BUILDING STATISTICS

PART 2

Construction

For this project there was a strict deadline for the substantial completion date to allow time for move-in and commissioning before the first patient date in September. In order to accomplish this, “just in time” delivery method was used. Having deliveries made on an as needed basis increased site workability and flow. Also, construction was from the 5th floor down in order to keep a logical flow of work down and out of the building. Each floor consisted of five areas or quadrants and work progressed counterclockwise from A2 to A1. Site layout was imperative to ensuring the construction/ renovation of the mechanical tower addition and existing building as well as the 8-story parking garage being erected simultaneously on site by Coakley Williams Construction.

Other constructability challenges of the project included the unforeseen waterproofing issues and the outdated waffle slab configuration of the existing building. The schedule of the project was adjusted to accommodate risks such as the MEP configurations, interior build out setbacks and the extensive QA/QC inspections required. There were many additions added to the scope of work throughout the project such as the complete exterior glazing replacement and the waterproofing of the entire building perimeter.

Electrical/ Lighting

Since the KP building is a healthcare facility, it will require advanced electrical systems to be installed that the existing office building did not originally have. Because of this fact, the existing switchboard room in the basement will be remodeled to a MDP switchboard and paralleling low voltage switchgear. The new switchboard will be 5000A and a voltage of

480Y/277. The power source for interior lighting is a 120/277V circuit and the static uninterrupted power supply will have an output voltage of 208Y/120V and input voltage of 480V. Throughout the building will be 100A three phase enclosed bus-way assemblies with 200% neutral and are 4 pole at 208V. All temporary construction power will be used from the existing switchboard and transformer located in the basement level main electrical room. The permanent transformers to be installed will be low voltage floor mounted and ceiling mounted transformers.

Mechanical

The air distribution system used in the KP MOB will consist of multiple Variable Air Volume Control Units located on the lower level, level 2, level 4 and the roof. There will be gas fired steam generators and electronic steam humidifiers in the mechanical room located in the basement.

The hot water system will be comprised of fire-tube gas boilers and clean steam boilers located in the basement boiler room. The water treatment system will be run by a twin tank alternating concept with a meter initiation method. Chilled water will be distributed from 500 ton minimum cooling capacity centrifugal water chiller located in the basement. Located on the roof will be the stainless steel cooling tower which has an induced draft counter -flow and super-low sound fan.

Structural

Floor Construction

Cast in place concrete will be used for the Slab on Grade of the new mechanical tower addition as well as a retaining wall around the mechanical tower, in-fills of the sanitary trenches in the basement, thickened MRI slabs, etc. The horizontal and vertical formwork types used were both smooth formed and rough formed consisting of plywood and metal. Ready mixed concrete was used and poured continuously in one layer or in horizontal layers. For in-fills and slabs, the concrete was finished with a hand trowel. For larger areas, such as the retaining wall concrete, a machine trowel was utilized.

The mechanical tower will alternate between concrete composite floor slab and 100 psf metal grating to allow for proper storage of the buildings main mechanical equipment. The existing structure has a concrete waffle slab configuration supporting each floor.

Structural Steel

Structural steel will primarily be used for the construction of the 75 foot mechanical tower. It will consist of HSS 8x8 X-bracing framing the sides of the tower and horizontal bracing will be used for interior framing using HSS8x4. There will be six perimeter HSS columns and three interior columns. A line of interior rigid moment connections will exist closest to the connection of the tower to the existing structure.

Steel is also needed within the existing building to act as reinforcing. Since the existing slab is a concrete waffle slab, steel members will be placed horizontally under the floor slab between the ribs or the ribs will be cut to fit the members. This will occur in locations that require extra reinforcing, perimeters of new stairway openings and framing of mechanical shafts. Structural steel members will also be used vertically between floors as single story support posts

Building Enclosure

The existing building is constructed of 6" precast concrete panels and ribbon windows that will remain as the main enclosure of the building. A storefront system will be used at the entrance vestibule utilizing different types of glass including: insulated vision glass, monolithic glass and laminated vision glass. The storefront will be held up by an aluminum frame that will fasten to the glass panels. The structural steel skeleton of the new mechanical tower will be enclosed with insulated metal panels fastened directly to the HSS members.

Fire Protection

The fire protection used in the building will be a combination of a wet type automatic sprinkler and standpipe system. The building and mechanical equipment rooms will utilize this standard sprinkler system design. However, the Telecommunication Equipment Room and electrical rooms will have double interlock pre-action systems. The main entrance and loading dock areas have dry-pipe systems. The fire protection will also include installation of new fire stopping and smoke seals around the perimeters of the floors.

Telecommunications

The communications systems will be low voltage electrical power conductors and cables. The different communications pathways throughout the building will include mass notification systems and nurse call Code Blue systems. Also, a pneumatic tubing system will be used within the pharmacy unit.

The telecommunication also includes a duct bank for the Verizon communications line to be routed across the site and to feed into the TER room located in the basement. The

Verizon line will use 4” conduit connecting from the junction box on West Park Drive to the North side of the building at the location of the TER room

Medical Gas

Medical Gas boxes will be dispersed throughout the building primarily on the fifth floor. The medical gas will either be wall mounted panels above patient beds providing ½” compressed air, ½” carbon dioxide, ½” nitrogen and ¾” vacuum piping. Also, ceiling mounted medical gas will be located in surgical suites above the operating tables supplying ¾” oxygen, ½” Medical air, ¾” vacuum, ¾” anesthesia and ½” nitrous Oxide piping.

Transportation

The four existing elevators in the building will be renovated into 6- stop traction passenger elevators. They will all have a speed of 350 FPM and capacity varying from 3000lbs to 4500 lbs. In addition, a gearless traction 7-stop elevator servicing all floors will be installed. It will be used for transporting supplies and passengers with 4500 lbs. capacity and speed of 350 FPM.