# Rutgers University Law School

Building Addition and Renovation

**Breadth Study**

December 18, 2007

Nathan E. Reynolds
Structural Option
AE 481W Senior Thesis
The Pennsylvania State University
Faculty Consultant: Professor M. Kevin Parfitt

In connection with the proposed structural study of the Rutgers University Law School Addition framing system, two additional breadth studies will be conducted. As modification to the free plan generated by the moment frame construction, an architectural breadth to investigate impacts of shear wall or braced frame placement will be performed. The second study will involve the bridge portion of the project—as the bridge will span Fifth Street, this road will be closed during construction. Therefore, a construction management study will be performed to determine the feasibility of placing the pre-constructed bridge in one lift.

The first breadth study, an architectural study will include a review of the building program, in connection with the additional lateral framing system generated from the structural study. As the structural study will ultimately impact the architecture of the building, an architectural breadth must be investigated to determine the complete impact of the new design. Following analysis, the floor plan of the Law School Building will be revised to accommodate the new structure. Each floor will be reworked to generate benefits from the structural design.

The second breadth study is a feasibility study of placing the bridge section of the building in one lift. This method of construction would permit use of the road during the construction process, and eliminate the need for shoring in the construction of the bridge. The bridge section would be constructed on site, and then lifted into position by a crane. As this would save a significant amount of time on the schedule, this option is being explored for constructability, size of crane required to perform, cost, and convenience. Potentially, the value generated by implementing the structural solution, this alternative may become a more attractive solution to completing the project.