

# ARIC HEFFELFINGER FORDHAM PLACE BRONX, NY STRUCTURAL OPTION ADVISOR - DR. HANAGAN



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## *Executive Summary*

This report contains the results of the design and analysis of two different floor systems and Fordham Place, which is located in Bronx, NY. The two different floor systems that will be evaluated are a two way flat slab with drop panels, and the original design of a composite steel structure. All load cases involving dead, live, roof live, snow, wind, and seismic were evaluated.

Fordham Place is a 15 story office / retail / residential building comprised of a steel columns and beams that acts compositely with a concrete slab. Chevron style braced frames are the lateral force resisting system. This type of frame is very efficient because the only lateral drift is due to axial deformation of the cross members and columns. The location of the frames is so that there are minimal lateral forces induced in the building do to torsion.

By redesigning Fordham Place as an all concrete structure, adjustments in the lateral system, HVAC systems, construction schedule, and cost were re-examined. In this report you will see the lateral system changed to reinforced flanged concrete shear walls. While a single HVAC system will serve only one floor in an attempt to reduced large openings in the floor slab. Construction schedule and cost both increased with the change to an all concrete structure. After designing Fordham Place as an all concrete structure, it is very clear the original design is a better choice.

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This report is solely used for educational purposes only, and should not be treated as a professional design. The purposed of this case study was to examine different structural systems and what effects they had on the rest of the building. If there are any question on this report, feel free to contact me at [abh144@psu.edu](mailto:abh144@psu.edu)