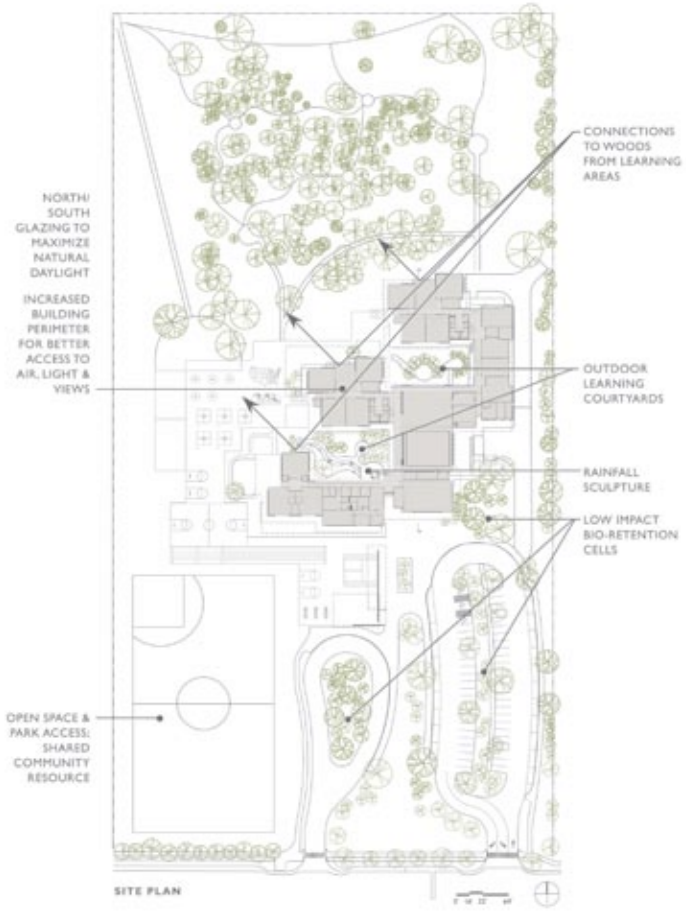
Going Green

You can't ignore the benefits of eco-friendly schools

Maybe it's the waterless urinals or the geothermal heating and cooling system buried 515 feet underground. Or perhaps it's the motion-activated faucets or the paints and furnishings made from low-volatile organic compounds. But one thing's for sure: Great Seneca Creek Elementary is unlike most schools.

Since opening its doors in the fall of 2006, this school in Germantown, MD, has hosted more than two dozen tours for administrators, architects, parents, and the media—just about anyone who's interested in studying its environmentally-friendly ways. "It's a place where people feel they can do their work more effectively, because it's an environment they want to be in," says Principal Greg Edmundson about his school, the only one in the state to receive certification from the U.S. Green Building Council (USGBC).

By Debra Lau Whelan



The folks at Fossil Ridge High School in Fort Collins, CO, know exactly what he's talking about. Their 296,000-square-foot building—which runs on wind and solar power and boasts an irrigation pond—recently earned a silver rating from USGBC's Leadership in Energy and Environmental Design (LEED) Green Building Rating System, a rigorous set of national standards for environmentally sustainable construction. "This is a dream building," says Fossil Ridge's media specialist, Lana Fain. "My students have told me that the space and lighting makes it easier for them to focus. They just love being here."

Some 50 schools, from California to Maine, have gone totally green—and hundreds more will soon follow suit. Why is eco-friendly design one of the hottest trends in K–12 education? Because the environmental, academic, financial, and health benefits are impossible to ignore, says Bob Moje, president of the Charlottesville, VA-based VMDO Architects, which mainly serves the school and university market. "People are more enlightened now about why it's good to be green," he says about the change in attitude of his clients over the last five

From left: Seneca Creek is the only LEED-certified school in Maryland; a site plan shows Franklin Elementary in Kirkland, WA, is set in the woods; classrooms at Franklin have floor-to-ceiling windows; a mural at Seneca Creek explains the water cycle; preschoolers at Cow Hollow in San Francisco, CA, have lessons in their community garden.

Photographs: Great Seneca Creek by Ken Wyner; site plan courtesy of Mahlum Architects; Benjamin Franklin Elementary by Benjamin Benschneider.

years. "We've gone from people saying, 'We don't want to be different' to 'We don't want to be left out.'"

It's easy to understand why. On average, green schools use 33 percent less energy and 32 percent less water, according to USGBC. Seneca Creek, for instance, skims about $60,000 off its annual energy bill and conserves about 43 percent—or 360,000 gallons—of water each year. And Fossil Ridge is 60 percent more energy efficient, saving about $11,500 annually on water alone. If all new school construction and renovations starting today were designed green, energy savings alone would total $20 billion over the next 10 years. But there's more to going green than just dollar signs. With the average school building lasting 42 years, many are aging and beginning to fall apart, says "Building Minds, Minding Buildings," a 2006 report by the American Federation of Teachers. And currently, 14 million kids—more than a quarter of our nation's students—attend schools that are considered substandard or dangerous to their health.

