

**Executive Summary:**

The Best Buy Corporate Building D is a 6 story building with a total area of 304,610 square feet. The floor system is structural steel, with composite beam floor framing and a precast concrete and glass facade. The main lateral force resisting system for this building is a braced frame. This frame extends to all 6 floors of the buildings and braces the building in both the N-S and the E-W conditions.



The proposal objective for the Best Buy Corporate Building D is to redesign the building using concrete. The floor system will be redesigned as a post-tensioned slab on beams. During technical assignment 2, it was found that a post-tensioned slab would permit the reduction of the number of column rows in the short direction. The slab was found to be 15.5” thick with 68 strands tensioned at 35 kips, with a minimum eccentricity of 6.75”. The existing steel columns will be replaced by concrete columns. The existing foundation will also have to be verified or redesigned to support the new concrete columns. The change to concrete is an effort to reduce the number of columns in the short direction of the building to increase usable floor area. ASCE 7-05 will be used to determine loading.

**Breadth Summary:**

The breadth projects chosen will supplement the changes made in my thesis proposal. The first breadth topic will deal with construction management issues, specifically dealing with costs and schedule changes. The second breadth topic will address some architectural changes in the building, specifically examining the change in usable floor area and aesthetic impact.

**Topic 1: Construction Management**

The first breadth proposal will focus on specific cost comparison of the current building system against the new proposed system. The change in material from steel to concrete will introduce other costs such as formwork and the labor involved in setting that formwork. The use of concrete will also have an effect on the schedule; therefore a comparison of the schedules will also be researched.

**Topic 2: Architecture**

The second breadth proposal will look at the amount of additional floor space that will be gained by removing a row of columns. This change will have an impact on rentable space that should increase the inflow of money to balance the change in costs of building. The proposed structural changes will also affect the layout of the electrical and mechanical systems and will therefore require investigation.