

Appendix A – Breadth Topics

Structural Breadth: Based on Analysis 2

Replacing the façade system currently approved for construction on the Moore Building Addition seems like a simple task, as its primary focus is rooted in the construction management aspect of construction. However, pre-cast panels may also prove to be a more costly option if the structure is to be drastically redesigned in order to support it.

This breadth will analyze and will determine if the structure is adequate in its current form. Loads of the new system as compared to the current one will be compared, with necessary connection and member changes studied as well. Also, as a common part of precast systems, it will be determined if there is a need to connect the new system in a different way or if the current method will suffice.

Mechanical Breadth: Based on Analysis 2

As outlined above, the replacement of the façade system with a precast system may present some challenges. However, it may also present the owner with some opportunities and one of these comes in the form of a more efficient envelope as a whole. This may help to reduce the building's ultimate consumption of energy, and, in turn, its carbon footprint.

This breadth will analyze options that seem suitable to a pre-fabricated exterior façade system, and how the system may differ to the current façade system. This is due to the extra bracing, and rigidity of the system, including the brick, which may also have a different coefficient of thermal conductivity. The analysis will look at difference in conductivity and the effective differences of both systems as a thermal barrier.

Finally, whether the new system is more efficient or not, a determination of the time for a return on investment to make the panels more efficient will be conducted.