

Anthony Perrotta – Structural Option
Overlook Towers – Herndon, VA
Technical Assignment #3
November 21, 2006

Executive Summary

Overlook Towers is located south of Washington Dulles International Airport in Herndon, VA. The complex will have two nine story office buildings and two five story parking decks. This report will focus on one office building. Long interior spans are used to reduce the number of columns and make the office space more versatile for the tenants. The exterior walls are made of architectural precast concrete panels. Structural steel and a lightweight composite concrete deck make up the structural system. This report will focus on the steel braced frame lateral supporting system, taking into account wind and seismic forces.



Wind and seismic forces will be calculated using ASCE7-05. The building has a height of 127' and an overall footprint of 127' by 221'. Areas of interest include overall strength of the system, total drift and story drift, overturning moments and what impact the lateral forces have on the foundation. Spot checks of the current lateral bracing system are also included.

Seismic loads were determined to have a greater effect on the design on the lateral system than the wind forces. Seismic base shear was found to be 617 kips. Building weight alone was found to be sufficient to resist both the wind and seismic overturning moments. No special considerations will be need in the design of the foundation. Checks performed for member strengths and deflections were found to be adequate according to ASCE7-05. Tabulated values can be found in the appendices.