Final Thesis Report:

An Analysis of Alternative Lighting & Electrical System Solutions

Ann and Richard Barshinger Life Sciences & Philosophy Building
Franklin & Marshall College
Lancaster, PA

Jason Weaver
Lighting Advisor: Dr. Mistrick
Electrical Advisor: Prof. Dannerth
Lighting/Electrical Option
04/09/2008

ANN AND RICHARD BARSHINGER LIFE SCIENCES & PHILOSOPHY BUILDING

Franklin and Marshall College

Project Team:

Owner: Franklin and Marshall College
Construction Manager: Turner Construction Company
Architect: Einhorn Yaffee Prescott Architecture & Engineering
Structural Engineer: Einhorn Yaffee Prescott
MEP Engineer: Einhorn Yaffee Prescott

Project Data:

Size: 104,000 sq. ft.
Floors Above Grade: 3
Total Floors: 4
Project Cost: GMP of $39 million
Bid Method: Design-Bid-Build
Dates of Construction:
December 2005 - August 2007

Architecture:

-Georgian Revival Style
-Brick façade, tooled to match existing buildings
-Modern 3-story atrium acts as core of building
-Basement Vivarium for visual research

Mechanical:

-Two roof-mounted Air Handling Units with capacity up to 50,000 cfm of supply air
-Central Utility Plant immediately adjacent to main building contains chiller for this building
-Basement contains domestic water heater service
-Medium-pressure steam service from main campus service facility

Structural:

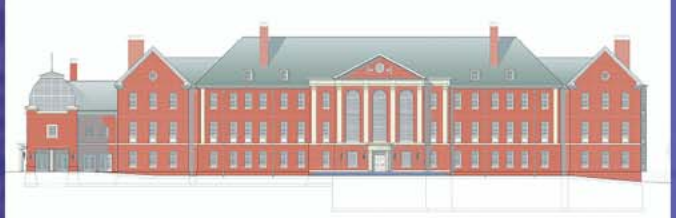
-Steel framing supporting 6 ½" composite concrete slab
-5" concrete slab-on-grade
-2'6" foundation wall with spread footings
-Roof is Vermont slate shingles supported by galvanized metal decking on structural steel

Electrical:

-15 KV service from Franklin & Marshall main switchgear for entire campus
-12.47 KV servicing substation transformed down to 480Y/277V secondary service voltage
-Step down transformers to 208Y/120V for receptacles and incandescent loads
-350 KW diesel generator for emergency power generation

Lighting:

-Majority of lighting operates at 277V
-Recessed, louvered linear fluorescent luminaires for classrooms, labs, and offices
-Recessed compact fluorescent downlights for corridors and circulation spaces
-Daylight sensor photocell in atrium, dimming systems in common room and lecture hall



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Jason Weaver
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CPEP Website:
http://www.engr.psu.edu/ae/thesis/portfolios/2008/jpw202/

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