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HMFH designed two schools with MTC for sustainability case study

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According to HMFH Architects, a leading architectural firm focused on the design of innovative learning environments, the opening of both the Mary E. Baker School and The Manthala George, Jr. School were held recently. The new elementary schools each serve approximately 850 students from pre-kindergarten through grade 5. The Mary E. Baker School opened in October 2008 and the Manthala George, Jr. School opened on January 21. The contractor for these projects was Agostini Construction Co., Inc. Each school's construction cost was \$26 million.

Both schools received funding from the Massachusetts Technology Collaborative (MTC) Green Schools Program to study and implement green measures. MTC is the state's development agency for renewable energy measures and recently led the process for the adoption of new high performance standards for public schools. High performance schools are defined as performing in the top 10 percent of buildings in the U.S. and significantly above standard building code regulations in energy use, acoustic levels, indoor air quality, thermal comfort, water efficiency, and storm water management. In its pilot Green Schools program, MTC provides up to 2% of additional construction funding for schools meeting these high performance building criteria. The two Brockton elementary schools are among the first schools completed in the pilot program.

"We are in a unique position to study the cost-effectiveness and performance of a number of sustainable measures," said Basan Nembirkow, superintendent of the Brockton Public Schools. "HMFH Architects' understanding of green design and the MTC programs helped us to secure \$650,000 in additional funds for our community. Additionally, the bids for the two schools were more than \$4 million under our budget estimates. In this time of fiscal challenge for communities, we are pleased that all of the citizens of Brockton will benefit from these remarkable new educational environments."

Both schools are open to the community, with shared functions such as a cafeteria/auditorium, gymnasium and a music room, to support a wide variety of civic meetings and events. The schools are planned with separate, secure entrances and support functions to allow for after-hours occupancy. Highly durable materials such as brick and zinc coated copper roof and wall areas were chosen for minimal long-term maintenance.

While the schools are on the opposite sides of the city, they share an identical floor plan layout, orientation, building materials and builder. HMFH secured a \$130,000 MTC grant for the Manthala George, Jr. School and the Mary E. Baker School to study sustainable measures. The design team worked closely with the Massachusetts Technology Collaborative (MTC) in the design phases to develop a unique case study for building performance and measurement. Both schools utilize daylight dimming, skylights, and green and recycled materials. Additionally, the Mary E. Baker School includes rainwater harvesting for irrigation and a 40KW photovoltaic rooftop panel array that

will provide a percentage of the school's electricity. With this additional renewable energy source, the Mary E. Baker School qualified for an additional \$500,000 in construction funds.

The two schools will be able to compare water consumption and electricity consumption. Through an analysis of their respective energy bills, the actual measurement of electricity being generated through the PV system will be documented.

The Mary E. Baker School will also go through the building commissioning process, another performance indicator that will be able to be measured.

"This is truly an unprecedented opportunity to compare cost and operational savings," said Pip Lewis, AIA, LEED AP, of HMFH Architects, principal-in-charge of this project. "With nearly identical buildings, the city of Brockton and MTC will be able to definitively chart the performance of the two schools. Other communities in the Commonwealth will also benefit from Brockton's foresight and leadership. These projects are a benchmark in advancing sustainable design in our public schools."

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