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PRACTICE

New Sidwell Middle School a Living Component to D.C. Campus

Sustainable design a perfect fit for education institution's green philosophy

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Summary: Sidwell Friends School in Washington, D.C., recently opened its new sustainable middle school and is seeking to earn LEED® Platinum certification by the U.S. Green Building Council. The three-level, U-shaped, 70,000-square-foot school renovates an existing middle school and merges it with a new wing, forming one green-designed structure. Sustainable materials are implemented throughout the exterior and interior. An open courtyard defines the building structure by integrating the campus with the local landscape. Philadelphia-based KieranTimberlake Associates worked with Sidwell to incorporate the school's Quaker philosophy—to be stewards of the Earth—into the green design. The new school and its campus will also serve as a sustainable education tool for students.

Sidwell Friends School is a distinguished K–12 Quaker private school. Its Washington, D.C., campus, a 15-acre, 50-year-old facility, is home to its middle and upper schools. The campus sits on a ridge near the city's highest point, between two watersheds that flow through parks to the Potomac River. Sidwell alumni include Nancy Reagan, Gore Vidal, and Chelsea Clinton.

Reconceiving the school around nature

Construction of the new middle school began in summer 2005. The building recently became occupied as final landscaping and exterior work nears completion. The original 35,000-square-foot L-shaped school was integrated with a new L-shaped building, approximately the same size, to create a U-shaped edifice. Stephen Kieran, FAIA, partner, KieranTimberlake Associates, says the project was not about adding features. Rather, it is about re-interpreting architecture to be part of the land. "We felt the first sustainable act was to rejuvenate the old building," says Kieran. "Then build up against the old one and have the merged structure form around the landscape to establish connections with nature. The new school now performs an environmental function but is also part of the life of the campus—all the way up to the green roofs."

Sidwell is expected to use 60 percent less energy and 70 percent less water than a traditional school. Water reprocessing, a courtyard with a biology pond, energy efficiency, a green roof, and reclaimed materials are all at the heart of the sustainable design.

Managing water resources. A courtyard wetland with a closed-loop cycle allows for water reuse. The wetland takes the form of terraced rice paddies along the site's natural topography. Rainwater is held and filtered through a vegetated roof on the new wing and channeled down the courtyard side into a collection stream that runs under the building's entry bridge and drains into a biology pond. The pond supports native habitat and micro-organisms that will decompose wastewater as it moves through the

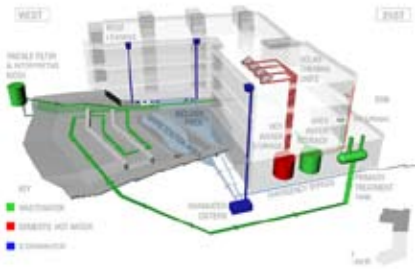
functional wetland. "The water collection system is completely visible to the students," says Kieran. "They can actually watch the passage of water from the roof down into the pond."

Energy efficiency. Actively, photovoltaic roof panels provide much of the building's electricity. Passively, two solar chimneys on the new wing offer natural ventilation. "The solar chimneys and the shafts interconnect to the lower levels, which is made apparent by little port holes in the shafts," describes Kieran. "Students can see air movement as it goes up, and there are bells that jingle when the air is actually moving."

The design optimizes daylight and minimizes solar glare on each building exposure. Explains Kieran: "On the south façade, horizontal solar light shelves both screen out the sun and welcome daylight. On the east and west façades, vertical solar shading screens are angled appropriately against the east and west glare. It all becomes a compass to help students understand solar orientation at an early age."

The green roof. A vegetable-garden rooftop on the new wing serves as an insulator and is part of the water recycling system. "The green roof is also a food garden, managed by the students and teachers," adds Kieran.

Sustainable materials. Virtually every material in the building is either reclaimed or recycled. "The cladding of the building is 100-year-old western red cedar reclaimed from wine barrels," Kieran notes. "Material for the walkways, inside lobby, and decks is green lumber pilings reclaimed from the Baltimore Harbor. There is extensive use of linoleum, cork, and reclaimed stone. We have displays throughout the building about the source of the materials and why they are renewable."



Sidwell's other sustainable features include:

- Douglas fir from old high school bleachers used for window framing
- Vine-covered walls and screens on the building's west end
- Bamboo doors and cabinets
- Lights that adjust to sunlight
- Hall reflectors that bounce sunlight into classrooms at the perfect angle to provide light but not heat
- A ventilation system that can freshen air based the amount of CO2 released by people breathing in the room.

Sidwell has commissioned documentation for LEED Platinum status. "It was not a leap to go from Sidwell's belief structure as a religion to their obligation to take care of the natural world," says Kieran. "It now has been formalized in a LEED program, but, in a way, they really didn't need that. The project was not a hard sell—it is who they are."