

# An Elementary School with a Global Perspective: The Building as a Teaching Tool

By Sean O’Donnell, Marjorie Cuthbert, Abbie Cronin and Melissa Nosal Urbietta

*As a microcosm of the world, Stoddert’s approach helps the students understand that they will grow up in a world where energy issues must be approached in a cooperative, international manner in order to achieve positive outcomes. Considering that many may return abroad with this knowledge, Stoddert’s students can become global ambassadors of sustainable design and development.*

Just 19 months after the start of design, Stoddert Elementary School’s modernized and expanded campus in northwest Washington, DC reopened, welcoming back the school and its community. Featuring spaces that had been missing since the school was founded in 1932, such as a gym, cafeteria, and library/media center and up-to-date building systems and technology, the campus serves 300 students as a school by day and the diverse urban neighborhood as a community center, operated by the Department of Parks & Recreation, after hours.

Designed with the District’s first ground source heat pump system, the campus achieved LEED for Schools Gold with its pervasive daylight, views to the surrounding landscape, enhanced classroom acoustics, FSC casework, recycled content in the building’s materials and low-flow water fixtures. However, the most powerful argument for developing the sustainable design features of the campus was to allow the students to really engage sustainability hands-on, learning from their new environment and interacting with the people who helped to design and build it. The school has embraced this challenge, inspiring the students to become life-long stewards of their environment.

## Ambassadors of Sustainable Design

As Stoddert sits just off of Washington’s Embassy Row, students and families from more than 25 nations and a major military base attend the school, contributing an important international diversity to an already diverse local population. An education unto itself, this diversity creates an opportunity to examine the major issues of the day from a global perspective.

Tailoring a signature educational program around this international perspective, Stoddert ES has begun to focus on environmental and energy issues. As a microcosm of the world,

Stoddert’s approach helps the students understand that they will grow up in a world where energy issues must be approached in a cooperative, international manner in order to achieve positive outcomes. Considering that many may return abroad with this knowledge, Stoddert’s students can become global ambassadors of sustainable design and development.

## Laying the Groundwork

As the combined team--school, client (DC’s Office of Public Education Facilities Modernization), and design and construction teams (“the team”)—worked through the integrated design



Students & community gather in Stoddert’s inviting entry plaza.



Classrooms inspire discussion of natural light, views and acoustics.

process underlying LEED, the team realized that not only could the campus conserve resources and enhance the learning environment, but it could also provide the opportunity to integrate architecture, engineering, and landscape with the curriculum. While the idea of using the “building as a teaching tool” had been discussed elsewhere in DC, it had not been implemented in an elementary school; no local precedents existed for an elementary school to emulate. To that end, the team developed a proposal to tailor the school’s curriculum while concurrently developing the content for the initiative.

In order to modify the approved curriculum for all district schools, an individual school must gain “autonomy” from District of Columbia Public Schools (DCPS). In Stoddert’s case, autonomy would allow the school to adapt DCPS’s elementary school curriculum to reflect this emerging environmental theme. In July 2010, after building a grade-level curriculum based on its global-environmental signature, and importantly based on the school’s record of high achievement, a school review team comprised of outside evaluators and district-level educators granted the school this autonomy.

While this effort was underway, the team met with representatives of the United States Green Building Council (USGBC) to inform and bolster

their curriculum proposal. This conversation revealed that similar efforts were underway at the Green Education Foundation (GEF), which had begun developing teaching content through standards-based lessons targeted at sustainable design.

The GEF had established lessons aligned with the McREL Compendium of Standards and Benchmarks for K-12 education. Reflecting nationwide guidelines for learning, teaching, and assessment, the McREL standards are rigorous, researched, and peer-reviewed by subject-matter organizations. These standards are also compatible with DCPS science standards – in this case, for Pre-K through fifth grade.

| Lessons/Unit Delivery Times | Advisory 1 (8/23/10-10/28/10) | Advisory 2 (10/29/10-01/21/11) | Advisory 3 (01/24/11-03/25/11) | Advisory 4 (03/28/11-06/17/11) | Minimum Totals    |
|-----------------------------|-------------------------------|--------------------------------|--------------------------------|--------------------------------|-------------------|
| Instructional Hours         | 2.5 hours                     | 2.5 hours                      | 2.5 hours                      | 2.5 hours                      | 10 hours          |
| # of Expert Presentations   | 2 expert sessions             | 2 expert sessions              | 2 expert Sessions              | 2 expert sessions              | 8 expert Sessions |

The team started by mapping the existing GEF lessons against the opportunities presented by the design. A table organized into five categories—energy conservation, water conservation, indoor learning environment, learning landscape, and material con-

servation—enabled lessons ranging from “How Loud is Too Loud” and “Air Pollution Math” to “Garden Scavenger Hunt” to be coordinated with new campus resources, ranging from the ground source heat pump (aka “geothermal”) system, the green roofs, the recycled content to the community garden, and other features of the modernized and expanded facilities and grounds.

