



LEED for Schools Technical Assistance

4 Levels of LEED Ratings: **Certified** (29-36 credits) **Silver** (37-43 credits) **Gold** (44-57 credits) **Platinum** (58-79 credits)

LEED Category and Possible Credits	Credit Description	Suggested strategies to earn this credit	Technical Assistance, Potential Partners and Ideas for Innovation
I Sustainable Sites (16 credits)	Credit 5.1. Site Development, Protect or Restore Habitat Conserve existing natural areas and restore damaged areas to provide habitat and promote bio-diversity.	<ul style="list-style-type: none"> - Students participate in native plant rescues - Grow native plants in science classrooms and plant outside - Partner with native plant experts in the area to start a native garden - Partner with the hillside trust if the building is on a hillside. 	Greater Cincinnati Wild Ones http://cincinnatiwildones.com/wildones/ Civic Garden Center Http://www.civiggardencenter.org Cincinnati Nature Center Http://www.cincynature.org The Hillside Trust http://www.hillside-trust.org/history.htm
	Credit 5.2 Site Development, Maximize Open Space Provide a high ratio of open space to development footprint to promote biodiversity.		
	6.1 Stormwater Design Limit disruption of natural water hydrology by reducing impervious cover, increasing on-site infiltration, reducing or eliminating pollution from stormwater runoff, and eliminating contaminants.	<ul style="list-style-type: none"> - Rainwater collection - Porous pavement - Living Roof  <p>The rain garden at Mount Tabor Middle School in Southeast Portland helps slow and filter storm water on its way to the city sewer system.</p>	Rain Garden alliance http://www.millcreekwatershed.org/rain_garden.html http://www.innovativedesign.net/raincatcher.htm Metropolitan Sewer District Http://www.msdc.org Hamilton county Soil and Water conservation District http://www.hcsxcd.org/services/storm/default.asp Millcreek Watershed Council of communities http://www.innovativedesign.net/raincatcher.htm Urban Storm Water Best Practices (EPA) http://www.epa.gov/waterscience/guide/stormwater/



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<p>I Sustainable Sites (cont'd)</p> <p>(16 credits)</p>	<p>6.2 Storm water Design</p> <p>Limit disruption and pollution of natural flows by managing storm water runoff.</p>	<ul style="list-style-type: none"> - Living roof - Create a school Rain Gardens - Porous pavement 	<p>Living Roofs http://www.greenroofs.com/</p> <p>Porous Pavement http://www.forester.net/sw_0305_porous.html</p>
	<p>7.2 Heat Island Effect, Roof</p> <p>Reduce heat islands (thermal gradient differences between developed and undeveloped areas) to minimize impact on microclimate and human and wildlife habitat.</p>	 <p>Haugen School / Jenson Park Green Roof Chicago, Illinois</p>	<p>Living Roofs http://www.greenroofs.com/</p> <p>Weston Solutions (Amy Mead) 826-2304 Http://www.westonsolutions.com</p>
	<p>10. Joint Use of Facilities</p> <p>Make the school a more integrated part of the community by enabling the building and its playing fields to be used for non-school events and functions.</p>	<ul style="list-style-type: none"> - Community Learning Centers - Shared parking - Partnerships with community institutions 	<p>Community Building Institute Http://www.xavier.edu/</p> <p>Engagement: A Case Study (Pleasant Ridge) http://www.aia.org/SiteObjects/files/engagement.pdf</p>



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<p>II Water Efficiency</p> <p>(7 credits)</p>	<p>Credit 1. Water Efficient Landscaping</p> <p>Limit or eliminate the use of potable water, or other natural surface or subsurface water resources available on or near the project site, for landscape irrigation.</p>	<p>- Harvest rainwater for water landscaping</p>	<p>http://www.inhabitat.com/2006/07/12/green-building-101-water-efficiency/</p>
	<p>2. Innovative Wastewater Technologies</p> <p>Reduce generation of wastewater and potable water demand, while increasing the local aquifer recharge.</p>	<p>Constructed wetland at Sidwell Friends</p> 	<p>http://sidwell.edu</p> <p>EPA/Grailville constructed wetlands in Loveland http://www.grailville.org/home.php?ID=83</p>
	<p>3.1 Water Use Reduction</p> <p>Maximize water efficiency within buildings to reduce the burden on the municipal wastewater systems.</p>	<p>- Restroom water conservation</p> 	
<p>III Energy & Atmosphere</p> <p>(17 credits)</p>	<p>Pre-requisite: Minimum Energy Performance</p> <p>Verify that building's energy related systems are installed, calibrated and perform according to the owner's project requirements and construction documents.</p>	<p>- Third party commissioning is required by the OSFC now on all urban projects</p>	<p>*Cincinnati Chapter of the US Green Building Council http://www.usgbc.org</p> <p>http://www.peci.org/commissioning.htm</p>

