link UVic undergraduate and graduate students with the Facilities Management team at the university and to work towards improving the energy efficiency of our campus. We felt as though this was a unique opportunity for students to work in cooperation with university faculty to achieve the project's sustainability outcomes. This goal will be achieved upon the review of our findings as we will meet with the management team to recommend upgrades and hear their opinions. This project has not only aided Harsh Rathod (PhD student) in his research, but has also helped his recently incorporated UVic spin-off company to expand by completing work for a reputable client. Additionally, the project successfully provided great learning opportunities for a computer science co-op student, Wesley Wilson.

1.5-Goal Acquisition:

Was the project goal achieved? In answering please describe how the project affected the relevant stakeholders and where the project is currently.

We can conclude that the project goals were achieved within the given timeline. The 3D models showed a number of instances where temperatures differed based on the room and its location within the building. This temperature imbalance can lead to substantial discomfort for its occupants as some were requiring the windows to be open in the middle of winter while others had to work in uncomfortably cool temperatures. By creating a temperature map of the engineering lab wing, we were able to view the building's entire thermal envelope and accurately assess any air leakages and moisture ingress. We successfully identified areas of energy loss, and can in turn provide this information to Mr. David Adams and Campus Sustainability Management.

1.6- Long Term Consequences:

How will this project be continued and its accomplishments carried forward?

Our hope is that the facilities management team will be able to use the gathered data and models that we have provided to aid them in their decision-making process for future building retrofits. We would greatly appreciate the opportunity to conduct similar analysis on the rest of UVic's buildings in order to provide a campus-wide temperature map.

1.7 - Lesson's learned:

What advice would you give others attempting similar projects through Sustainability Fund?

We would advise that anyone else attempting to conduct a similar project should be made aware of possible electromagnetic or other signal interferences. During our drone flight, we encountered some control issues that we speculated could be a result of lab equipment operating within the ELW, thereby obstructing the connection to the aircraft.

1.8- Timeline

Please provide the *actual* project start and end dates

Start Date	End Date
June 2018	February 2019

1.9 - Feedback

Do you have any feedback for the Office of Campus Planning and Sustainability or the Sustainability Fund Application Review Committee regarding your experience with the Fund?

We would like to thank the Office of Campus Planning and Sustainability for giving us the opportunity to conduct our research on UVic's campus. This has been an excellent learning experience for the entire team and we would be more than happy to perform similar analysis on the rest of UVic's campus in the near future.

2.0 - Project Financials

2.1 – Budget

Please provide a completed final budget describing how the budget provide was actually spent. Please provide receipts for any expenses that have not yet been claimed through the Office of Campus Planning and Sustainability.

Students	Total hours spent	\$ Rate/ hour	Total amount received
Harsh Rathod (Graduate)	400	\$25	\$3458.00
Lois Tso (Undergraduate)	27.5	\$16	\$457.60

Please submit completed forms electronically to mgreeno@uvic.ca

Any questions please contact:

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