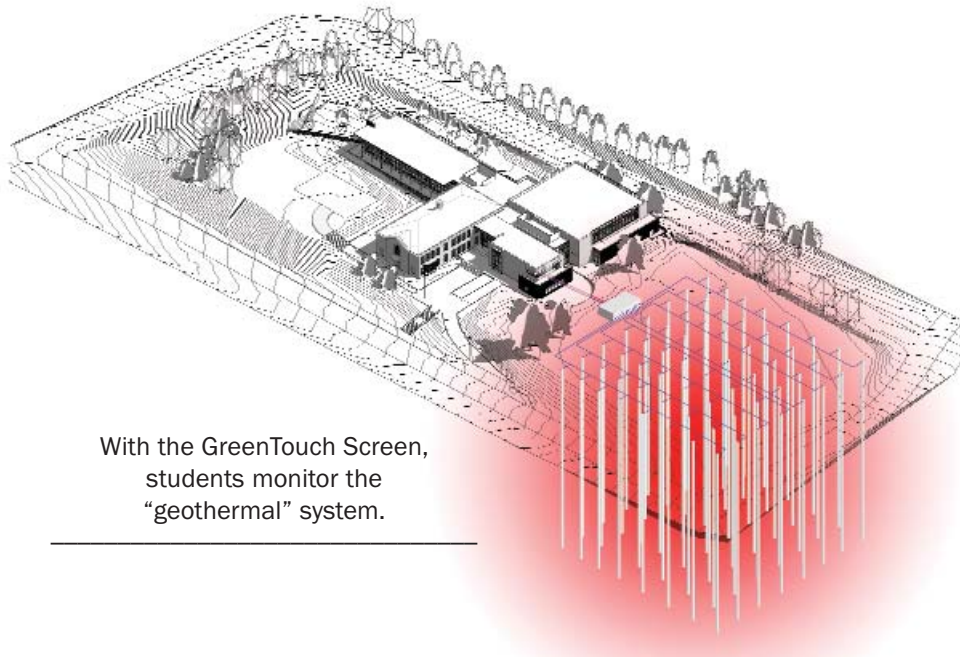
With this encouraging start, the school planned for the integration of these lessons into the curriculum and began to develop its own lessons/units. To ensure that at least 10 hours of green building-relevant instruction per student per year would be implemented, the school began to deliver a minimum of 2.5 hours instruction in each of its four advisory periods.

These lessons are punctuated by guest/expert presentations, which include key members of the design team (the architects, the mechanical engineers, and the acoustician) to continue to advance understanding about the renewed Stoddert campus and its green aspects.

The school proposed to evaluate learning from the lessons/unit age-appropriately, with products as possible outcomes, as well as pre- / post-measures where appropriate. What’s more, the school and the Green Education Foundation began developing new prototypical elementary school lessons/units on the building as a

teaching tool that will be available on GEF’s website. Stoddert’s K-2 teachers will be the first to begin piloting the new GEF units in the last advisory period of this year as shown in the table.

The new prototypical units each establish goals, identify relevant stan-



With the GreenTouch Screen, students monitor the “geothermal” system.

dards, define what students will come to understand, and what they will be able to do after the lesson. They define how teachers should assess student understanding and provide ideas and advice for teachers to implement the unit.

### The First Three Advisories

After the school reopened in August 2010, the first advisory was underway, featuring Pre-K students building birdhouses from recycled wood, identifying trees on campus, and discussing how trees change in the fall and 5th grade students guiding tours of the building for their Pre-K “buddies,” beginning their role as the ambassadors of sustainable design.

In the second and third advisories this year alone, students and teachers have been involved in a variety of activities relating to the campus’ sustainable features, including: touring the campus with the Casey Foundation to learn about the trees; studying conservation methods of paper, water, and electricity; learning about site from the civil engineer and the ground source heat pumps from the geothermal contractor; planning the community garden with a coordinator, and discussing the design of their indoor and outdoor learning environments with an acoustician and a natural playground designer; and more.

Stoddert takes this learning outside of the classroom, importantly rooting these lessons and ideas in application and practice. For instance, following the school’s conversation with the garden coordinator, this spring a new community garden was planted adjacent to the new amphitheater. Seeds germinated in the classrooms are being transplanted into the garden and a greenhouse made out of 1,400 recycled soda bottles created by the first grade with volunteers from the design and construction team. With an active community surrounding the campus, the garden will become a primary opportunity for the school to engage the larger community in hands-on learning about the environment.

### Empowering the Students

Little illustrates the students’ engagement with energy issues better than the student-led “Energy Patrol.” Active at the school even prior to the modernization, the spirit of the Energy Patrol was so pervasive that teachers shared anecdotes with the design team about returning from a quick break between classes to classrooms with the lights turned off and computers shut down. The modernization has afforded the Energy Patrol with numerous new opportunities to further display their enthusiasm for “green” learning. The GreenTouch Screen is a notable exam-

ple--using the GreenTouch Screen, teachers and students track the building’s energy and water consumption from their classrooms, integrating “real time” data into lessons.

The children’s enthusiasm further inspired the team and the USGBC to develop a guidebook with the 4th and 5th graders that the Energy Patrol could use to lead their campus tours. The guidebook highlights 11 features of the school in detail, beginning at the entrance and the “heart of the school” and concluding at the GreenTouch Screen. At each stop in the tour the students describe the sustainable aspects of the building--for example, recycled content in the terrazzo flooring at the first stop, carbon dioxide sensors and the flow of rainwater at the green roof outside of the multi-purpose room, and the natural light and indoor/outdoor connections in the gym.

As they have led tours for groups from the AIA, members of the USGBC, and visitors from far and wide, the students have become more confident in sharing what they have learned about their campus and the environment. As the old adage goes, the best way to learn about something is to teach it. It is perhaps this initiative that most successfully illustrates the Stoddert building as a true teaching tool, one that is empowering the next generation to teach us how to sustain our planet. ■

---

**Dr. Marjorie Cuthbert** is the Principal of Stoddert Elementary School. **Sean O’Donnell, Abbie Cronin** and **Melissa Nosal Urbietta** are colleagues at EE&K, a Perkins Eastman company, the architect for the Stoddert Elementary School Modernization and Addition.