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<p>III Energy & Atmosphere (cont'd)</p> <p>(17 credits)</p>	<p>1 Optimize Energy Performance</p> <p>Achieve increasing levels of energy performance above the baseline in the prerequisite standard to reduce environmental and economic impacts associated with excessive energy use.</p>	<ul style="list-style-type: none"> - Geothermal heat and air - Zoned heat - Site school for passive solar - Light sensors - Low-emitting glaze windows - Increased insulation - Reflective roofing - Create a local "green" fund to finance Bridge loans between building and operating funding streams 	<p>http://www.permafrost.com/resources/school-energy-savings-tips.php</p> <p>Energy-Star rating system</p>
	<p>2 On-Site Renewable Energy</p> <p>Encourage and recognize increasing levels of on-site renewable energy self-supply in order to reduce environmental and economic impacts associated with fossil fuel energy use.</p>	<ul style="list-style-type: none"> -Solar panels  <p>Twenhofel Middle School, Northern KY Solar Hot Water</p> <ul style="list-style-type: none"> -Wind Turbines -Purchasing "GoGreen" power from Duke Energy 	<p>http://www.DukeEnergy.com/community/foundations/applications.asp (grant can be used for solar panels)</p> <p>Dovetail Solar and Wind (installed the solar panels on the Z00 academy) Http://www.dovetailsolar.com</p> <p>Blue Chip Solar and Wind Perry@BCSandW.com</p>
<p>IV Materials & Resources</p> <p>(13 Credits)</p>	<p>Pre-requisite: Storage & Collection of Recyclables</p> <p>Facilitate the reduction of waste generated by building occupants that is hauled to and disposed of in the landfills.</p>	<p>Develop a recycling plan</p> <p>Design recycling centers into the initial school design</p>  <p>Student recyclers at Winton Montessori Elementary</p>	<p>http://www.10touchpoints.com.sg/design%20briefs2/A4_RecyclingBins.pdf</p> <p>http://www.wastecap.org/wastecap/resources/faq/ten_steps.htm</p> <p>Hamilton county Environmental Services http://www.wastecap.org/wastecap/resources/faq/ten_steps.htm</p> <p>http://www.hcdoes.org/sw/education.htm</p>

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<p>IV Materials & Resources (Cont'd)</p> <p>(13 Credits)</p>	<p>1 Building Re-use</p> <p>Extend the life cycle of existing building stock, conserve resources, retain cultural resources, reduce waste and reduce environmental impacts of new buildings as they relate to materials manufacturing and transport.</p>	<p>Renovate instead of building new</p> <p>Reuse part of the old building in the new design</p> <p>Move features from old building into the new building</p>	<p>Partners in promoting reuse</p> <p>http://www.redo.org/Links/body_links.html</p>
	<p>2 Construction Waste Management</p> <p>Divert construction, demolition and land-clearing debris from disposal in landfills and incinerators. Redirect recyclable recovered resources back to the manufacturing process. Redirect reusable materials to appropriate sites.</p>	<p>Invite Building Value to come in to your schools before it is demolished</p> <p>Set standards for what current furniture can be moved into the new building</p>	<p>http://www.buildingvalue-cincy.org/</p>


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<p>IV Materials & Resources (cont'd)</p> <p>(13 Credits)</p>	<p>4 Recycled Content</p> <p>Increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials.</p>	<p>Recycled Plastic bathroom stalls. Great Seneca Creek Elementary School</p> 	
	<p>5 Regional Materials</p> <p>Increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation.</p>	 <p>Schott Ed. Center milled the Oak tree that was cut down and it is now the wood trim in the entrance way.</p>	
<p>V Indoor Environmental Quality</p> <p>(20 Credits)</p>	<p>A Pre-Requisite Minimum Indoor Air Quality (IAQ) Performance</p> <p>Establish Minimum IAQ to enhance indoor air quality in buildings, thus contributing to the comfort and well-being of the occupants.</p>		<p>ASHRAE 62.1-2004 Standards for indoor air quality</p>


