

SUSQUEHANNA CENTER

HARFORD COMMUNITY COLLEGE 401 THOMAS RUN ROAD BEL AIR, MD
MARCUS NG LIGHTING & ELECTRICAL OPTION

<http://www.engr.psu.edu/ae/thesis/portfolios/2013/nyn5021/index.html>



BUILDING STATISTICS

SIZE: 106,955 SF
OVERALL PROJECT COST: \$ 26,700,000
OCCUPANCY: HCC faculty, staff & students
DATE OF CONSTRUCTION: 2/11/2011 - 9/17/2012
PROJECT DELIVERY METHOD: Guaranteed Maximum Price
TOTAL LEVELS: 2 levels above grade

PROJECT TEAM

ARCHITECT: Hord-Coplan-Macht
GENERAL CONTRACTOR: Turner Construction
CONSULTANT: Counsilman Hunsaker & Associates
MEP ENGINEER: Burdette, Koehler, Murphy & Associates, Inc.
LIGHTING/ELECTRICAL ENGINEER: IES Commercial, Inc.
STRUCTURAL ENGINEER: CMJ Structural Engineering, Inc.

ARCHITECTURE

The Susquehanna Center, a LEED Silver accredited building, is a two story athletic facility comprised of a gymnasium, fitness center, dance and exercise studios, swimming pool, and offices for faculty and staff. Additionally, the expansion of the facility creates a 2,552 seat arena primarily used for basketball, volleyball, and various entertainment and academic activities. An architecturally modern and aesthetic appearance is achieved through the use of a carefully selected color and material palette. Masonry backup, architectural block and brick veneer combine with colored glass storefronts, that symbolizes the unique characteristics and function of the building. Sustainable features include day lighting, construction waste recycling, implementation of a construction indoor air quality management plan, use of low cut off-site lighting fixtures and low flow plumbing fixtures, and a photovoltaic green roof.

LIGHTING & ELECTRICAL

The lighting design concept of the Susquehanna Center incorporates a variation of fluorescent lamps and fixtures to provide a functional and relatively energy efficient solution with good color rendering qualities, for various academic and athletic facilities. T5 and T8 fluorescent lamps are the main sources used, providing a highlight efficient system with lower power densities. The power enters the building on the main level in the main electrical room at the main switchboard at 480Y/277V, 3PH, 4W, 3160A and 42K AIC. 277/480V is distributed to serve lighting and HVAC loads, while 120/208V systems are used to serve receptacles. A 60KW, 75KVA diesel fueled generator combined with automatic transfer switches provide emergency power to emergency lighting, fire alarms, elevators, and telecommunications UPS.

MECHANICAL

AHU units with recirculation and a combination of DX-fain coil and hydronic processing method is used throughout the building. Pool heating is generated by photovoltaic solar collectors mounted on the roof, which is connected to a water to water heat exchanger. Four boilers and a packaged air-cooled chiller generates the main heating and cooling of the entire facility.

STRUCTURAL

The main structural system consists of structural steel. The floor system of the gymnasium and fitness center comprises of a 5" concrete slab reinforced with one layer of 6"x6" - W2.9xW2.9 Welded Wire Fabric placed over a 6 mil polyethylene vapor retarder and 6" of compacted granular base. For the rest of the building, the floor system consists of a 6 1/2" concrete slab over 3"-16GA N-LOK Composite Floor Deck. The structural system is supported by concrete beams ranging from W16xW16 to W32xW32. Cantilever retaining walls were designed for an active fluid lateral earth pressure of 45 PSF/FT.