1. Executive Summary

Introduction

This report analyzes the structural procedures used to design Fordham Place in Bronx, NY.

Building Description

Fordham Place is a 15 story office / retail building that is located at 400 East Fordham Road, Bronx, NY. The 174060 sq. ft tower is going to tie into an existing 6 story SEARS building. In the new tower, structural engineers used modern design, taking advantage of composite action using steel beams with a 6 ¼ " concrete slab. The slab will be supported by 3" composite floor deck with 3" headed shear studs within the slab. Steel columns are used to transfer load to foundation, where it will be supported by a number of 150 ton piles. The main lateral resisting system is made up of steel concentrically loaded chevron braced frames.

Structural Design Code

Building Code of New York City, 2003, ASCE 7-02

Loads / Spot Checking Summary

When comparing my calculated gravity, wind, and seismic loads to those of the designer, some values will differ. Gravity loads compared very well with those of the designer while my lateral loads appear to differ by a significant amount. When doing both gravity and lateral spot checking of members, I compared capacity of members to the ultimate moments and forces. For both gravity and lateral spot checking my capacities were slightly larger than the ultimate design values. I believe the indifference in the gravity values can be attributed to designing with ASD as opposed to LRFD. Lateral indifferences can a cause of my conservative assumption of each of 3 braced frames will receive 40% of the lateral load, equally a total of 120%. It can also be attributed to the design differences between New York City Building Code and ASCE 7-02, the code that I used for my loading values.