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<p>V Indoor Environmental Quality (cont'd)</p> <p>(20 Credits)</p>	<p>A Pre-Requisite: Minimal Acoustical Performance</p> <p>Provide classrooms that are quiet and in which teachers can speak to the class without straining their voices and students can effectively communicate with each other and the teacher.</p>	<p>Reducing and isolating HVAC noise</p> <p>Sound absorbing materials</p> <p>Grouping classrooms away from gyms and cafeteria</p> <p>Staggering doorways</p> <p>Eliminate wall gaps and fit doors tightly</p>	<p>ANSI Standard S12.60-2002</p> <p>Windows meet the STC rating of at least 35</p>
	<p>2 Increased Ventilation</p> <p>Provide additional outdoor air ventilation to improve indoor air quality for improved occupant comfort, well-being and productivity.</p>	<p>-Raised access floor ventilation system (Pl. Ridge + Hughes)</p> <p>Higher ventilation + Heat recovery systems</p> <p>Right size ventilation devices</p>	<p>NIST COMTAM Multizone Modeling Software</p> <p>LoopDA Natural Ventilation Sizing Tool</p>
	<p>3.2 Construction IAQ Management Plan (Before Occupancy)</p> <p>Reduce indoor air quality problems resulting from the construction/renovation process in order to help sustain the comfort and well-being of construction workers and building occupants.</p>	<p>Building flush-out for two weeks after construction ends and prior to occupancy</p> <p>Conduct IAQ testing</p>	<p>Testing protocols from EPA Tools for Schools http://www.epa.gov/iaq/schools/</p> 

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<p>V Indoor Environmental Quality (cont'd)</p> <p>(20 Credits)</p>	<p>4 Low-Emitting Materials</p> <p>Reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants.</p>	<ul style="list-style-type: none"> - Low VOC paints - No Formaldehyde in wood products - Low volatile gypsum board, insulation acoustical ceiling tiles and wall coverings. 	<p>GREENGUARD certification</p>
	<p>5 Indoor Chemical & Pollutant Source Control</p> <p>Minimize exposure of building occupants to potentially hazardous particulates and chemical pollutants.</p>	<ul style="list-style-type: none"> - Switch to green cleaning products and procedures - Introduce Green Equipment and Supplies. - 6 ft. long entry way system to capture dirt. - Containment drains plumbed for hazardous waste in labs. 	<p>A Guide to Green Cleaning http://www.healthyschools.org/documents/green_cleaning_guide.pdf</p>
	<p>7 Thermal Comfort</p> <p>Provide a comfortable thermal environment that supports the productivity and well-being of building occupants.</p>	<p>Tight building envelope</p> <p>Right size the HVAC system</p>	<p>ASHRAE Standard 55-2004</p>
 <p>Slanted ceiling allow natural light deep into the classroom.</p>	<p>8 Daylight & Views</p> <p>Provide for the building occupants a connection between indoor spaces and the outdoors through the introduction of daylight and views into the building.</p>	<ul style="list-style-type: none"> -12% or better windows in classrooms to maximize interior daylighting with glare control devices - Building orientation - Clerestory Windows in hallways - Borrowed light - Roof monitors - Ceiling design to maximize deep light into the classroom 	<p>Studies of green elementary schools shows increased achievement with adequate natural daylight http://www.h-m-g.com/projects/daylighting/projects-PIER.htm http://www.peterli.com/archive/spm/850.shtm http://www.coe.uga.edu/sdpl/research/daylightingstudy.pdf</p>


