

**Laurel H. Warner**  
**Construction Management Option**  
**AE Facility Consultant: Dr. David Riley**  
**Harrisburg University Academic Center**  
**Harrisburg, Pennsylvania**  
**08.31.07**  
**AE 481W—Building Statistics I**





View of Academic Center at Corner of Market and Forth Street

**General Building Data:**

**Building Name:** Harrisburg University Academic Center

**Building Location:** Harrisburg, Pennsylvania at the intersection of Market and North Forth Streets

**Building Occupants:** Harrisburg University of Science and Technology

**Building Function:** University with classrooms, teaching labs, seminar rooms, library, auditorium space, office space, and parking facility

**Size:** Approximately 370,000 square feet

**Height:** 16 stories

**Project Costs:** \$73 million (total with construction costs exceeds \$100 million)

**Project Delivery Method:** CM at risk

**Owner:** Harrisburg University of Science and Technology

**Construction Manager:** Reynolds Construction Management, Inc.

**Architect & M. P. FP Engineer:** Burt, Hill

**Structural Engineer:** Barber and Hoffman, Inc.

**Civil/Electrical Engineer:** Benatec Associates

**Electrical Engineer (Lighting):** Integrated Engineering Solutions, Inc.

**Parking Consultant:** Timothy Haahs & Associates, Inc.

**Construction Dates:** January 2007-December 2008

## **Architecture:**

The Harrisburg University of Science and Technology opened its doors for students in the fall of 2003 using downtown office space as their campus. The new Academic Center is the University's first owned building as a very modern and chic facility. The zoning is for parking garage/school, library, or education as in PB-2. The designers had much to work with as the only restrictions were street setbacks, property boundaries, special permit for a tower crane, and height requirements because of the proximity to the Capitol. Concrete masonry units are the support for the stair tower and elevator shaft as the rest of the structure is a slab on metal deck with a precast concrete shell. The building will have an EPDM roofing system and to assist in the aesthetics of the design, a curtain wall system for the building envelope. The glazing will be annealed and heat-treated float glass within curtain wall system and aluminum storefronts.

### **Codes used in design of the building are as follows:**

- International Building Code 2003
- International Fire Code 2003
- NFPA 75, 76, 88A
- National Standard Plumbing Code 2003
- International Mechanical Code 2003
- National Electric Code 2002



Market Street view showing curtain wall system

\*Harrisburg University Logo courtesy of *Harrisburg University of Science and Technology*

\*\*Renderings courtesy of *Burt, Hill*

*Demolition:* Soils had to be tested according to ASTM E 329 to conduct soil materials and rock-definition testing, as documented according to ASTM D 3740 and ASTM E 548. The existing storm sewer piping at Fourth Street, parking lot, sidewalks and curbs had to be demolished.

*Structural Steel:* Composite slab on metal deck for floors 2-16, hat and core frame bracing using moment connections on exterior wall for wind resistance exists in the building. Members will confirm will ASTM A992, Grade 50 steel.

*Cast in Place Concrete:* All floors have composite slab on metal deck, utilizing cast-in-place concrete. Stay-in-place and timber formwork is used, along with truck and buggy placement for the concrete.

*Pre-cast Concrete:* Casting will take place from Fourth Street site entrance. The use of pre-cast concrete exists on the façade, parking structure, and classroom partition walls. Connections will be made using pins; crane used is same for steel erection—225' tower crane with 80' horizontal jib.

*Mechanical & Electrical Systems:* There are rooftop HVAC units with (3) AHU on 16th floor servicing building via 96x36 ducts. Variable air volume boxes supply air to the university classroom buildings as well as the first two floors of office/retail space. Existing air conditioning units range from 1,200 CFM to 16,000 CFM; three split system heat pump units exist as well. Fire water with booster pump exists for the fire suppression system. From the main service to switch gear, a 3-phase 480/277V, 4-wire with main circuit breaker 2000A exists.

*Masonry:* Interior masonry will be for some of the partitioning walls inside the building along with the framing of stair and elevator shafts. Concrete masonry units will be used.

*Curtain Wall:* Non-load bearing curtain wall exists on the exterior walls. Aluminum window glazing system and pre-cast concrete make up the south and east facades. The north and west facades are simply pre-cast concrete.

*Support of Excavation:* A free draining sheeting system, consisting of H beams, wood lagging and bracing, was used for support against the existing Strawberry Square building on the west façade.