

2012 Exhibition of School Planning and Architecture

Booker T. Washington STEM Academy

Champaign, Illinois
Elementary School

Project of Distinction Award – New Construction
Cannon Design

Booker T. Washington STEM Academy



Exterior – Entry with Students

Community Environment:

Booker T. Washington STEM Academy is a K-5 school in a northeastern neighborhood of Champaign, Illinois. The 425-student school accommodates an underserved African American district and was the response to a desegregation order and a community process.



Exterior – Entry with Students and Timeline

Community Environment *Continued:*

The new STEM elementary school replaced the existing building which had important roots in the neighborhood. Cannon Design took necessary measures to insure that the needs and history of the neighborhood played a vital role in the design process. Workshops were held for end-users as well as members of the community to participate in the design of the new school.



A timeline of important historical milestones in the community are stained into the concrete paving and continue on into the building

STEM Lab

Learning Environment:

The architectural concept of the new Science, Technology, Engineering and Mathematics (STEM) Academy creates a STEM-centric, project-based learning environment to help students gain the skills and abilities to think critically, solve complex problems, and drive advancements in science and technology.



The STEM Lab is a project-based learning environment that serves as a workspace for discussion and collaboration; has immediate access to an outdoor learning area.

Academic Communities

Learning Environment *Continued:*

Academic communities offer increased opportunity for collaborative, flexible, and interactive learning. Each academic community is inwardly focused forming a cluster of three learning studios that open onto a communal gathering area and project workspace, through the use of folding glass partitions, for discussion and collaboration. This collaboration area is outfitted with a demonstration counter and a large sink allowing science and engineering project demonstrations and activities to occur in close proximity to the learning studios realizing the goal of permeating the building with science and engineering project based learning opportunities.



Academic communities serve as transitional, multifunctional areas maximizing space and providing collaborative, flexible and interactive learning environments for students.

Health & Fitness

Physical Environment :

Court striping on the walls and floor of the Health & Fitness room is further articulated with geometric symbols denoting shapes, angle degrees, and measurement systems support the STEM theme and promote problem solving.



Building Patterns and Sustainability

Physical Environment – *Continued:*

The building material patterns, resources, and energy used to construct and operate the building are intended to reinforce the STEM curriculum and encourage student curiosity and creativity. Materials are organized on the building façade through the use of colored glazed masonry to diagram the human genome and window patterns divided to the rhythm of the Fibonacci sequence. Natural daylight, geothermal energy, and photovoltaic panels demonstrate the schools commitment to sustainability.



Cafeteria; Historic Mementos

Planning Process:

Community engagement was a high priority in the design process and the final building strongly reflects the history of the community. The community engagement process began many months before more detailed aspects of the building design were discussed, laying the ground work for a successful design process. Multiple community members as well as district staff participated in each of these efforts.



Historic mementos displayed throughout the school remind students where they come from as they develop a strong skillset for the future.

STEM Lab

Planning Process: *Continued*

The school is intended to educate the whole child, and the program and design are organized to reflect that goal. The planning principal allows for important adjacencies and flow necessary to support the STEM project -based learning approach, while establishing a simple and efficient design that saves space and responds to the tight site constraints. The building system choices and envelope design respond to aggressive energy efficiency goals established early in the workshop process. The physical environment of the building is designed to reinforce the STEM curriculum and encourage student curiosity and creativity.



The interior spaces in the center spine of the building create a student experience of Discovery, Creation, Connection and Awareness.

Exhibition of School Planning and Architecture

Project Data

Submitting Firm :	Cannon Design
Project Role	Architect/Engineer
Project Contact	Kerry Leonard, AIA
Title	Principal
Address	225 North Michigan Avenue, Suite 1100
City, State or Province, Country	Chicago, Illinois 60601, USA
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Joint Partner Firm:	
Project Role	
Project Contact	
Title	
Address	
City, State or Province, Country	
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Other Firm:	Bailey Edward Design, Inc.
Project Role	Associate Architect
Project Contact	Robin Whitehurst
Title	Principal
Address	1103 South Mattis Avenue
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Phone	217.363.3375

Construction Firm:	PKD
Project Role	Construction Manager
Project Contact	Mike Stilger
Title	Sr. Project Manager
Address	Cox 3698
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Exhibition of School Planning and Architecture Project Details

Project Name	Booker T. Washington
City	Champaign
State	Illinois
District Name	Champaign Unit 4 School District
Supt/President	Judy Wiegand, Superintendent
Occupancy Date	August 2011
Grades Housed	K-5
Capacity(Students)	425
Site Size (acres)	2.2
Gross Area (sq. ft.)	60,300 sf
Per Occupant(pupil)	142 sf/student
gross/net please indicate	N/A
Design and Build?	Yes
If yes, Total Cost:	\$17,500,000
Includes:	Land, building, landscaping fees, furniture, and equipment
If no,	N/A
Site Development:	
Building Construction:	
Fixed Equipment:	
Other:	
Total:	\$17,500,000

Library

Thought provoking learning tools, such as text and graphics, were incorporated in the design and placed throughout the new building to reinforce the STEM curriculum and encourage student curiosity and creativity.



Art Classroom

Emphasizing the value of the arts in a STEM Academy.



Academic Communities; Collaborative. Flexible. Interactive.

Surrounding the center spine are the grade level academic communities (pictured to the right). The academic communities consist of 3 classrooms and a collaboration area which encourage interaction among students. The folding glass partitions create transitional and multifunctional spaces providing collaborative, flexible, and interactive learning environments for students.

1. OPEN - Maximized floorspace and interactivity
2. CLOSED - Composed classroom environment
3. PARTIAL - Increased interactivity and traffic flow

1.



2.



3.



Outdoor Learning Areas

Achieving LEED Gold Certification, the building includes multiple strategies such as a geothermal HVAC system and daylighting to achieve high levels of energy efficiency, resulting in 40% energy reduction. Outdoor learning areas, native vegetation, and vegetable gardens foster a sense of environmental stewardship and healthy lifestyle choices in the students.



Outdoor Learning Areas

The outdoor learning areas and landscaping are designed to integrate with the schools science curriculum. The STEM courtyard contains raised planting beds for growing vegetables and a rain barrel for watering the school landscape. Booker T. Washington has a holistic focus where students are learning to not only care for their environment but to also care for their needs and the needs of those around them, both in their school and beyond. Students actively participate in class projects related to gardens, recycling, and energy efficient school building with increased student motivation and meaningfulness of student investigations.

