

Quantitative and Qualitative Sustainability in a High Performance Building: The New MacArthur Elementary School

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ABSTRACT

In 2011 hurricane Irene and tropical Storm Lee caused the Susquehanna River to flood the city of Binghamton. The MacArthur Elementary School was inundated with contaminated flood waters and declared a total loss. With the help of federal and state funding the Binghamton City School District had the opportunity to rethink and create a new school for the 21st century.

The result was a new 125,000 square foot high performance elementary school with an EUI of 10 that embodied new models of educational engagement. State of the art systems, materials and site development created a LEED platinum (pending) project that incorporates both the quantitative and qualitative aspects of high performance and sustainability.

This presentation will explore the collaborative and integrated design process that engaged the Binghamton City School Board, administration, faculty, staff, student and the entire community in developing five overarching visions. These vision statements drove every decision during design and construction. A deeper look into the use of energy and daylight modeling to create an energy budget and select high performance systems for climate control, ventilation and lighting. The development of the site, the form of the building and the use of materials were driven by the philosophical underpinnings of the five overarching visions and the use of leading edge high performance and sustainable practices. The completed project reconnects a neighborhood, embraces the aspirations of the community, provides an exciting environment to deliver 21st century learning and is an example of high performance sustainability.

BIOGRAPHY

Edward McGraw is a founding partner and Chief Executive Officer of Ashley McGraw Architects, located in Syracuse, New York He strives to obtain excellence in every project by embarking on a process of collaboration with other respected design professionals and those influenced by the collective outcome. Under his direction, the firm has embarked on a foundational shift toward design that understands and participates in the relationship between our built and natural environments. Ed serves on the advisory board for the Syracuse University School of Architecture and is a former President of the Central New York Chapter of the American Institute of Architects.

Calvin Ahn's career has paralleled some of the best thinking in sustainable design: An early LEED Certified dormitory (2005); the LEED Platinum Syracuse Center of Excellence (2010); a LEED Gold science building at Le Moyne College (2012); and currently he is the Project Manager for MacArthur Elementary School. He is an expert in design processes for beautiful, high performing buildings.

Susanne Gruening, Interior Designer, is committed to creating spaces that evoke emotion and feeling, while at the same time providing a functional, earth-friendly design. She has been with Ashley McGraw for 3 years and is the lead Interior Designer for MacArthur Elementary.