



Abstract

The project focus on analyzing the energy consumption between Wa/Pa towers, is using the old generation heating system, Kisik tower, is using the new in-floor heating and cooling system. From that, the energy consumption per square foot of each tower will be defined, and the new system will be simulated for Pa/Wa to determine the improved efficiency.

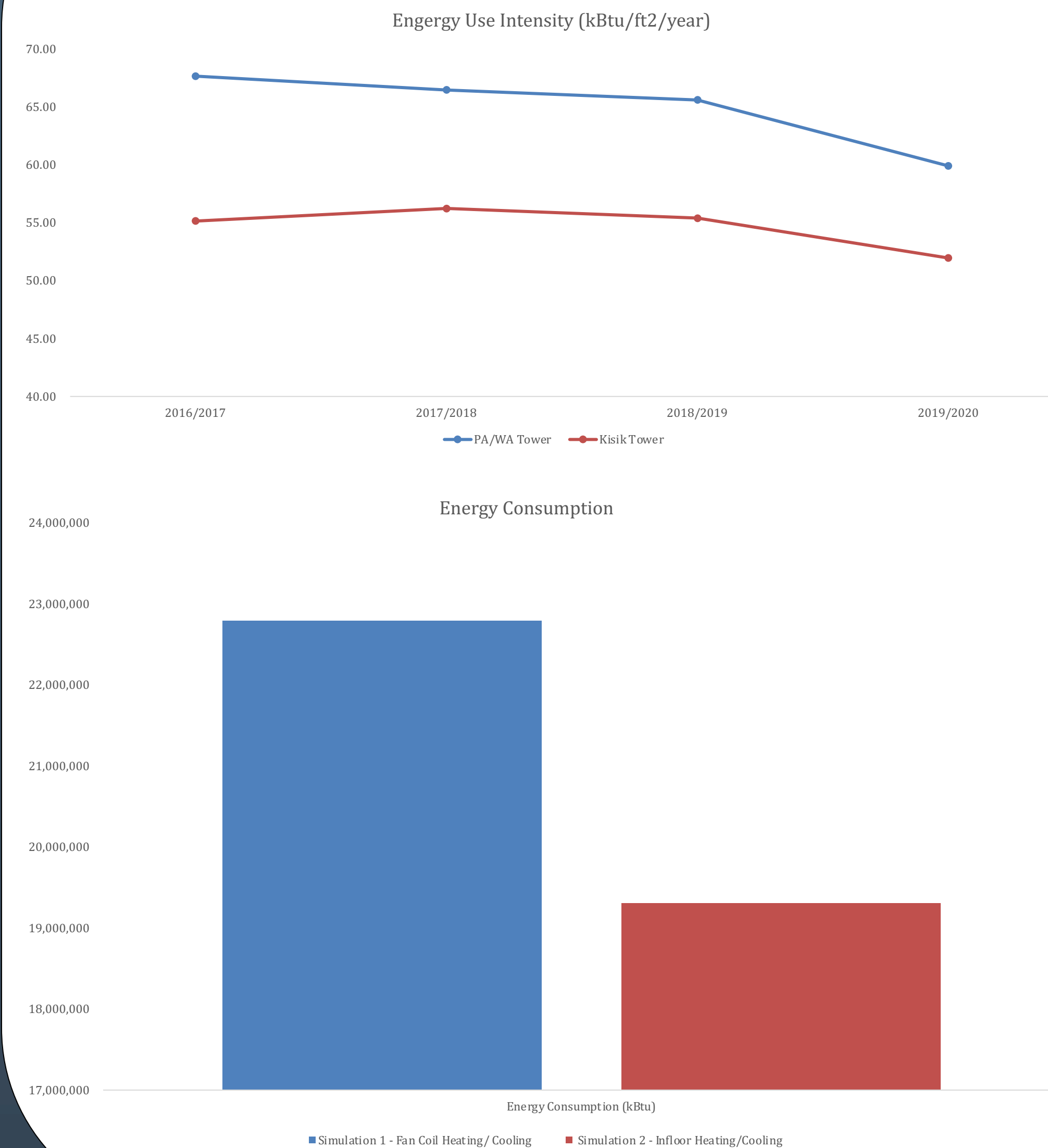
Background

The project will have three main parts. The first stage of the project is the comparison between the traditional and new design of the heating/ cooling systems based on the energy consumption data. In the second stage, the short cut of design will be estimated for future application based on the simulation result. The result of simulation and meter reading need to match by adding in these factor. The third stage is the optimized design that should result in less cost to build with consuming low energy consumption.

Project Goals/Objectives

- Modelling the Pa/Wa towers and Kisik tower by eQuest software
- Applying Energy Use Intensity to compare the energy consumption between two towers
- Building the Pa/Wa towers based on the new heating/ cooling system, and comparing the result with the old method
- Defined the energy-saving cost per year when Pa/Wa towers use the new approach

Methods/Process



Conclusions/Recommendations

By applying the in-floor heating and cooling system in Pa/Wa towers, the University of Regina could save 15% of the cost in energy consumption. However, whether the renovation of Pa/Wa tower is necessary depends on the Internal Rate of Return and the lifetime of the building.

Acknowledgments

Academic Supervisor: Dr. Amr Henni
External Supervisor: Auralee Macpherson
Brad Lulik

Results/Outcomes

- Pa/Wa towers could save 15% of energy consumption per year for the new method

References

ASHRAE. (2013). ASHRAE Standard 90.1: Energy Standard for Buildings Except for Low-Rise Residential Buildings. Atlanta, GA: ASHRAE..