

EARTH AND ENGINEERING SCIENCES BUILDING

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Breadth Studies Proposal

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Executive Summary

The Earth and Engineering Sciences building at University Park, Pennsylvania will be redesigned with a new structural system. Throughout the redesign of the EES building two breadth topics will be considered. The impact of these topics on the outcome to an alternate structural system will be documented and included in the solution procedure process.

Breadth Topics

The first of these topics is that of a construction management aspect of the architectural engineering practice. Construction management among other things considers cost of construction and erection times. These two topics will be investigated in this study as the alternative system is designed. A detailed cost estimate for both the original and alternate system will be completed and contrasted. Constructability and scheduling issues for each system will be looked at to see how much of an influence they would have on the selection of an efficient structural system.

The second breadth topic will be that of architectural acoustics. As building materials change the overall effect that is felt from an acoustical standpoint will be drastically altered. The alternate system being considered will change from a predominant steel structure to a concrete structure, having a direct effect on the acoustics of each space. Also, reducing floor depths will decrease the amount of buffer zone that is available to absorb noise between floors. The most probable cause for acoustical problems may be moving the mechanical equipment to the roof where vibrations can be more easily felt throughout the building if not properly dealt with.