

**Michael Sandretto**

**Structural Option**

**Thesis Proposal**

**Faculty Advisor: Dr. Memari**



## **American Eagle Outfitters Quantum II Corporate Headquarters**

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### **Executive Summary**

The American Eagle Outfitters Quantum II Corporate Headquarters is a 6 story 186,000 square foot office building located just outside the city of Pittsburgh Pennsylvania in the new multi million dollar Southside Works commercial development. The building is currently in the tenant fit-out phase of construction.

The structure is comprised of conventional steel framing. Each floor slab is made of composite metal deck and concrete slab. The building is supported by a foundation of auger piles and grade beams. Lateral forces are resisted by an extensive system of moment connections. The decision to use a moment frame system stemmed from the building's design prior to having a tenant and a final floor plan.

The focus of this thesis is to redesign the structure's lateral force resisting system. The proposed new system will utilize lateral cross bracing to resist load. Computer analysis programs such as RAM Steel will be utilized to design the new system. Once a design has been finalized a thorough cost analysis comparing it to the existing system will be performed. A scheduling plan for the chosen design will also be created. Finally, encouraged by the results of Technical Assignment #2 an alternative floor system of hollow core concrete planks will be considered.