Executive Summary:

The Central Shared Use Facility is a central building located on the White Oaks Campus in Silver Spring Maryland. It is the connection point for both existing and future buildings. The building houses a library, gym, auditorium, kitchen, offices, and a future data center. The CSUF was designed to be LEED Rated.

Mechanical Analysis:

The green roof on this building is designed to help reduce the amount of rainwater runoff, reduce the heat island effect, help to obtain a LEED rating, and reduce the cooling load required by the building. However, all of these benefits are directly related to the size of the green roof.

Each benefit will be looked at separately, and written as a "benefit amount/square foot of green roof." By looking at different sized green roofs, 40-90% of the total roof area, an optimum sized roof can be found that will be the most beneficial. These benefits will be compared to costs of the roof found in the Breadth Analysis.

Breadth Analysis:

An analysis of the Central Shared Use Facilities green roof will provide an understanding of other the structural and construction management discipline. Green roofs are great architectural features, but the increased structural requirements and costs associated with them usually outweigh the benefits. This thesis will determine exactly how much extra a green roof costs by look looking at:

1. The extra strength of structure required to support their weight
2. The extra amount of money required to construct one
3. The extra amount of time spent constructing one
4. The energy savings they create

The extra costs will be compared to the benefits of the green roof, including the value of 1 LEED point, and the architectural feature.