Vipsanius Incorporated was hired to develop a structural design for a 6-story apartment building as a part of a Lower Hill Redevelopment project proposed by architect Bjarke Ingels Group. The masterplan seeks to provide accessibility across the city’s unique topography, creating a vibrant open space for residents to enjoy. Vipsanius Incorporated is responsible for the design and construction of only one apartment building in the masterplan. The structure was designed to be built completely out of cast-in-place reinforced concrete. Vipsanius Inc. was responsible for designing all structural aspects of the building as well as laying out a construction schedule and compiling an estimate for the construction.

**Project Overview**

**Project Manager:** Josh Prines  
**Structural Team:** Kwaku Boampong, Roberto Cintron, Nisarg Thakkar, Hal Hamilton Jr.

**Project Scope**

- Complete design of all above-grade structural members. The following items will be cast-in-place on site:
  - Beams
  - Columns
  - Stairwell Shear Walls
  - Elevator Shear Walls
  - Floor Slabs
- Construction Management
- Complete Construction Schedule
- Above-grade construction estimate
- Return on Investment Analysis

**Construction Estimate**

- Lower Hill Redevelopment Project: 48,000 SF
- Project Budget: $7,170,600
- Annual Net Operating Income: $501,942
- Total Construction Cost: $6,878,785

**Design Aspects**

- **Beams:** Designed to support the weight of the slabs. The majority of the beams have uniform cross sections and reinforcement for constructability purposes. Six of the designed beams have unique designs to accommodate large moments due to extended slab sections.
- **Columns:** Designed to resist its own self weight and loads from floors above. The columns will experience an axial force and a relatively small moment from this loading. The columns are uniform in size on each floor and increase in size from the roof to the ground floor.
- **Floor Slabs:** Designed as two-way and one-way slabs. The slabs transfer load through the beams onto the columns. The thickness of the slab design is controlled by the deflection from the applied gravity load.
- **Shear Walls (Elevator & Stairwell):** Designed as load-bearing shear walls. These three shear walls are acting as the Main Wind Force Resisting Systems, so they are designed to resist all of the lateral and torsional load the building is subjected to.

**Construction Schedule**

- Start Date: 2/18/16  
- Project Completion: 3/17/17  
- 328 Work Days; Approximately 13 months