

6.0 Breadth Topics

6.1 Construction Management

The installation of the ground source heat pump system will undoubtedly have a significant impact on construction costs and the construction schedule. The process of digging the vertical boreholes for the ground loops is a time consuming and expensive procedure. As such, an investigation into the most cost effective and time considerate manner for performing this work will be conducted. The result of the investigation will show the most effective use of equipment, materials and time. The appropriate number of borehole drilling trucks, number and depth of bore holes, and the scheduling of the drilling will be included in the results.

6.2 Electrical

The removal of the packaged VAV rooftop system in the Alumni Center and its replacement with the ground source heat pump system changes the loads on the electrical distribution network in the building. There is a main distribution switchboard for the mechanical equipment that feeds multiple panels with mechanical equipment connections. With the removal of the packaged VAV rooftop system the VAV box loads can be removed from the panels along with all of the rooftop AHU's. However, all of the new pump loads and heat pump loads must then be added to the panels. An investigation will be conducted to determine the new loads connected to the main mechanical equipment switchboards with sizing of new feeders to each panel, sizing of new breakers, and voltage drop calculations for the new feeders to meet the electrical code. The monetary impact of these changes will be included in the results.