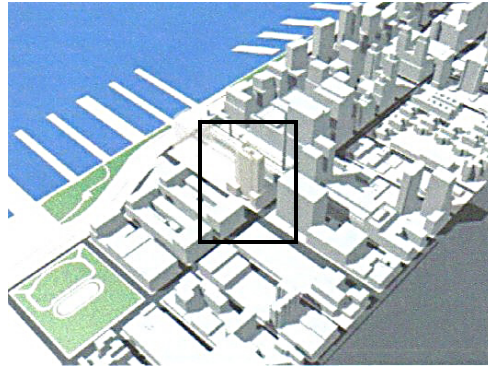


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Pictures courtesy of Fox & Fowle Architects

## Structural Concepts / Structural Existing Conditions Report

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### Executive Summary

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This document is an analysis of the structural framing systems used to design The Helena apartment building. Included in this report is: an overall building description, a breakdown of the building's structural components, the codes and standards used to design the building, the calculations for the gravity force resisting system (self-weight of the structure, superimposed dead and live loads) and the lateral force resisting system (wind and seismic loads).

After an examination of the structural systems of the building, it has been determined that the building is composed of two main structural support components, a gravity force resisting system and a lateral force resisting system. Although the building's gravity system is mainly composed of two-way flat plate slabs, there are some areas which are supported with concrete beams and one-way slabs. The flat plate slabs are as thick as 18" for the parking garage area and become thinner at the residential floors, typically 8".

There are many sizes of columns, both rectangular and cylindrical, which contribute to the gravity force resisting system. A typical column below grade would be a 36"x20", 25"Φ cylindrical column on the ground floor, and 16"x16" on the upper half of the building in the residential areas. The lateral framing system for the building is composed of 7 shear walls, 6 of which run the entire height of the building. For the design cases of seismic versus wind analysis, seismic forces controlled for both the North-South direction as well as East-West direction.

Spot checks still need to be completed to for a floor framing component, a column, and a lateral framing component to determine whether they have the capacity necessary to resist the forces being applied to them.