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AE 481W

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Building Statistics Part 2

## General Building Data



Building Name: Science, Technology, Engineering and Math (STEM) Building

Location: 11400 Robinwood Drive, Hagerstown, MD 21742

Building Occupant Name: Hagerstown Community College (HCC)

Function: Academic Building

Size: 62,000 gross sq. ft.

Stories: 5

Time of Construction: June 4, 2010 – November 30, 2011

Cost: \$15.6 M GMP

Project Delivery Method: Design-Bid-Build

## Project Teams

Title	Company	Address	Contact Info.
Owner	Hagerstown Community College	Robinwood Drive Hagerstown, MD 21742	<a href="http://www.hagerstowncc.edu/">www.hagerstowncc.edu/</a>
General Contractor	HESS Construction + Engineering Services	804 West Diamond Avenue Suite 300 Gaithersburg, Maryland 20878	<a href="http://www.hessedu.com/">www.hessedu.com/</a>
Architect	Cho Benn Holback + Associates	100 North Charles Street 14 <sup>th</sup> Floor Baltimore, MD 21201	<a href="http://www.cbhassociates.com/">www.cbhassociates.com/</a>
Civil Engineer	Triad Engineering, Inc.	1075 Sherman Avenue Hagerstown, MD 21740	<a href="http://www.triadeng.com/">www.triadeng.com/</a>
Landscape Architect	Mahan Rykiel Associates, Inc.	800 Wyman Park Drive Suite 100 Baltimore, MD 21211	<a href="http://www.mahanrykiel.com/">www.mahanrykiel.com/</a>
Structural Engineer	Keast & Hood Co.	1850 M Street Northwest Washington, DC 20036	<a href="http://www.keasthood.com/">www.keasthood.com/</a>
MEP Engineer	James Posey Associates, Inc.	3112 Lord Baltimore Drive Maryland 21244	<a href="http://www.jamesposey.com/">www.jamesposey.com/</a>
Acoustic Engineer	Shen Milsom Wilke	3300 North Fairfax Drive Suite 302 Arlington, VA 22201	<a href="http://www.smwinc.com/">www.smwinc.com/</a>
Lab Planners	SST Planners	1501 Wilson Boulevard Suite 507 Arlington, VA 22209	<a href="http://www.sstplanners.com/">www.sstplanners.com/</a>

## Architecture

The new Science, Technology, Engineering and Math (STEM) Building at the Hagerstown Community College (HCC), Hagerstown, MD will be the newest academic addition to the college. The STEM Building will be five-stories tall and comprised of laboratories, classrooms, and faculty offices. It will be located in between the current Science Building and Classroom Building on the Northwest end of campus. The STEM Building will be built into a hillside making one entrance on the first floor, one entrance on the second floor, and the main entrance on the third floor. Exterior steps and landings located on the southwest side of the building will connect all three entryways.

### **Authorities Having Jurisdiction:**

- Washington County Department of Buildings
- Maryland Department of General Services

- Maryland Department of Labor, Licensing and Regulation (DLLR) - Elevator Safety Inspection Unit
- Codes:
- International Building Code - IBC 2006
- National Fire Protection Agency - NFPA 101 2006
- Uniform Fire Code - NFPA 1 2006
- International Mechanical Code - IMC 2006
- International Plumbing Code - IPC 2006
- National Electric Code - NEC 2005
- International Energy Conservation Code - IECC 2006
- Maryland Accessibility Code - MAC 2006
- Elevator and Escalator Safety Code ASME A17.1 2000 (with addenda)
- ASHRAE - Latest 90.1
- Code of Maryland Regulations - COMAR

Zoning: The main campus buildings are zoned “RS” for residential, suburban district. The rear area of the campus contains athletic fields, amphitheater, and bathrooms which is zoned “A” for agricultural district.

Historical Requirements: Not applicable.

## Building Enclosure

Building Facades: The HCC STEM Building enclosure is comprised of insulated glass, brick veneer, anodized aluminum and metal panels.

Roofing: The STEM Building will be implementing a styrene-butadiene-styrene (SBS) modified bituminous membrane roofing system as well as a thermoplastic polyolefin (TPO) roofing system.

## Sustainability

Although the STEM Building will not be striving to achieve LEED accreditation, it will be following all the same guidelines as the LEED certification process. Some sustainable features being implemented on the building will be solar panels, green roofs and low water toilets. There will also be wind turbines, a cistern to collect rainwater, automatic temperature controls, and geo-thermal heating/cooling wells.

# Primary Engineering Systems Summary

## **Construction**

The STEM Building at Hagerstown Community College (HCC) is being performed as a single prime in which HCC contracted HESS to act as the general contractor, whom will hold all the subcontractor contracts. It is being delivered using a traditional design-bid-build process. HESS will be in charge of coordination, overall project schedule and general site conditions for the duration of construction. A unique aspect about this project is the means of excavation. Blasting will be implemented due to the large masses of limestone rock upon which the footprint of the building rests. This is an area that requires much attention as to not damage any existing utility lines and neighboring buildings. This method also brings greater awareness to safety as blasting can be very dangerous if not properly executed.

## **Structural**

The STEM Building is primarily a structural steel system with bolted shear connections and three cast in place concrete stair shafts that act as lateral support. Cast in place concrete is also used for strip footings, spread footings, foundation walls, elevated slabs and slabs on grade (SOGs exist at three different levels). Structural steel is primarily wide flanges existing in a broad range of sizes. HSS12.75x0.5 is used to support the cantilevered section of the building. Slabs on grade are 5" thick 4000 psi concrete reinforced with 6x6, W2.1xW2.1 welded wire fabric. Elevated slabs are 3 1/4" thick light weight concrete on 2"x20/20 gauge galvanized composite decking reinforced with 6x6, W2.1xW2.1 welded wire fabric. All foundation walls are to be 8" thick and reinforced with #4 rebar at 12" off center, east and west.

## **Electrical**

The STEM Building is powered by a 1000 KVA pad mount transformer outside the building. The main transformer feeds into the fire pump controller and circuit breakers. A 250 KVA 277/480 V 3 phase, 4 wire generator is added for redundancy. The generator feeds an additional five transformers. One of which feeds the mechanical room, one for the server room, and three for the electrical room which are all located in the same room.

## **Mechanical**

There is one main mechanical room on the second floor that services the STEM Building. The building is heated with the use of cabinet unit heaters and propeller unit heaters. Chilled water is used for cooling. There is one custom air handling unit (AHU) located on the roof that services the building. The entire building is serviced using a variable air volume (VAV) system. The AHU provides a maximum of 37,000 CFMs of outdoor and a minimum of 23,000. Five ductless split systems are located on the roof for cooling the server room, telecom room, electrical, penthouse and elevator control room.

## **Lighting**

The labs, classrooms and conference rooms of the STEM Building are lit using 2 lamp or 3 lamp pendant lights and 2 lamp, 2x4 troffer recessed lights both manufactured by Focal point. The offices located on the fourth and fifth floor are lit using 2x2 lensed troffer lights manufactured by Metalux.