



## **Appendix 1: Breadth Studies**

### **Analysis 1 Exterior Façade Construction**

The breadth areas that will be considered during the exterior façade construction will be structural, construction and minimal architecture. The structural system will be impacted due to the application of the precast stone veneer. The applied loads will need to be considered when attaching it to the existing system. If the existing backing system of the façade is not capable of supporting the change, there are two options that can be considered. The first option would be to increase the member sizes to allow for the imposed load, secondly switching the system to precast walls and floor members therefore eliminating the structural steel members. This will also include construction due to the possible acceleration of the schedule as well as the change in the site planning and sequencing. The value engineering of this system is also an additional area. The architectural outlook on the analysis will be to find a suitable material that will match or closely satisfy the prescribed materials set by the Architect and Owner.

### **Analysis 2 Lighting & Sustainable Energy**

The analysis I will be doing on the lighting system will be investigating the lighting requirements for certain rooms in the school. A value engineering idea was to reduce the amounts of light fixtures in the building to save money. I will investigate this further to see if more fixtures can be removed or need to be added. The lighting system utilized a new technology from Lutron called Ecosystem. It incorporates dimmable ballasts along with occupancy sensors, therefore day lighting will need to be accounted for in this analysis. A minor study of the electrical system will need to be accounted for with the proposed addition of more renewable energy equipment. Quantity calculations of produced electricity as well as the payoff periods will need to be completed. The construction methods involved with using the solar shingles will need to be reviewed in case there are special accommodations needed by the system such as electrical wiring.