

Building
Statistics

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State College, PA

320 W. Beaver Ave.

Student Apartments

Kyle Macht

Construction Management

Faculty Consultant: Dr. Messner

Construction

320 W. Beaver Ave. is for the most part a simple construction process, but it has a couple wrinkles. The excavation protrudes down 19' into rocky soil. From there on up metal formwork was used for cast in place concrete. Prefabricated floor planks were placed by a tower crane, which is centralized out of the elevator shaft. Most of the deliveries will arrive on the street at the front of the building, which blocks one lane of traffic. These deliveries are picked up by the tower crane then places where needed on the building right away due to the limited extra space for storage of major materials and prefabricated items. This crane does hang over many buildings so safety is a concern throughout the project, especially for pedestrians and automobiles on Beaver Ave.

The site office is based out of the basement of the church next door. The parking for contractors is limited and is right outside of the church. For the apartment floors a trades will flow through the building after the structure of the floor above is erected.

Electrical

The power enters into the building into the main switchboard with a 2000 A main breaker, located in the basement and is then distributed up through the building via a 1600 A copper busway. There is a 125 kW backup diesel generator located in the basement. Each floor has a 400 A panel coming off of the busway that distributes the power to a 125 A panel for each apartment. There are 3 other panels that run off of the busway. The first Panel E1 is 400 A and distributes the power for the fire suppression system and safety systems, such as exit signs. Panel MSB is another 400 A panel that distributes power for the heating systems for the corridors and the basement. Panel LSB is a 225 A panel for the lighting and receptacles in the parking garage as well as the first floor, containing the mail room and the commercial spaces.

CATV cable and phone lines are distributed throughout the building. Each apartment has a cable jack and telephone jack located in the living room and each bedroom, there is also an additional telephone jack in the kitchen.

Lighting

The lighting used is relatively simply. Compact fluorescents are used throughout all of the apartments are recessed in the ceiling. In the parking garage linear fluorescents are used. The commercial area lighting will be installed upon tenant fit out.

Mechanical

The mechanical system is split into a couple areas. There is a main mechanical room in the basement that contains two combustion water heaters connected to a hot water storage tank, which will be used for the domestic hot water. The corridors of the building are heated through two air handling units that are housed on the roof. The roof also contains a

condensing unit that cools the corridors. Each apartment has its own heat pump, in the exterior porch closet, used to heat and cool the apartment. This is controlled from a thermostat and distributed via forced air. Each apartment's bathroom is directly vented to the outside.

Structure

There are two levels below grade for a parking garage. This parking garage contains cast in place concrete walls for the exterior walls, structural interior walls and columns. The floors for the parking garage are slopped as ramps for the cars to get up and down the different levels. The bottom floor level is a slab on grade, at least 5" thick with welded wire mesh. The parking floors above consist of solid precast panels that are tied together with welding plates.

The first floor, at grade level, is mostly cast in place concrete walls; however, it contains a structural steel front for the commercial space. The commercial store front had a glass curtain wall system supported by a steel frame. At Floor 2, the structure is a combination of cast in place concrete and CMU walls. In floors 2-7, the structure consisted of CMU walls. All of the floors were hollow core planks. Exterior and interior non load bearing walls consisted of metal stud framing.

Fire Protection

The Sprinkler system utilizes a dry pipe system for the parking garage, while for the rest of the building a wet pipe system was implemented. The fire pump is located in the basement.

Transportation

There are 2 stairwells located near the east and west sides of the building. The east stair well is coupled with an elevator and both extend down into the parking garage. The elevator has 3000 LB capacity and moves 350 ft per minute.

Transportation

Phone lines and cable lines are provided in each apartment. They are located in all the bedrooms as well as all the living rooms.