2012Exhibition of School Planning and Architecture

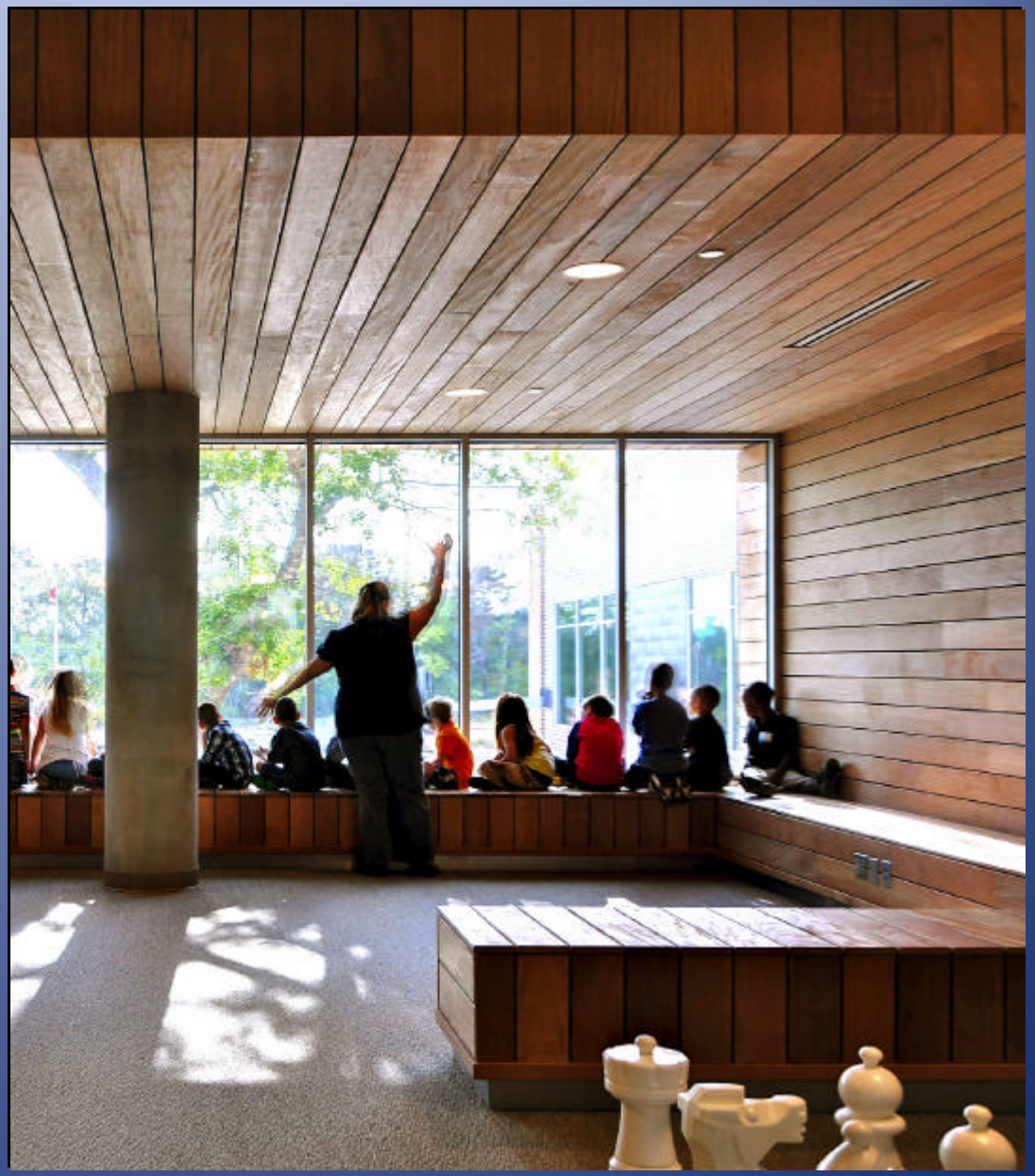
Gloria Marshall Elementary

Spring, TX
Elementary
New Construction
SHW Group

Gloria Marshall Elementary

Resource Room

Community Environment: Gloria Marshall is located on a 16-acre heavily wooded site in Spring Texas. The site orientation of the two-story compact floorplan is situated to have a reduced impact on the site and will retain the majority of the native vegetation. The long sides of the rectangular shaped building face North and South to take advantage of the natural daylight.