Indeed, a growing number of studies show that a school's physical condition—especially its lighting and indoor air quality—directly affect student performance. "Daylighting in Schools" by the energy efficiency consulting firm Heschong Mahone Group, examined 21,000 students in three elementary school districts in California, Washington, and Colorado and found that kids in classrooms with abundant daylight had up to 25 percent higher learning rates and test scores in reading and math than their peers in rooms with less natural light. A 2005 Turner Construction survey of green buildings found that 70 percent of districts with sustainable schools reported improved student performance. And Global Green USA's Green Schools Report says that standardized test scores dramatically shot up at Charles Young Elementary School in Washington, DC, after it was overhauled in 1997.

It also makes perfect sense that eco-friendly schools affect absenteeism, teacher-retention rates, and health-care costs. One half of our nation's 115,000 schools have problems linked to poor indoor air quality, says Global Green, and since students and teachers spend most of their time indoors, more asthma attacks and respiratory infections mean more sick days.

Edmundson, the principal at Seneca Creek, knows the benefits of going green firsthand. So far, he's had zero teacher turnover, and last year his students met the state's attendance benchmarks. When it comes to performance, the numbers say it all: 81 percent of his third graders and 87 percent of his fourth graders met or exceeded the state standards for reading, and 77 percent of third graders and 91 percent of fourth graders met the same requirements for math. "Our kids were in the ideal learning environment to succeed," Edmundson says. "There's no way you can have a negative return in this type of environment."

For the past 11 years, the nonprofit group Alliance to Save Energy has worked with school districts to train teachers and media specialists in "green education" that adheres to state standards in language arts, science, math, and social studies. And many states, including California, Maryland, and New York, have been extremely receptive, says Swarupa Ganguli, the alliance's senior program manager. The whole point is to "cultivate a whole generation of leaders" who are going to lead environmentally-conscious lives, she says.

School Librarian Karen Kibler at Iroquois High School in Elma, NY, is one of the alliance's most devoted members. She's spent the last decade showing teens how to teach younger students about everything from recycling to remembering to turn off the lights. Up to 30 members of her Energy Saving Club visit local elementary schools each month to lecture about caring for the environment. Her green movement has spread to the rest of the school, with teachers and even the janitorial staff helping to significantly cut waste and bring down electricity bills.

Seneca Creek School Librarian Lisa Norris has also done her share, spending a large part of last year helping her central office select wireless tablet computers, energy-efficient flat-screen monitors, and other eco-friendly technology. And she's ordered dozens of print resources, including Angela Royston's *The Life and Times of a Drop of Water* (Raintree, 2006), Chris Van Allsburg's *Just a Dream* (Houghton, 1990), and such classics as Dr. Seuss's *The Lorax* (Random, 1971), to help support the school's green focus.

Media specialists are following Kibler's and Norris's lead, taking advantage of the rapidly growing green movement around them. Sandra Latzer of the pre-K–12 Dwight-Englewood School in New Jersey is a key member of her school's green initiative. And Rachel Berkey of Manhattan's Churchill School and Center, a K–12 school for kids with learning disabilities, has made her library as paperless as possible. But when it comes to making en-

Photographs: Sidwell by Barry Halkin©; inset courtesy of Kieran Timberlake Associates; Daniel Morgan Middle School courtesy of VMDO Architects.

Opposite: Sidwell's exterior has solar shading made with reclaimed timber. Also visible is a constructed wetland that recycles water. Five percent of the school's electricity is generated by photovoltaic panels (inset).

Above: Natural light bathes the media center at Daniel Morgan Middle School in Winchester, VA.

vironmentally-conscious decisions, there's still one area in which librarians feel helpless—textbook purchases. That's because those decisions are typically made at the district or state level. And although big publishing houses like McGraw-Hill, Scholastic, Penguin, HarperCollins, and Random House now use recycled paper and packaging, the educational textbook market is lagging severely behind, says Erin Johnson, program manager of the Green Press Initiative, an organization that works to preserve endangered forests. The reasons range from the complicated manufacturing process used to make textbooks more durable to the bureaucratic K–12 market. "But it can be done," Johnson says, adding that textbooks and other educational materials represent about 20 percent of the book publishing market, consuming the equivalent of four million trees. That's why her nonprofit group is asking school librarians, teachers, state agencies, and parent-teacher associations to urge those who make textbook purchases to raise this important issue with publishers (www.greenpressinitiative.org/textbook-signatory.htm).

