Historic Building Energy Audit & Retrofit: Holy Rosary Cathedral

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Abstract

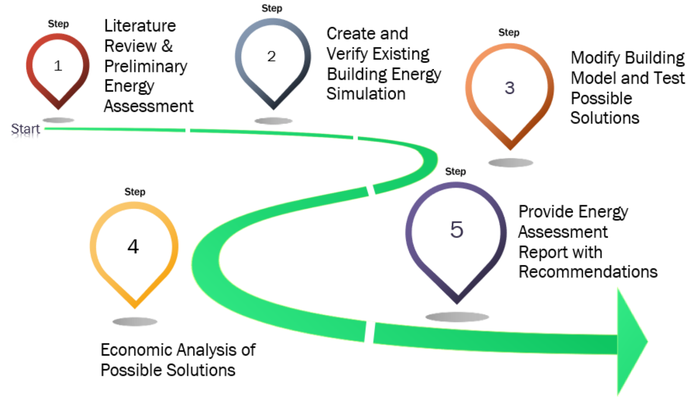
The Holy Rosary Cathedral is a significant landmark in the City of Regina. The facility has had various improvements throughout its 110-year history and received heritage status in 1989. The team is tasked with completing an energy audit of the Holy Rosary Cathedral to recommend improvements that will reduce its current energy use. The process includes meeting with the building operator, a building walkthrough, reviewing past utility bills, creating a whole-building energy simulation using DesignBuilder energy modelling software, conducting an economic analysis on improvements, and providing an energy assessment report for the building owner. The building energy audit will reduce greenhouse gas emissions, ensure a healthy environment, and lower utility costs. Findings from this project will contribute to Holy Rosary Cathedral restoration efforts.

Project Objectives

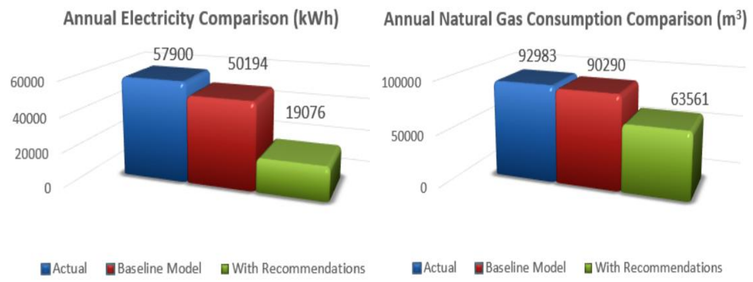
Provide improvements that will:

- Lower energy usage
- Lower operational costs
- Reduce CO_2e generation
- Ensure a healthy environment

Methodology

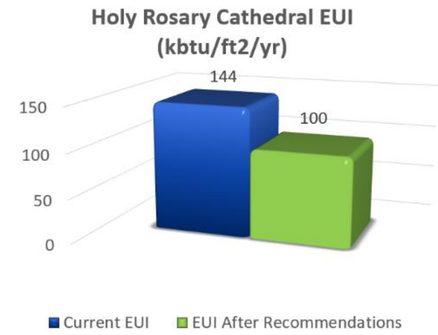


Energy Comparison



Results

Improvements	Capital Cost	Annual Cost Savings	Payback Period
Boiler Replacement & Programmable Thermostats	$91,000	$7,483.55	12.2 years
Attic Insulation	$5,365.07	$626.35	9 years
LED Lights	$4,101.62	$4,736.66	Less than 1 year
Total	$100,467	$12,846.56	-



Acknowledgments

- MacPherson Engineering Inc.
- University of Regina, Faculty of Engineering & Applied Science
- Holy Rosary Cathedral Buildings & Grounds Committee

References

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