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<p>V Indoor Environmental Quality (cont'd) (20 Credits)</p>	<p>9 Enhanced Acoustical Performance Provide classrooms that facilitate better teacher-to-student and student-to-student communications.</p>	<ul style="list-style-type: none"> - Reduce ambient noise through improved HVAC - Reduce reverberation through acoustical ceiling tile and other material choices - Use a classroom amplification systems 	<p>Meet the Reverberation Time (RT) requirements of ANSI Standard S12,60-2002</p> <p>http://www.classroomhearing.org/acoustics.html</p> <p>http://www.peterli.com/archive/spm/535.shtm</p>
	<p>10 Mold Prevention Reduce the potential presence of mold in schools through preventative design and construction measures.</p>	<ul style="list-style-type: none"> - On-going IAQ management program 	<p>http://www.epa.gov/mold/</p> <p>http://www.usaweekend.com/00_issues/000820/000820mold.html#</p> <p>Greenguard Mold Protection Program</p>
<p>VI Innovation & Design Process (6 points)</p>	<p>1.1 Innovation in Design Encourage innovative design for exceptional performance above the requirements.</p>	<ul style="list-style-type: none"> - Students design a bicycle rack out of “found objects” 	
	<p>1.2 Innovation in Design Reduce exposure of building occupants and maintenance personnel to potentially hazardous chemical, biological and particle contaminants.</p>	<ul style="list-style-type: none"> - HEPA vacuum cleaners - Hot water carpet cleaning 	
	<p>2 LEED Accredited Professional To support and encourage the design integration required by a LEED-NC green building project and to streamline the application and certification process.</p>	<ul style="list-style-type: none"> - One team member must be LEED certified - Educate the project team members about green design 	

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<p>VI Innovation & Design Process</p> <p>(6 points)</p>	<p>3 School as Teaching Tool</p> <p>Integrate the sustainable features of a school facility with the school's educational mission</p>  <p>Mural of the water cycle in the foyer of Great Seneca Creek Elementary School in Montgomery County, Md.</p>	<ul style="list-style-type: none"> - Design curriculum based on the high performance features of the building within 10 months of LEED certification. - Natural playground - Signage - Environmental audit of the grounds 	
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The LEED for Schools Technical Assistance chart is targeted to areas where CPS planning teams can have the most influence in the planning process. Many items will fit into the CPS budget if they are integrated in the beginning. Credit descriptions are from the LEED for Schools for New Construction and Renovation, April 2007. (US Green Building Council)

Growing Green and Healthy Schools

Cincinnati , July, 2007

Buildings That Teach Sustainability

Supporting Your Educational Mission

Historically, most schools have been designed as learning environments that primarily focused on creating functional spaces that met basic educational needs. With varying degrees of success, these schools addressed cost, function, aesthetics, and comfort. But for decades we have been missing a great opportunity -- making the schools, themselves, teaching tools -- "buildings that teach."

With our environmental problems increasing at an alarming rate, the most effective way to demonstrate to your students what can be done to make a positive impact, is to do it yourself. By implementing green solutions into your schools, students can see first-hand how actions at a local level can make a difference.

Sustainable Schools Create better Learning Environments

The objective of this Sustainable Schools Guide is to provide you with information that will allow your school system to make informed decisions regarding energy and environmental issues that are important to your school, community, and country.

The concept of sustainable development reflects an understanding that we must meet the needs of the present without compromising the ability of future generations to meet their own needs. A Sustainable School not only embraces the concept of sustainability but is, in itself, a teaching tool for sustainability.

"Good teachers never teach anything. What they do is create conditions under which learning takes place."

S.I. Hayakawa

By implementing the sustainable design practices included within these guidelines, you will be taking a significant step forward in creating the physical conditions in which the learning process can thrive.



Photo: Innovative Design



Photo: Innovative Design

Rainwater storage tanks, roof monitors, windmill and sundial at Roy Lee Walker Elementary, McKinney, TX

The students will also know that sustainability is a value of great importance held by their parents, their school, and their community. The Sustainable Schools Guide can help change the way the next decade of schools will be built, pointing out practical ways in which our schools can become more than classrooms. The goal is to create a new type of learning experience for these students by maximizing the physical and inspirational aspects of your schools.

Insuring Success

✓ “Buildings That Teach” Should be a Priority

Many energy saving options have very good financial value. Some environmentally-sensitive products don't cost anything additional to install. There are others that are harder to rationalize financially but, from an educational standpoint, are still important to consider. Photovoltaics, for example, may still have longer return on investment but, if installed properly, they can be a very powerful educational tool. When developing your overall budget, you should establish an amount that can specifically be utilized as 3-D educational elements.

✓ Maximizing the Building as a Teaching Tool

To take full advantage of these teaching tool elements, you must involve your teachers early in the design process to better explain to the design team their current curriculum and teaching procedures and to discuss how optional sustainable features can be best incorporated to maximize the learning experience. Creative thinking by both the teachers and the designers during the schematic design and design development phases will produce exciting educational possibilities once your sustainable school is completed.

