STRUCTURAL

All eight stories are framed with an ordinary concrete moment resisting frame, which also serves as the lateral system. The 4 ½” concrete floors are supported by a 14” deep by 9” wide concrete joist spaced roughly every 6’. Concrete beams and girders support the one-way slab systems by framing into the columns. The columns vary in size, ranging from 12x24, to 29x40. Larger columns are located along the column line that supports the cantilevered section of the building. On the top level, 15 foot deep by 50 foot long transfer girders behave as a pinned lever to support the hanging column system of the cantilevers below. Special threaded rebar was placed in the hanging columns to account for the large tensile forces. The columns apart of the cantilever system frame down into a 60” thick mat slab, while the rest of the columns are supported by a series of combined footings, ranging from 42” to 48” thick. All foundations were designed to an allowable bearing capacity of
9600 psf. Because of the helipad on the roof, and code requiring 100 psf for a live load, the roof structure consists of a 12” thick slab, with and an additional 6” for the helipad area.

**MECHANICAL**

The primary means of conditioning the spaces is serviced with five variable air volume air handling units, ranging from 1500 cfm to 9500 cfm, and requiring a minimum of 1500 cfm of outside air. Stemming out from the mechanical mezzanine on the upper two floors, rectangular ducts branch out to all of the zones, with each zone containing its own diffuser(s). Because of expansion tanks and condensate return lines, this indicates that the building utilizes steam heating. In addition, chilled beams and radiant heat panels are used, with the radiant heat panels located in remote spaces, such as corridors, to avoid sending pipes in those directions. The chilled beams are a great sustainable item, since the cold air will sink to the bottom of the room, creating its own natural circulation. Because of the great distances the air has to travel, reheat coils are used at the individual zones to recondition the air just before it is diffused.

**ELECTRICAL**

The penthouse on the seventh floor contains all 13 of the electrical double ended substations, with six 208 voltage panels and seven 480 voltage panels in total. Those 12 panels stem out to many 20 V panels that are located in electrical closets throughout the hospital. Each closet supplies power to its zone. Also located in the penthouse are eight transformers, ranging from 500 kVA to 2000 kVA units. Because emergency power is vital for hospital operations, two back-up power units supply power to a series of batteries that store power overtime. In the event of an emergency, the substations will draw power from these battery reserves.