

GOUVERNEUR HEALTHCARE SERVICES

227 MADISON STREET, NEW
YORK, NY, 10002

BUILDING STATISTICS II



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CONSTRUCTION DELIVERY

The Gouverneur Healthcare Services renovation and expansion project is being delivered as design-bid-build, in prime contractor format, with a construction management agency. New York City Health and Hospitals Corporation, HHC, is state agency for the city of New York who is the owner and operator of the healthcare facility.

The Dormitory Authority for the State of New York, DASNY, is contracted directly through HHC to oversee the modernization project from conceptual design to final completion, as well as providing the facility with a budget to fully fund the project. DASNY is contracted by HHC through a Memorandum of Understanding. Hunter Roberts Construction Group is contracted by Memorandum of Understanding through DASNY to serve as a construction management agency to both DASNY and the Health and Hospitals Corporation. As part of the design and construction process, DASNY is the major player for the project to which they hold the contracts between all parties involved, including the design consultants, prime contractor, and vendors. The relationships can be seen in the figure below.

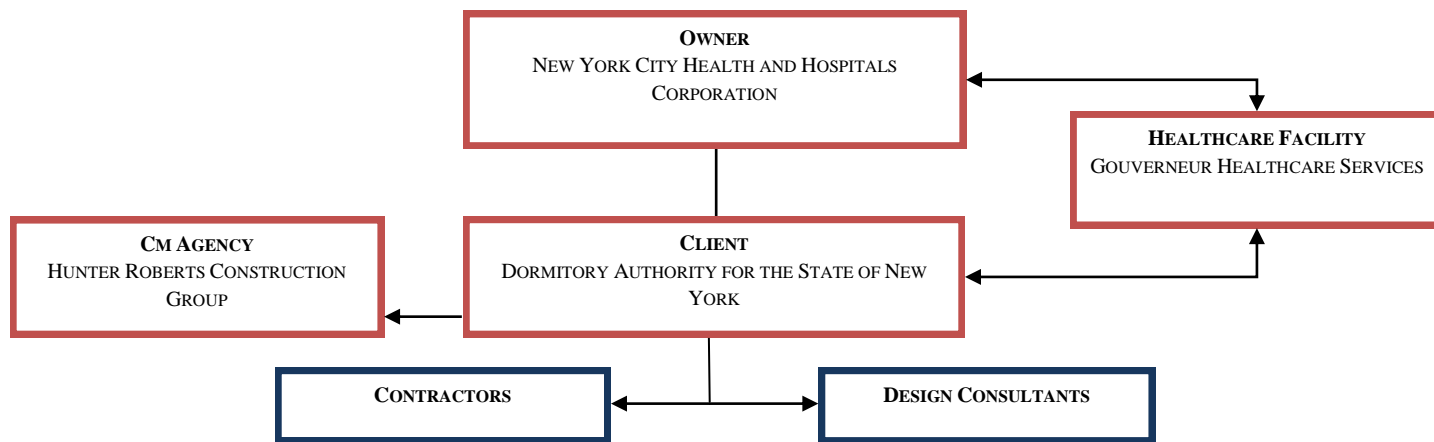


Diagram 1: Contractual Relationships

From architectural design and preconstruction services to final project substantial completion, the Gouverneur Healthcare Services facility will serve as a four year project for the owner, design team, construction management team, and contractors. Throughout the entire project, the healthcare facility will remain fully operationally for staff and patients. In order to prevent disruption to the staff and patients, the construction of the facility will occur in six different phases including 1, 2, 2A, 3, 4, and 5. This will allow certain floors to be turned over in order to proceed with demolition and renovation services on other floors.

STRUCTURAL SYSTEM

The existing structure is comprised of a typical concrete structure incorporating a concrete beam, column, and slab system. The structural engineer deemed the existing structure’s design to be acceptable to support the newly renovated spaces, therefore, requiring no added structural support to support the floors.

The new podium and tower being constructed is a structural steel and concrete slab system. The base columns on the inside of the building are supported by 12’ x 6’ piers which each rely on 5 to 10, 100 ton piles for stability. All columns that support the structure are W-flanged members that typically span two to three floors at a time. Compared to a typical W-beam support system, structural designers incorporated a castellated beam and W-beam design. The integrated design would allow for equal floor elevations between the new buildings steel structure and the existing buildings concrete structure. The design also provided the maximum allowable heights achievable between floors, which serves as a benefit to the high volume of MEP equipment and material that will support the healthcare facility. Supported by the beam is 4 1/4” lightweight concrete fill reinforced with 6x6-W2.1x2.1 WWF placed 1” from the top of slab on a 2” 16 gage galvanized composite floor deck. For lateral load stability, the structure is supported with horizontal bracing members typically consisting of HSS8x8x5/8 and HSS16x8x5/8 members. Additionally, all structural steel columns located on the exterior to support overhangs are encased in a round lightweight concrete column. The following diagrams depict some of the structural descriptions mentioned above.