✓ Select a Qualified Design Team

The expertise required to design a school as a teaching tool on sustainability is unique. The designer has to employ energy and environmental features in a manner that is self-explanatory to the student, while still addressing typical design considerations and educational specifications. When you are qualifying firms, ask them to provide you with examples of their successes in designing green schools and implementing the concept of using the school building as a teaching tool.

I appreciate my school because of all the great features. Two of the features are the eco-pond and the sundial. We have two sundials, one is horizontal, the other vertical. My favorite feature are the rain cisterns because we are recycling the water [...]. My other favorite feature is the daylighting because we don't waste electricity.

Jessica, 4th grade, Roy Lee Walker Elementary

Walker is the most interesting school I have been to. In the eco-pond, there are many plants, all from somewhere in Texas. Also there are a windmill and rain cisterns. The windmill is not ordinary because when the blades are turning, it is pumping water to go to the hand pump. Wow, we have the coolest school

Kelsey, 4th grade, Roy Lee Walker Elementary



Photo Courtesy: Samson Environmental Center

Samson Environmental Center Darrow School, New Lebanon, NY

Located in a greenhouse connected to the classrooms, the Living Machine is a garden that recycles water, using tropical plants as a refuge for the microorganisms that break down nutrients and chemicals in the water.

“The system has surpassed our expectations in terms of our ability to use it in our science classes”

Lisa Riker, Director



Student's artwork.
Roy Lee Walker Elementary School, McKinney, TX

Teach Sustainability

The following checklist outlines key sustainable elements that should be considered by your A&E team during the design of your school.



Photo: Innovative Design

Eco-garden, Roy Lee Walker Elementary School, McKinney, TX



Photo: Innovative Design

Four Oaks Elementary School, Four Oaks, NC



Photo: Innovative Design

Floor tile compass in science classroom
Durant Road Middle School, Raleigh, NC

■ Site Design

- incorporate outside teaching courtyards
- develop spaces to grow vegetables and native plants
- protect areas for viewing natural habitat
- develop interpretive nature trails through preserved wildlife habitats and ecosystems
- maximize the pedestrian pathways from residential areas to the school as educational opportunities
- consider educational benefits of retaining or planting various types of native trees and plants on the school site
- use explanatory signage for different plants and trees

■ Daylighting & Windows

- make daylighting strategies obvious
- make deliberate connections to the outside environment so that changes in weather are apparent, as well as stimulating, to students
- incorporate daylighting strategies that could be enhanced through student participation and understanding
- incorporate sundials as educational tools on solar energy
- utilize prisms in focal areas to celebrate sunlight and educate students about light

■ Energy-Efficient Building Shell

- incorporate artwork and graphics in the building which will help to educate students about sustainability
- design energy-efficient building components to make their purpose and function obvious to the students
- highlight different wall and glass treatments on each facade to emphasize the appropriateness of different design responses
- take photographs during construction to better explain the energy-efficient building systems



Photo: Southern California Edison

Monterey Hills Elementary School, Pasadena, CA

PV System at Monterey Hills Elementary School, Pasadena, CA

"I think the biggest thing is the idea that this whole building is going to have photovoltaics from one end to the other! On behalf of the students, the parents, our staff and myself, we feel honored to be a Solar School where the kids will always shine."

Joe Johnson, principal
Solar Today Jul/August 1995

■ Renewable Energy Systems

- consider greenhouses for growing plants
- incorporate full range of renewable energy options including passive solar, daylighting, solar hot water and space heating, solar absorption cooling, wind, and photovoltaics
- employ photovoltaic systems, wired directly to displays and equipment in science labs, helping to educate students about the concepts of solar energy and the conversion of sunlight to electricity
- use wind energy to pump well water as backup to rainwater for toilet flushing and irrigation
- integrate displays showing total energy use at the school and the percentage of energy being provided by renewable energy sources
- position renewable energy systems so that they are easily visible to the students



Photo: Mytech

Lighting sensors

■ Lighting and Electrical Systems

- incorporate photovoltaic lighting for parking lots, walkways, and signal and caution lights
- incorporate dimmable or staged lights to reduce artificial lighting during times of adequate daylighting
- use computers to monitor energy use and renewable system performance



Photo: Innovative Design

Heat pump and solar storage system at Roy Lee Walker Elementary School, McKinney, TX

■ Mechanical & Ventilation Systems

- expose parts of the mechanical systems to explain how they work

Environmentally-Sensitive Building Products and Systems



Photo: Forho Krommerie BV

Recycled linoleum in cafeteria.