Water Collection

Community Environment: Daylight harvesting via light shelves and Solatubes will provide 100% natural daylight to all of the classrooms throughout the school. A rain water catchment system will collect the storm water runoff from the roof for reuse in flushing the toilets; a closed-loop geothermal HVAC system will eliminate central plant equipment; CO_2 sensors and demand/control ventilation will eliminate conditioning excessive outside air. All of these features are designed to meet the goal of reducing energy consumption at Gloria Marshall by more than 25%.

Eco Pond

Learning Environment:

Adjacent to the school's main entrance are a science garden and eco-pond that includes an above-ground cistern and a water trough. These can be used to teach students integrated concepts about math and science that allow for real-world experiences. Under the parking lot and playgrounds is a geothermal well field housing a system of tubes and valves that take hot and cold water in and out of the building. Through the use of a web-based learning tool, students will be able to interact with the building systems and know the temperature of the water as it leaves the building and when it returns from deep in the earth.

Interactive School

Learning Environment:

Additional green features include a highly reflective white-colored roof; an on-site wind turbine; 10 kilowatts of roof-mounted photovoltaic cells (which will convert sunlight directly into electricity); a butterfly garden along a walking trail; and an underground cistern that will collect rainwater from the roof and be used to flush toilets and urinals. Also, trees from the existing site will be reused in the building as a treehouse, benches and conference room tables. The school will also use less water by having no irrigation, and many of the construction materials were made with recycled content and within 500 miles of the school. These sustainable amenities will allow the school itself to act as a tool for teaching and for learning.

Classroom

Physical Environment -

The 105,000 SF, two-story rectangular facility is oriented with long sides facing north and south. Each classroom takes advantage of natural light while the south-facing classrooms take advantage of daylight harvesting allowing each classroom to operate with natural light 75% of the time. Each room has sensors that control the lighting system based on the levels of natural light in the classroom.

