

## **Executive Summary:**

There will be four analysis topics that I am proposing to research for my spring thesis project. These analysis topics are as followed:

1. Method of eliminating the problems encountered installing the exterior wall panels.
2. Cost and benefits of implementing a high performance façade
3. Areas that can benefit from using prefabrication
4. Rising operating costs

The problems that were encountered installing the exterior facade can be eliminated through a design change, changing the way the work was executed in the field or a combination of the two. The current design will be reviewed to see where improvements can be made. A cost, schedule and constructability review of the proposed solution will be performed.

The current facade requires the use of perimeter baseboard heaters around the entire building. Upgrading to a high performance facade by utilizing triple pane glass and added insulation to the walls may be able to eliminate these heaters, reduce the size of the boiler, reduce the size of the mechanical equipment and reduce the operating costs for the building. Energy 10 software will be used to model the energy savings. A life cycle cost analysis will be performed and a final recommendation will be made based on those findings.

The use of materials that have been fabricated off site may reduce labor costs and reduce the schedule. Areas that will be examined include prefabricated electrical outlets, piping, vanities, pre-insulated ductwork and granite tiles that are delivered in sections on a precast frame. A cost and schedule analysis will be used to determine the feasibility of these options.

Rising energy costs has become a critical issue for the building industry. It has directly correlated to rising operating costs. This hurts both owners and tenants. A study of this topic will determine the most effective methods to decrease operating costs through the use of energy efficient design. Professionals who have experience with this type of work will be contacted to determine methods that they have used with success. Possible solutions include geo thermal wells, use of a high performance façade, low flow plumbing fixtures, waterless urinals, energy efficient equipment, photovoltaic solar panels, wind turbines, a green roof, heat recovery and the use of sun shades.