

Phase 2 New Building

John Tyler Community College, Midlothian Campus

Midlothian, VA

PROJECT TEAM:

Owner:

Virginia Community College
Systems

CM:

Gilbane

Architect:

Burt Hill

Civil Engineer:

Burgess and Niple

Structural Engineers:

Stroud Pence

MEP Engineers:

H.CYU Engineers

Telecommunications/Audio- Visual/Acoustics Engineers:

Shen Milsom Wilke

Cost Estimating Consultant:

Construction Consultants, Inc.

PROJECT OVERVIEW:

Function: Mixed Use Academic Building

Size: 61,000 SF

Height: 3 Stories

Construction Dates: May 2008 – October 2009

Delivery Method: CM @ Risk w/ GMP Contract

LEED® : Pursuing LEED® Silver Certification



STRUCTURAL SYSTEM:

Foundation: Reinforced concrete shallow spread footings, Below grade perimeter cantilevered concrete foundation walls, 4" ground floor slab-on-grade

Framing: Elevated slabs (4" lightweight 4000psi concrete over 1 1/2" x 20 gauge VLR composite deck) and roof deck (4" normal weight 4000psi concrete over 1 1/2" x 22 gauge type B composite deck) supported by typical W16 floor beams and W10 columns.

Façade: Masonry veneer backed up by metal stud and curtain wall glazing, CMU (stair and elevator towers), precast concrete and metal paneling w/ steel stud

MECHANICAL SYSTEM:

- (4) 12,500 CFM AHU's serving Laboratory, Library, Classroom, and others on North End
- (1) 3,750 CFM AHU serving Office/Admin area on South End
- (4) 80 Ton Modular Chillers
- (1) 675 GPM Cooling Tower
- (2) 170 GPM Multi-Zoned Gas Fired Hot Water Storage Heaters
- (2) 1,200 MBH Hydronic Boilers constructed adjacent to Chilled Water Plant

SUSTAINABLE FEATURES:

- Green roof to filter and absorb rainwater, and reduce heat island effect while insulating the building.
- Modular chillers in the mechanical room eliminates the use of oil for the primary cooling equipment in the building
- Recycled content used in building materials such as drywall, fly ash in the concrete, and carpeting
- Natural daylighting sources reduce electrical consumption
- Energy efficient glass and motorized sunshades control solar heat gain, and allow solar shading
- Thermostats in every office to maximize occupants thermal comfort and control

ELECTRICAL SYSTEM:

- 968.2 kW Total Connected Load
- 842.3 kW Total Demand Load
- (1) 150 kW Generator
- 277 V Majority of Lighting System

ARCHITECTURE:

The exterior of the building is a combination of brick, precast concrete accents, metal panels, aluminum windows and an aluminum framed curtain wall complementing existing buildings on the Midlothian Campus. The layout of the building is designed to accommodate the science department, a library, student lounge, bookstore, and multipurpose room. Science labs on the third floor are the driving force for the building shape. The second floor is the primary entrance of the building from the north, and houses the library. The first floor has an entry on the south to accommodate the newly added south parking lot and contains the bookstore, multipurpose room and the student lounge.

Dennis V. Walter Jr. | Construction Management

special thanks to Burt Hill and Gilbane for photos and data

e-Portfolio: <http://www.engr.psu.edu/ae/thesis/portfolios/2010/dxw5004/index.html>