What exactly makes a school green? Words like "green" and "sustainable" simply refer to the things we do to reduce our carbon footprint, or the amount of carbon dioxide emissions we produce. Generally speaking, a green school is one that tries to be as kind to the environment as possible. For example, Cow Hollow preschool in San Francisco,

It's Easy Bein' Green

Designing the Sustainable School.
Ford, Alan. Images Publishing, 2007.
This 256-page hardcover, which comes out in October, describes 45 new school buildings (31 of them in the U.S.) that meet LEED certification. Ford, a Colorado-based architect, compiles an impressive lineup of designs worldwide, complete with floor plans, beautiful photos, and detailed descriptions of what makes each building unique.

EarthTeam.net
An environmental resource for teens, teachers, and youth leaders. EarthTeam's goal is to create a new generation of environmental leaders starting in the classroom.

Environmental Design + Construction (ED+C).
This magazine, the only monthly green building publication, keeps readers on top of the latest developments in the green building industry, from innovative products and strategies to the latest in technology. Visit www.edcmag.com to sign up for a free copy.

Green Building Materials: A Guide to Product Selection and Specification.
Spiegel, Ross and Dru Meadows. Wiley, 2006.
This hands-on guide to designing environmentally-friendly buildings is written by two nationally known experts on the subject. You'll find practical information on green product selection, product specification, and construction processes. You'll also learn just what green building materials are, where you can find them, and how you can use them effectively.

The HOK Guidebook to Sustainable Design.
Mendler, Sandra F., William Odell, and Mary Ann Lazarus. Wiley, 2005.
This reference guide on high performance design covers major sustainability issues and offers a guide on the green project process, cost implications, and case studies. There's also a detailed checklist of issues to consider at each stage of the design.

Teens love hanging out in Fossil Ridge's commons area, which has lots of daylight and 28-foot ceilings; Cow Hollow preschool doesn't use pesticides on its lawn and grows vegetables for snacktime.

CA, is considered sustainable because it has an active compost heap and community garden, uses green products and pesticides, and incorporates eco-friendly lessons into its curriculum.

Green building, on the other hand, refers to schools like the Sidwell Friends Middle School in Washington, DC, which was specifically designed and constructed to benefit students, teachers, and the environment. Although it's impossible to track the number of schools like Churchill that have adopted green policies, the rising number of LEED-certified schools gives us some idea of just how quickly the movement has taken off. To keep up with the growing trend, in April, USGBC was forced to create an entirely new category called LEED for Schools. Since then, more than 50 new schools have been certified and 400 are registered to become certified, says Rachel Gutter, USGBC's LEED sector manager for K–12 schools. And an additional eight schools are registered for certification under LEED for Existing Buildings.

Before there was a LEED for Schools, there was the Collaborative for High Performance Schools (CHPS), a California-based organization that started in 2000 to help districts in the state design and build green schools. Like USGBC, CHPS offers third-party verification that schools have met the highest performance standards, says Charles Eley, CHPS's executive director.

So far, more than 120 California schools have been built using CHPS's guidelines, including those in the Los Angeles Unified School District, San Diego City Schools, Santa Clara Unified School District, and the Burbank Unified School District. And seven states, including New York, Massachusetts, Vermont, Maine, and New Hampshire, have adopted their own version of CHPS.

Recognizing the benefits of high-performance schools, a growing number of districts and state legislatures are mandating sustainable design for future construction projects. New Jersey public schools requires that all new buildings incorporate LEED guidelines; the Pennsylvania legislature passed a bill to provide financial incentives to public schools that achieve LEED silver certification; and Montgomery County in Maryland recently passed legislation that requires all county-built or funded buildings exceeding 10,000 square feet achieve a LEED silver rating.

In late 2005, the New York City Council created a set of sustainable standards for public construction projects, making New York the first and largest school district to have green school design, construction, and operation guidelines required by law.

Anne Schops, a partner at the Seattle-based Mahlum Architects, and the chief designer behind the LEED-certified Benjamin Franklin Elementary School in Kirkland, WA, says new state and local requirements to go green have led to a lot of pressure from the top down for school districts to tow the line. And although her firm has upward of 20 ongoing K–12 projects in the pipeline, Schops says, "It's still an uphill battle" to convince some districts that "you can't afford not to do it."

And she's right. School buildings—an $80 billion industry in 2006–2008—represent the largest construction sector in the country, says USGBC. Yet the cost of constructing a green school only runs about 1.5 percent to 2 percent more than a conventional building, with the payback averaging about two years, says Greg Kats, managing director of Good Energies, a clean-energy venture capital firm, and author of the 2006 report "Greening America's Schools: Costs and Benefits." Building a green school can save $100,000 a year—enough to hire two new teachers, buy 150 new computers, or purchase 5,000 new textbooks, the report says.

Going green is the "right thing" for schools to do, says Kats. Otherwise, "their risk of obsolescence is quite large," he adds. "In five years, every new school is going to be green. So why would anyone want to send their kid to a school that's unhealthy?"

Debra Lau Whelan is SLJ's senior news and features editor.