Northland Pines High School in Eagle River, Wis., was designed to meet the Gold Requirements set by LEED.

Go for the LEED

Why green represents more than just money for imaginative, innovative school districts

Robert J. Kobet

As schools emerge as a key part of the growing green building movement, board members and district officials should have a healthy discussion about the costs and benefits of investing in our facilities.

Major initiatives such as the U.S. Green Building Council's Leadership in Energy and Environmental Design (LEED) for Schools, the Collaborative for High Performance Schools, and the Department of Energy's Rebuild America schools program influenced the current green movement you see today. These and other complimentary programs have contributed to a growing number of case studies and a burgeoning body of literature that praise the qualities and attributes of high performance green schools.

I became part of the green school movement in 1981, when I joined a group of volunteers that developed the country's first Master of Science in Sustainable Systems program at Pennsylvania's Slippery Rock University. My thesis was on the design and construction of Harmony House, a place where graduate students can experience a living laboratory and examine the relationships between human, natural, and building ecology. I had no idea then how this experience would influence my life.

Since 1995 I have worked internationally in the field of sustainable design and as an educator. Today, much of my work is with high performance school initiatives in the US and other countries.

What I have experienced and learned can be summed up as follows: High performance green schools are most effective and return the greatest benefits when they are based on the relationship between community, facilities, and curriculum. We must understand how these elements relate.

A COMMUNITY ASSET

High performance green schools should be seen as assets to the community, not just because they fills its primary role as a "place to go" for students and teachers. In fact, these schools can strengthen the fabric of the community in ways that are, at best, reciprocal.

Most commonly, this is accomplished through the joint use of facilities shared with community organizations. Neighborhood residents can use classrooms, libraries, natatoriums and athletic facilities after school hours. The buildings also can be used on weekends and summers.

Conversely, schools enjoy the use of a community's facilities and business assets that otherwise may not be affordable, such as theaters, public/private internships, and extended learning opportunities. A great example of this

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is Pittsburgh's CAPA School, a performing arts magnet that sits in the downtown cultural district within walking distance of Heinz Hall, the Benedum Center, the O'Reilly Theater, and the Pittsburgh Ballet. Guest lecturers, visiting faculty, and world class facilities are made available to CAPA's students.

Several studies indicate that energy efficiency and lowering operation and maintenance costs are major factors in a district's decision to invest in a high performance green school. Saving money is critically important, but you should consider how "green" contributes to the school's overall composition and the education the school offers.

If the physical facility reflects the site's influence, the opportunity to construct an effective curriculum has roots. The software that controls the space conditioning systems and monitors the utilities can be imported directly into the classroom, principal's office, local library, or any other school. The ability to track how resources are used can directly influence teaching while contributing to significantly lower energy, operation, and maintenance costs. If the school is energy efficient, in part because it is replete with effective daylighting, and enjoys superior indoor air quality, the potential for healthier, more productive children increases.

I realize the efficacy of these qualities is still in doubt given conversations I still have with school board members and other community leaders. But I believe the successes in these schools speak for themselves, and a number of case studies prove that high performance green schools are being built on time and largely on budget. I will leave the debate to those who still believe they can put a dollar value on a student's health and well being, let alone their ability to learn as best they can.

Finally, another reason we should invest in high performance green schools is the notion that a facility and its site can be used as an extension of the curriculum. This is common sense, yet it is still resisted by administrators who believe the obligation to the taxpaying community, teachers, staff, and students is fulfilled when a new school is constructed or an existing facility is renovated.

DIRECT INTERACTION POSSIBLE

Anne Taylor, founder of the Institute for Environmental Education and professor at the University of New Mexico, is a proponent of children participating in the educational process by interacting directly with the school's physical context. Taylor, who co-created the "Architecture and Children" curriculum, rationalizes that students learn more effectively and retain more when their interaction with the classroom and site includes academic exercises that are age and grade appropriate, relevant, experiential, and verifiable.

Blending community, physical facility, and site into the curriculum helps enrich the education of the physical facility. These influences are only effective when integrated into the curriculum; they cannot be additive. Successfully integrating the student's surroundings and built environment works best when the teachers understand these opportunities and develop their own plans, exercises or modules.

In high performance green schools, for example, students are engaged in site activities that transform acres of energy and maintenance intensive lawns into rain gardens and butterfly sanctuaries. Children grow food, and interpretive trails in which native and adaptive plants grow in chemical-free zones replace lawn mowers and leaf blowers.

Energy management systems are tapped to route information and data on the school's energy and water consumption in real time to computers in math, science, and physics classes. The information also is posted on the school's website so work can be done after hours at home or at the local library.

Rain harvesting and condensation collection reduce the impact of storm water on the community's civil infrastructure while providing water to recharge cooling towers, toilets, and other service water requirements.

As you can imagine, each activity becomes an additional study opportunity that raises the awareness of how natural ecology, human ecology and building ecology relate.

A LESSON LEARNED

I was the LEED consultant to Pine Jog Elementary School and the adjacent Pine Jog Environmental Education Center in Palm Beach County, Fla. In the two facilities, which opened in 2008, educational activities are complimented by solar photovoltaic and solar water heating systems that are monitored continuously by the district.

The photovoltaic system charges golf carts used by the maintenance staff. Principal Fred Barch shows his dedication to sustainability by driving a vehicle fueled by vegetable oil. The students enjoy a large hydroponic garden made of recycled plastic buckets irrigated by harvested rainwater.

Before the facilities opened, I led workshops to help the staff understand the potential of the school and the site. Teachers and students have embraced the challenge, and all indications are that making the school facility an extension of the curriculum has made projects even more wonderful community assets. Parent responses have been overwhelmingly positive.

Twenty-five years ago, as I worked to complete my master's thesis so the Harmony House could begin construction, one professor told me, "Bob, I don't want you to finish your work. I want you to work with your students and let them finish it. They will learn more if you do."

At the time I was focused only on getting the project finished and wasn't quite sure what he meant. I do now. And so do the hundreds of students seeding the green revolution that have come after me. ■

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