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AE 481W - 5th Year Thesis
Pennsylvania State University
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Breadth Study:

Along with the main study of the core-only system, two individual breadth studies will also be conducted. These include a study of Tower 333's façade system, with emphasis on installation methods, inspection and performance. The second breadth study will focus on the scheduling impact and cost savings involved with eliminating the need for moment frames and implementing a core-only lateral system. It also is hoped that a brief study of the collapse of the tower crane on November 16, 2006 can also be performed. However, this will be dependant on litigation issues that may result and availability of information from all those involved. As of now, information collected on the tower crane collapse is displayed on the Author's thesis CPEP webpage.

The first breadth study will focus on the performance and installation methods of the building façade. In most cases, problems with weatherproofing and poor performance of a façade system are not discovered until after the building is finished. Ultimately, costs involved in resolving these issues turn out to be much higher than if the problem was discovered and fixed during construction. In the case of Tower 333, the type of façade and installation methods described in the specifications will be investigated and a new specification, or an addition to the existing specs, will be written to address how to inspect and deal with problems regarding the façade during the installation process.

The second breadth study will involve the constructability, time and or cost savings regarding the elimination of the exterior moment frames and implementing a core-only lateral system. This study will entail research of the construction schedule and determination of the critical path of the construction process. If the critical path is affected by the core-only design, a determination of whether or not the impact is beneficiary to the construction schedule will be done. In addition to scheduling, a comparison of the cost savings of the proposed design will be studied. Any money saved, or extra money spent through the elimination of the moment frames as well as cost savings due to a change in schedule will be determined.