Lobby / Commons

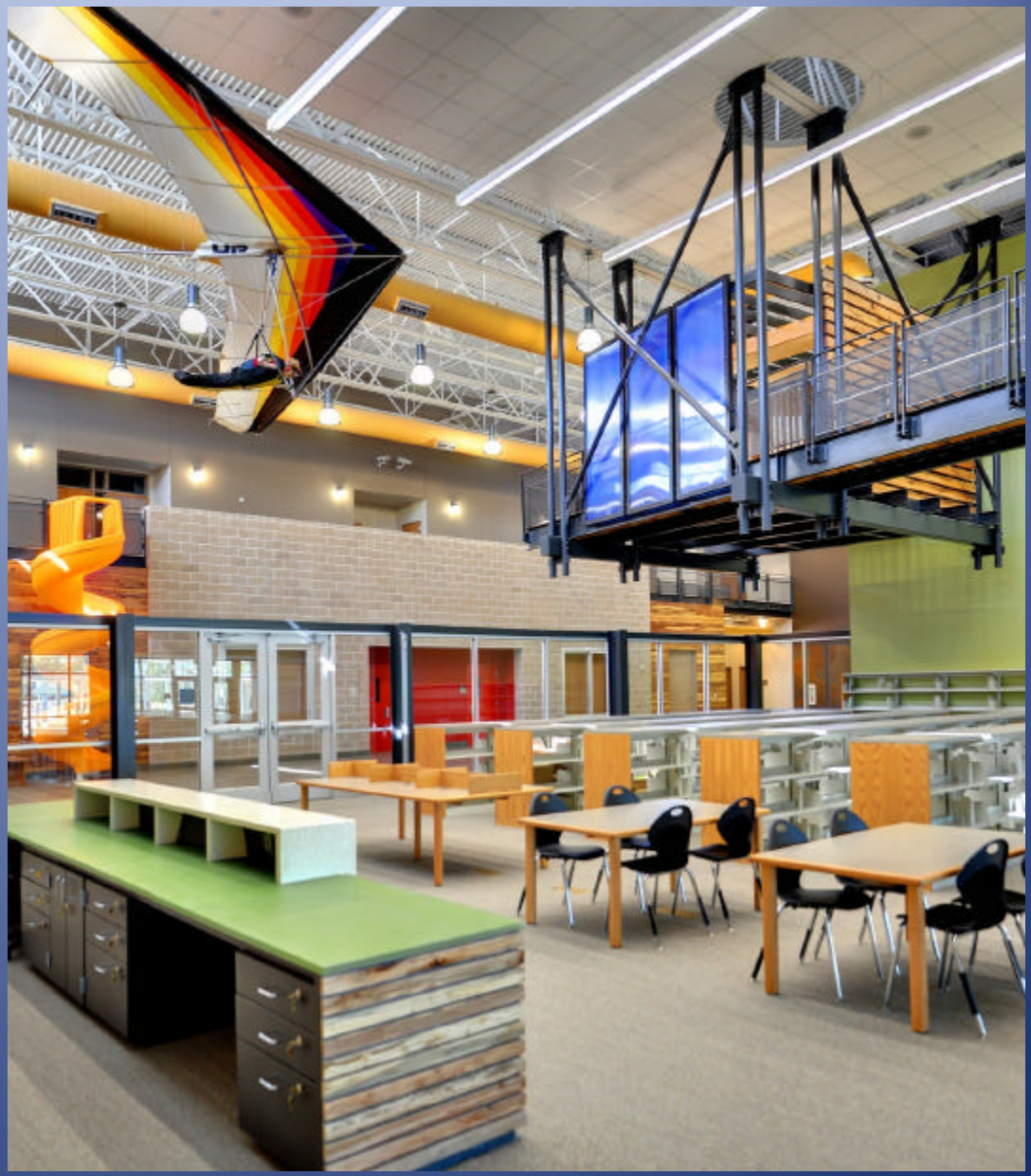
Physical Environment –

Not only is sustainability and high performance part of the physical building, but it will also be integrated into the curriculum of the school through a web-based interactive learning tool called Vital Signs. In addition to the building, a science garden with an eco pond, a weather station, 10,000 kilowatts of photovoltaic film, a wind turbine, an above ground cistern with sedimentation trough, a butterfly garden, and a vermiculture box can all be used as tools to teach students about natural materials, the environment, and conserving energy.

Library

Planning Process:

What initially began as a re-site of an already successful elementary school design resulted in one of the greenest elementary schools in the state of Texas without adding any costs to the district's capital budget. When SHW Group and Spring ISD first began exploring the goals for the new school, conversations quickly turned to daylighting, energy efficiency and water conservation. This led to an original sustainable, high-performance school designed as a teaching tool that will educate generations of students about resource conservation .



Main Entrance

Planning Process:

The school was designed to achieve LEED Gold certification and has already been accepted by the U.S. Environmental Protection Agency (EPA) to receive an ENERGY STAR rating due to its energy-efficient building design. The building is the first school in Houston to use geothermal heating and cooling, which is expected to save at least 25 percent in energy consumption over the current code.

Exhibition of School Planning and Architecture Project Data

Submitting Firm :	SHW Group
Project Role	Architect
Project Contact	Kelley Merriman
Title	Communications Manager
Address	5717 Legacy Dr #250
City, State or Province, Country	Plano, TX 75024
Phone	214-473-2454

Joint Partner Firm:	
Project Role	
Project Contact	
Title	
Address	
City, State or Province, Country	
Phone	

Other Firm:	
Project Role	
Project Contact	
Title	
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City, State or Province, Country	
Phone	

Construction Firm:	Purcell
Project Role	General Contractor
Project Contact	Carter Ullrich
Title	Project Manager
Address	277 Dennis St.
City, State or Province, Country	Humble, TX 77338
Phone	281-548-1000

Exhibition of School Planning and Architecture Project Details

Project Name	Gloria Marshall Elementary
City	Spring
State	TX
District Name	Spring ISD
Supt/President	Dr. Ralph H. Draper
Occupancy Date	09-27-2010
Grades Housed	PK-5
Capacity(Students)	800
Site Size (acres)	16.3
Gross Area (sq. ft.)	105,391
Per Occupant(pupil)	130
gross/net please indicate	Gross
Design and Build?	No
If yes, Total Cost:	
Includes:	
If no,	
Site Development:	$2,404,000
Building Construction:	$13,198,000
Fixed Equipment:	Included in Building Construction Cost
Other:	
Total:	$15,602,000