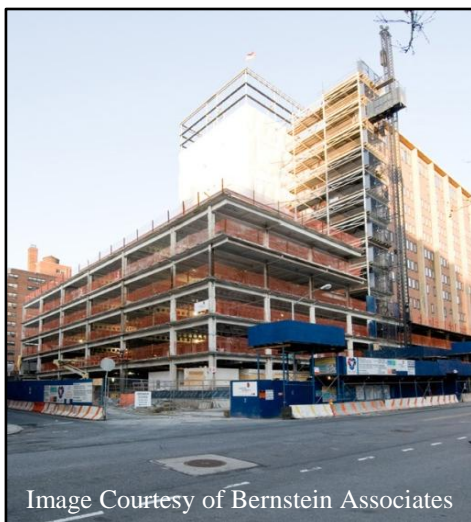


Image Courtesy of Bernstein Associates

Diagram 3: New Building Structure

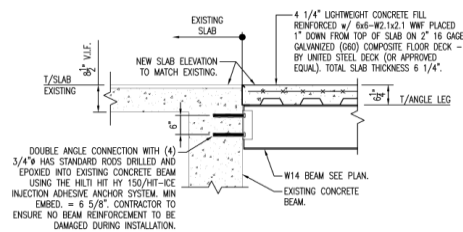


Diagram 4: Slab Elevations

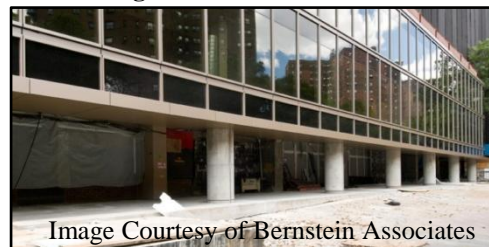


Image Courtesy of Bernstein Associates

Diagram 5: Exterior Columns

A Manitowoc 4100 crawler crane was used to pick steel members throughout the entire erection of the structural steel frame. The crawler crane has a maximum lifting capacity of 230 tons and a reaching capability of up to 250 feet. For the majority of the erection phase, the crane traveled a designated path along the corner of Madison Street and Jefferson Street.

MECHANICAL SYSTEM

The Gouverneur Healthcare Services facility will undergo a complete modernization of its existing infrastructure and receive new equipment and support systems that will support both the new and existing facility. Overall, the mechanical system will feature a combination of eleven air handling units that are capable of delivering a combined air flow of 350,200 CFM to spaces throughout the building. Additionally, the mechanical system will feature three induced draft cooler towers to supply chilled water to various mechanical components that support the building.

Located on the 6th floor of the new building are three variable air volume air handling units, AHU-5, AHU-6, and AHU-7, which will distribute air to the podium, floors 1-5, of the new building. AHU-5 will primarily serve the four story atrium with 14,000 CFM of air, while AHU-6 and AHU-7 will each provide 50,000 CFM of air throughout the various podium spaces located in the new building. Located on the 14th floor roof/penthouse of the existing building are four variable air volume air handling units, AHU-1, AHU-2, AHU-3, and AHU-4, which will distribute air to spaces throughout the existing building. AHU-1 will serve the north end with 17,000 CFM of air, AHU-2 will serve the south end with 20,000 CFM of air, AHU-3 will serve the west end 100,000 CFM of air, and AHU-4 will serve the east end 60,000 CFM of air. Additionally, there are four existing air handling units that are to remain in the building which will serve the existing building's cellar and first floor including the main lobby, auditorium, and staff locker rooms.

ELECTRICAL SYSTEM

The Gouverneur Healthcare Services facility will undergo a complete modernization of its existing infrastructure through replacement of most of the electrical systems. The electric service is fed to the building by Con Edison of New York. The service is fed into the electrical room in the cellar of the existing building at 208/120V power to two 4000 amp, 3 phase service

boards, Service Board “A” and Service Board “B”. Each service board feeds power to a 4000 amp, 3 phase Main Distribution Board “MBD-A” and a 3000 amp, 3 phase Main Distribution Board “MBD-B” which distributes the power where necessary throughout the building. Service Board “A” serves a 3000 amp bus duct which supplies power to the electrical closets of the existing building and 14th floor penthouse. Main Distribution Board “MDB-B” serves an 800 amp bus duct which supplies power to the electrical closets of the new building and 6th floor roof mechanical equipment. Service Board “B” also distributes power to a fire alarm fused cut-out panel that controls the fire command station, central station, pre-action panel system, and DGP riser. A new 1000KW, 480/277V emergency generator will feed power through a step down transformer to support Service Board “B” in the case of an emergency. Power created by the generator also distributes power to the fire pump and a 480/277V, 200 amp Service Board “E” which feeds hospital equipment that must remain active during an emergency outage. When necessary, power is stepped up or switched from 208/120V to 480/277V by use of a transformer to systems that require such type of power.

FIRE PROTECTION SYSTEM

To ensure the safety of all occupants of the building, a variety of methods have been incorporated in the design of the building fire suppression system. Approximately 195 fire smoke dampers have been incorporated into the fire suppression design that are connected to a number of duct smoke detectors that will use the ductwork as a method of smoke control during a fire. The fire protection design incorporates a combination of both a pre-action integrated sprinkler system and dry pipe sprinkler total pac system. The sprinkler system will be fed by a new, automatic fire pump located in the cellar of the existing building.