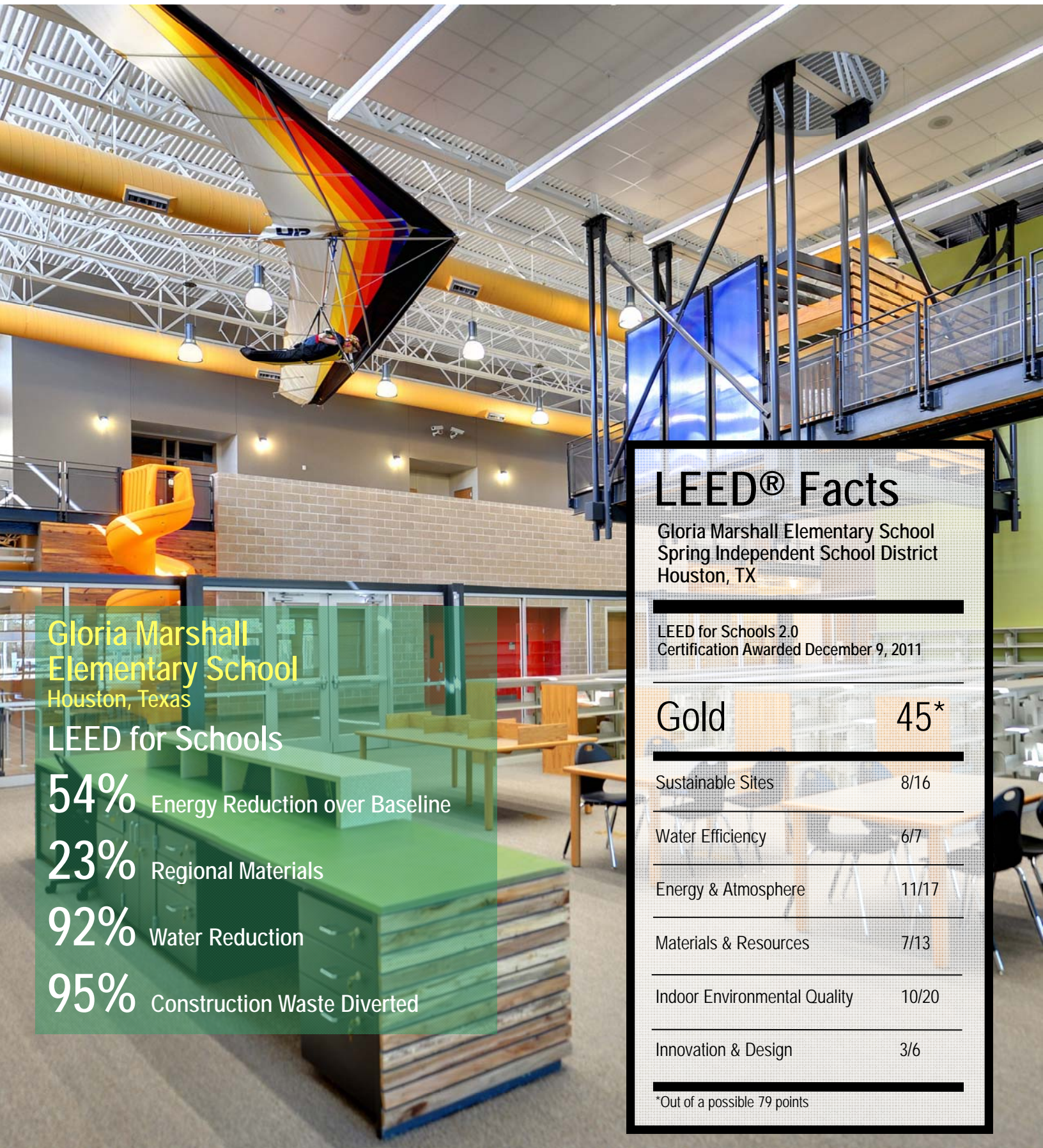




GREEN BUILDING TOURS



February 20, 2012



Gloria Marshall Elementary School Houston, Texas

LEED for Schools

54% Energy Reduction over Baseline

23% Regional Materials

92% Water Reduction

95% Construction Waste Diverted

LEED® Facts

Gloria Marshall Elementary School
Spring Independent School District
Houston, TX

LEED for Schools 2.0
Certification Awarded December 9, 2011

Gold 45*

Sustainable Sites 8/16

Water Efficiency 6/7

Energy & Atmosphere 11/17

Materials & Resources 7/13

Indoor Environmental Quality 10/20

Innovation & Design 3/6

*Out of a possible 79 points

PROJECT PROFILE

Spring Independent School District Gloria Marshall Elementary School

PROJECT DESCRIPTION

Gloria Marshall Elementary School was planned to be a “re-site” of an existing elementary school in Spring ISD. When the Board asked about adding daylighting, energy efficiency and conserving water, SHW Group took the opportunity to re-design one of the district’s prototype schools and create an original, sustainable, high-performance school that would be fully integrated into the curriculum. The elementary school supports Pre-Kindergarten through Fifth Grade students and staff.

