Analysis 1: Precast vs. Handset Stone (Architectural Breadth)

Problem Statement/Potential Solutions:

Handset stone is very expensive and time consuming. The first 4 floors of 700 6th street use handset stone, the rest of the building uses precast with stone casted into place. Handset stone is much slower and more expensive than precast. A potential solution would be to eliminate all the handset stone and replace it with precast with handset stone casted into place. With the elimination of hand set stone also eliminates the flashing which will save time and money. Another problem with the façade is it is very expensive. Limestone was used heavily on the building façade. A potential solution to save more money is to eliminate all Limestone above the 6th floor. The limestone would be replaced with precast that looks like limestone. The limestone is only used for aesthetics and at floors 6 and above the difference should not be seen with the naked eye. This research could lead into an architectural breadth which would entail if there is a noticeable difference between limestone and precast at that height. If the difference between limestone and precast is not noticeable a further analysis would be to eliminate all limestone and replace it with precast.

Research Methods:

I will first research how much time and money can be saved eliminating handset stone and then I will further the analysis by eliminating limestone above the 6th floor. I will conduct this analysis by interviewing a precast subcontractor, masonry contractor, and the project manager. I will use construction data to estimate the savings in time and money. In order to research if there is a noticeable difference between precast and limestone a 3D model with renderings can be made. Or a mock up of the façade can be made with the Limestone and precast side by side. There is also a section of the building that has the precast and limestone side by side on the first floor. I could take pictures of that section from different distances to see if there is a noticeable difference. From these pictures I can find out what distance/floor would be best to start precast at.

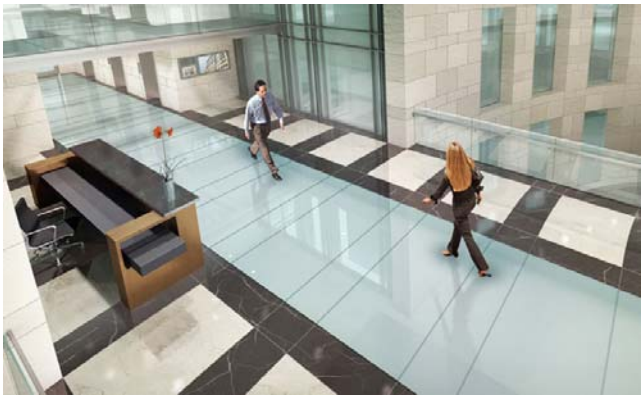
Expected Outcomes:

The expected outcomes should show a reduction in schedule and cost.

Analysis 2: Glass Bridge Improvements (Structural Breadth)

Problem Statement/Potential Solutions:

In the main lobby there is a glass bridge and glass floors. The problem with having a glass floor is it is very delicate. A week after the glass floor was installed a screw driver was dropped on the glass causing it to spider crack all the way through the glass. The screw driver was dropped from a distance of 4 feet, which should show you how delicate the glass is. Each glass panel is approximately 10 feet x 4 feet. These panels are 20,000 dollars each and are only produced by 2 manufacturers. The lead time for these panels is months and is not easy to replace. These panels need extra protection so they are not damaged during everyday use or they could be replaced with another material. Refer to picture-3.1.



Picture-3.1

My research would consist of changing the material of the bridge to something stronger and less likely to break or researching a material to cover the glass and make it stronger. This material would have to have the same structural strength and would also have to look similar. This research topic would also be a structural breadth because this new material has to support the necessary loads. A cost comparison between the original glass bridge and the new system would be done.

Research methods:

I would contact the installer of the glass and ask him what material he would have used instead. Structural calculations would have to be done to make sure that new materials would have the same strength as the glass.

Expected Outcomes:

Through my research I will find a cost effective way to protect the glass or another material that will better suit the purpose.