

THESIS PROPOSAL
ANALYSIS 1 (BREADTH):
COURTYARD INFILL STRUCTURE DESIGN

This technical analysis will consist of analyzing the utilization of a steel structural system instead of a cast-in-place concrete system for the courtyard infill. To develop this analysis the following steps will take place:

- Consult with a structural option faculty for help designing a structural steel system. RAM structural system will be used to design beams, columns, and footers.
- Determine impact of using structural steel to the floor plan and floor to floor height.
- Determine the cost impact of using structural steel. This can be assessed by looking at the current cost of using cast-in-place concrete compared to that of a steel system. This will be done using MC² estimating software.
- Determine the cost impact on general conditions. There will most likely be a schedule savings from using steel; however there may be a cost increase due to the need for a crane to erect steel members.
- Determine the schedule impact of using structural steel. This can be assessed by looking at the current schedule using cast-in-place concrete compared to that of a steel system.

The cast-in-place courtyard infill structure at Frederick Memorial Hospital does not tie into the existing structure in anyway. The two structures are separated by an expansion joint. Therefore there are no constructability issues to worry about by going to a precast structure. A steel structure will most likely cost more money however there will be schedule savings which will result in the roof being able to be constructed sooner, meaning the building will be dried in sooner.