

- Benner Pike Shops
- State College, PA
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## Existing Conditions and Building Summary

### Local Conditions

The site is located in the general commercial zone which covers large radius of area around. There was not any type of structure or building present prior to this project at the location; which means no demolition was required. The condition of the soil in that area was composed of 90% or greater of limestone. Although the excavation had to take more time and consideration than usual, there was no need for any de-watering the soil because of its dry condition. Those stones plus any left over stones from the construction were the only materials that were recycled. Since the shops are located in the mall area where no tight neighboring buildings exist, the project had no conflicts on congestion problems such as, access road during construction, material staging area, or damaging adjacent buildings. Since the region is rural, there is enough space for mall constructions. Typically, site congestion is not a problem around the area.

### Client Information

The sole purpose of the project started by the client is to lease spaces to tenants. For this project, the tenants focused on this project were different shops because of the location and building type. Joules Patt, the president of Keystone Hospitality Group, is a developer, in which the company concentrates their work on real estate primarily. Since the project is a local job, the company hired LSF Contractor who has done numerous projects around the town and knows well about this region. For the fastest possible lease schedule, construction took place focusing on finishing each shop separately after the basic building structure as a whole. This way, the owner could lease out the finished shops while construction takes place on the other incomplete shops. By finishing the shops on the edge of the mall, the owner minimized the risk factors for safety of customers. Overall, the client was pleased with the schedule and construction cost, especially for the early finish of the project. The client is going to keep the building after



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*Major National Codes: IBC 2003, BOCA, NFPA*

### Staffing Plan

The LSF Contractors were assigned for general contractor for this project and through out the project, three superintendents were placed. For the pre-construction part and layout of the building, Tim Moore was in charge. After the first phase, Rick Lascoli was assigned for the main construction. At the very end of the project, which includes finishes of some small shops, Ron took over to wrap up the whole construction. Although Tim was present during actual construction phase, most of the work was done by Rick. Project manager, Richard Fiore Jr. was assigned from the main office to direct the meetings and conduct overall construction.

### Architecture

Benner Pike Shops is a shopping plaza consisting of multiple stores congested together side by side. The mall is basically divided into two sections: the new shell building containing two large stores (Bed Bath & Beyond, ROSS Dress for Less), and combination of smaller shops (14 in quantity). Although the building itself could be considered as a one building (since the shops are attached), each shop is unique and has different architectural features to it. In addition, all the stores are one story in height. The new shell building has an interior elevation of 24 feet and the rest with 18 feet in interior elevation. The main goal of designing this facility is to give comfortable feelings and pleasure to the customers coming to the shops. One of the key designing issues is that the building itself is concave in toward the parking space of the mall. This will give the customers better view of the stores and form a space within space. The other designing issue is that the smaller units have uniformity in style exteriorly. The same kind of doors and showcase formations will provide cleaner expression of the shops.

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### Building Envelope

To keep the uniformity within the different shops, the majority portion of the exterior of the Benner Pike Shops is finished with EIFS (Exterior Insulation Finish System). The back portion of the building faces are finished with paint over concrete blocks. The openings of the shops are consisted of Aluminum framing with temperature insulated glass. Again, the same type of doors and glass are used for the uniformity reason. Each store has double sliding doors of 3 feet by 7 feet in size with integrated windows of 1 3/4 inches thickness. Decorative column cover is placed consistently at the exterior hallway of the stores. Surface of the roof is flat through out the building, and it is sloped toward the back of the building so when it rains, water can flow and fall behind the building where the customers are not likely to be present. Roofs are finished with membrane roofing with two layers of 2-inch rigid insulation.

### Construction

One of the key issues that were brought up often during the construction of the shops was to work along with several units of shops, because each unit has different features and characteristics in both the surface and the inside (electrical and mechanical). Different electrical and mechanical plans necessitated good organization and formation of the phases of the work and the relationships with number of various subcontractors. As in general contractor's point of view, it was a stressful job with hard coordination to look at different sets of drawings for each unit.

### Structural Steel Frame

Considering that the building height is not higher than 30', only one 120-ton mobile crane was used for erection of the steel. Based on the concrete wall footings and column footings, TS 10 x 8 steel columns were typically erected for the support. Wide flange

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beams were then braced to the columns along with numerous steel joists. Typical brace used among a steel column and two joining beams were knee bracing. Two beams joining at the top of the steel column were welded together to the steel column with 3/8" plate stiffeners. In addition, Two Angles 5" x 3 1/2" x 5/16" (one for each beam) were welded to the beam and the column with 3/8" plate gussets. On top of the stiffeners, fill pieces were provided in each brace to support the roof metal deck sitting on top of the beams.

### Cast in Place Concrete

For this project, no mass placing of concrete was needed except for footing and slab on grade. Since the building is only one story high, concrete was placed in the sub-grade level. Direct pour was adequate in a fact that there is no concrete placing in high elevation. Typically, thick exterior graded plywood was used for the horizontal formwork, and the connection was made with metal junction plates. When the concrete was poured, temporary waterproofing polyethylene sheet was installed.

### Mechanical System

The air handling units are located on the rooftop for all the shops. Each shop has its own HVAC units generated from AHU's located on top of each store. The number of AHU's varies between the sizes of shops; in which it varies from 2 to 9. Small – scale mechanical rooms are located on the back of each store for the control purpose. Equipments and ductwork are insulated with rigid fiber glass board and flexible blanket. For the exposed ductwork, aluminum jacket and PVC jacket are used.

A pipe sprinkler system serves the majority portion of the building. Its heads are semi-recessed, chrome plated, so the heads are exposed to the heat for sensitivity and give faster response. For the spaces with ceiling height less than 8 feet, the heads are fully recessed with white covers for aesthetic reason and to allow better interior view.

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### Electrical System

For the conduit raceways, minimum size of 3/4" EMT was used, and they were concealed except in mechanical rooms and janitor closets. Conductors have voltages of 120/208, 277/480, 120/240 for the ungrounded systems. Panelboards are also 120/208 and 277/480 volts, three - phase with copper bus system. Circuit breaker is 480 volts and has interrupting rating of 64,000 amperes.

### Lighting

All the lamps are manufactured by General Electric and Sylvania, in which include incandescent lamps with 125 volts, fluorescent lamps, mercury vapor HID lamps, metal halide HID lamps, and high pressure sodium HID lamps. Ballasts are provided for fluorescent lamps.

### Telecommunications

An empty conduit system is being provided for owner installation of voice/data cable. Telephone cabinets and fire-treated plywood backboards for mounting of telephone equipments were furnished. Each single telephone outlet would be served by an empty conduit 3/4" in size and it will extend from outlet and stud up through ceiling, and then above corridor ceiling to cable tray location. A 12 gauge 200 pound test galvanized fish wire with 12" of free wire is provided in each conduit.

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### Masonry

Exterior CMU's were stacked up among the exterior steel beam. The purpose of the CMU walls was to give the building enclosure, in which the walls are not load bearing. Only about 10 – feet high scaffolding was needed since more than half of the job could be done from the ground.

### Support of Excavation

The site before excavation had a slope in which the difference between the highest point and the lowest point was approximately 10 feet. Starting from the top of the hill, excavation took place and decent amount of excavated soils were used for fill in the low elevation area. As mentioned in the local conditions, more than 90% of the soil excavated was limestone which led to no work in de-watering the soil. For the excavation support, temporary tieback sheeting system (tiebacks, soldier piles and wood lagging) was integrated which is the most economical method.