SUSTAINABLE SITES (8/16)

Currently, 7% of students bike or walk to school. This number should increase significantly as the development is completed with sidewalks and walking trails between housing and the school. ■ The roof material is a white, liquid-applied membrane. Layers of polypropylene mesh within the liquid membrane keep the roof from cracking over its lifetime and the highly-reflective surface reduces heat island effect and saves energy.

WATER EFFICIENCY (6/7)

Plants native to Texas and to the hot and humid climate of the Houston area were specifically chosen so no irrigation would be needed. ■ Bioswales line the edges of all major parking areas and treat the runoff before it eventually runs to the storm sewer system. ■ A courtyard in front of the building has an eco-pond, science garden, river table and a 5,000 gallon above-ground cistern for learning. ■ Rain water harvesting system captures rain from approximately 33,200 square feet of roof area and uses that water to flush toilets and urinals. Based on average rain fall rates for Spring TX, a potential of 620,766 gallons can be captured and used to flush toilets.

ENERGY & ATMOSPHERE (11/17)

Demand control outdoor ventilation system with energy recovery combines the demand control system and energy recovery to reduce the total amount of ventilation energy by more than 50%. ■ Ground source geothermal cooling/heating system is 30% more efficient than the baseline heating and cooling systems. ■ Highly efficient lighting system with daylight harvesting controls, the reduction in energy consumed by the lighting system help to dramatically reduce the buildings cooling energy. The connected lighting power density of the school is 0.75w/sqft or 37% better than the baseline energy code. ■ Domestic hot water for the facility is generated by utilizing waste heat from the geothermal HVAC system. The gym and cafeteria units were designed to reject 100% of the waste heat when cooling to the domestic water system. ■ 2.6kw wind turbine and 10kw photo voltaic system on site.

MATERIALS & RESOURCES (7/13)

Materials were selected with occupant health and recycled content in mind. Durable materials were selected for easy maintenance and longevity over the life of the project. ■ An indoor tree house, benches, feature walls, and conference tables were made from wood harvested from the site. ■ 95% of construction waste from local landfills. ■ Regional materials accounted for 23.4% of total materials cost on Marshall Elementary School. The largest percentage of the regional materials came from Concrete, Stone, Brick, CMU, Gypsum Board and Metal studs; the majority of the building envelope was comprised of local materials. ■ 30% of the total material cost was recycled content and 2.580% was from rapidly renewable sources.

INDOOR ENVIRONMENTAL QUALITY (10/20)

Low-emitting materials including adhesives and sealants, paints and coatings and flooring systems were installed to meet LEED requirements. ■ Classrooms utilize daylight harvesting through windows and tubular skylights. The windows on the south face are equipped with sunshades on the outside to bounce light into the classrooms while shading sun and heat from the vision windows below. Inside, light shelves further bounce light into the rooms and an innovative lighting control system keeps electric fixtures off 70% of the time. This same system provides the user with multiple levels of controls for classroom presentations, along with vacancy sensing to ensure the lights are OFF when no one is in the room.

INNOVATION IN DESIGN (3/6)

Marshall Elementary school is a model for a new style of teaching and curriculum called Discovery Approach Learning (DAL). This is a curriculum created by Spring ISD based on Project Based Learning. Every aspect of design focuses on supporting teaching and discovery, as the building encourages students to question and discover, while engaging in fun and exciting opportunities for learning. The curriculum is so deeply integrated in the building that students don’t realize they are learning as they constantly encounter opportunities to explore. ■ Jody Henry, LEED AP, chaired the documentation efforts

“Gloria Marshall Elementary School is an extraordinary campus where environmental sustainability and energy efficiency are exemplified in a beautiful facility that offers our students unique opportunities for learning about their world and how it works. We are pleased to announce that Gloria Marshall Elementary has received LEED Gold certification.”

Dr. Ralph H. Draper
Superintendent
Spring ISD



Owner: Spring Independent School District
Architect: SHW Group
Structural Engineer: SHW Group
MEP Engineer: CMTA Engineers
Civil and Landscape: LJA Engineering
Commissioning Authority: Reihl Engineering
Interiors: SHW Group
Contractor: Purcell Construction
Project Size: 105,391 SF
Project Cost: \$15,602,000
Completion: September 2010
Photography: Luis Ayala, SHW Group

ABOUT LEED

The LEED Green Building Rating System is the national benchmark for the design, construction, and operations of high-performance green buildings. Visit the U.S.Green Building Council’s Web site at www.usgbc.org and the Greater Houston Area Chapter of USGBC at www.usgbc-houston.org to learn more about how you can make LEED work for you.