

Sidwell Friends School

Washington, D.C., U.S.A.

Since its founding in 1883, Sidwell Friends School has been dedicated to instilling creativity and community stewardship in its pre-kindergarten through grade twelve students. The campus is located on a fifteen-acre property in the Tenleytown neighborhood of Washington, DC. In 2007, the school renovated and expanded its middle school to increase classroom space for a growing enrollment. The new U-shaped middle school building surrounds a central courtyard that features a terraced wetland, rain garden, and habitat pond. This outdoor living classroom captures, filters, and re-uses building wastewater and site runoff. Students are immersed in these environmentally responsible systems, which complement the school's science curriculum and encourage sustainable lifestyles.

Rising to meet the school's high expectations, the design team succeeded in creating a wastewater treatment system that utilized the courtyard landscape to filter more than 3,000 gallons of sewage and wastewater each day. The process begins by collecting wastewater into settling tanks, which remove suspended solids. From there, the water is released below the surface of the constructed wetlands' upper terrace. As the dirty water trickles slowly downhill through the sand and gravel of each terrace, the water is filtered and cleaned. Native plant species, chosen for their ability to take up toxins and heavy metals, supplement this process while adding beauty and bio-diversity to the space. Water continues to circulate through the wetland for three to five days before entering the building for re-use. As students trace this process from beginning to end, they learn about natural systems, waste conservation, and the valuable role that wetlands play in purifying water.

The picturesque courtyard is also home to a sophisticated stormwater management system, which adds to the site's ecological and educational purpose. All hardscape surfaces, including plazas and paths, are surrounded by vegetated swales, which allow rain water to slowly infiltrate the land rather than rapidly flowing to city drains. The grade of the land directs all excess surface water to the rain garden, planted with native meadow species. Here the water has further opportunity to infiltrate the soil. The school also installed a green roof on top of the new middle school building, which further obscures the boundaries between landscape and building. Rather than shunning rain water into a gutter system, as a conventional roof would, the green roof absorbs water and uses it to sustain a native plant community. Clean overflow water is directed to storage tanks and used to refill the habitat pond during dry weather. The green roof helps mitigate runoff and adds usable green space to the city landscape. Students use the roof to grow and harvest vegetables and herbs to be used in the school cafeteria. Science students use the roof to conduct lab experiments here to contrast the volume and cleanliness of runoff from the green roof versus that of the conventional roof.

The courtyard and green roof are planted with more than 50 plant species native to the Chesapeake Bay area, creating new wildlife habitats that are attracting native birds and insects to this urban setting. Students record wildlife sightings on the Sidwell Friends website. The Snowy Owl and Monarch Butterfly are two endangered species that have already been spotted on campus.

DESIGNING OUR FUTURE: SUSTAINABLE LANDSCAPES

Sidwell Friends School

Project Resources

CLIENT

Sidwell Friends School

LANDSCAPE ARCHITECT

Andropogon Associates

Jose Alminana, FASLA, *Principal*

PRIME CONSULTANT AND ARCHITECT

Kieran Timberlak

Stephen Kieran, *Principal*

WASTEWATER ENGINEER

Natural Systems International

Michael Ogden, *Principal*