Photo: Innovative Design

Rainwater storage tank at Roy Lee Walker Elementary, McKinney, TX



Photo: Innovative Design

Composting bin at East Clayton Elementary School, Clayton, NC



Photo: Greater Peoria Area Transit District

Ethanol powered alternative fuel bus

- design environmentally-sound building components and make their purpose and function obvious to the students
- install explanatory signage that helps educate students about environmental benefits of materials and products

Water Conservation

- incorporate rainwater catchment strategies that are evident to the students (both coming off the roof and storing the water)

Recycling Systems & Waste Management

- design recycling systems within each classroom to encourage student participation
- develop a compost area for your garden

Transportation

- provide educational signage about bicycles and other pedestrian-friendly transportation options for getting to and from school
- give high priority to placement of bicycle racks and use personalized name plates for each regular biker
- incorporate a solar electric and/or wind powered charging station for electric buses and service vehicles

Roy Lee Walker Elementary

McKinney, Texas

Owner:

McKinney Independent School District
 #1 Duvall Street
 McKinney, TX 75069

Contact:

Wyndol Fry, Executive Director of
 Facilities and Construction
 Phone: 469-742-4132

Architect:

SHW Group, Dallas, TX

Sustainable Design Consulting:

Innovative Design, Raleigh, NC

"This is a once in a lifetime chance to have an impact, not just on McKinney, but on the whole country and the world. The real success at McKinney's Roy Lee Walker Elementary School is that the elements of sustainability are truly serving as a 3-D textbook on energy-efficiency and how to help our environment."

Wyndol Fry



Photo: Innovative Design



Photo: Innovative Design

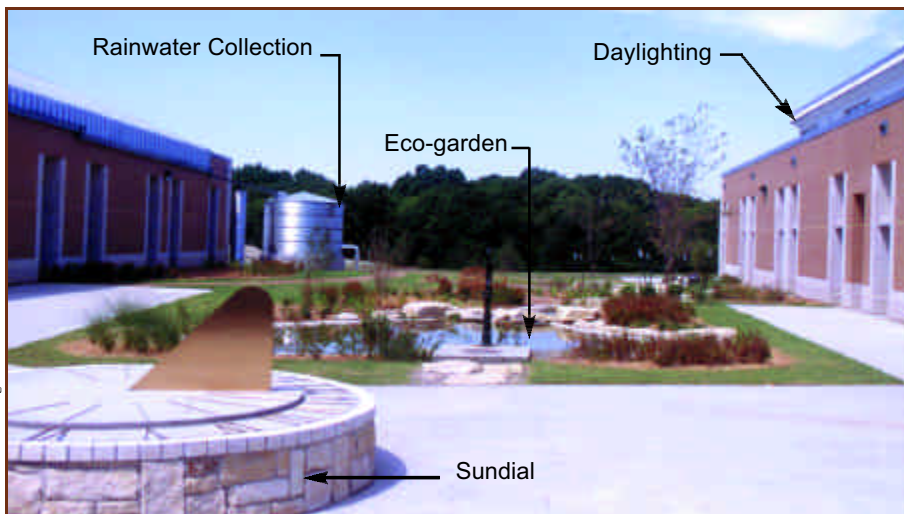
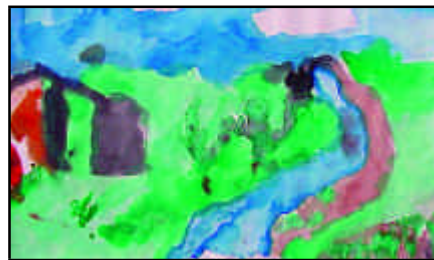


Photo: Innovative Design

The Roy Lee Walker Elementary School in McKinney, Texas, is one of the world's finest examples of sustainable school design. Because of the wide range of sustainable features included, this school not only succeeds as an energy-efficient, environmentally-sound building, but also as a powerful learning tool for eco-education as a life sized, 3-D textbook on sustainability. The numerous environmentally-friendly features integrated into the design include natural landscaping, daylit classrooms, solar domestic hot water heating, radiant barriers, energy recovery systems, recycled building materials, lighting controls, energy-efficient lighting fixtures and ballasts, a greenhouse, sundial, windmill, and eco-garden, exposed rainwater collection catchment systems and cisterns, recycling stations, and weather stations, all allowing students, parents, visitors, and teachers to experience environmentally-sustainable design as a fully functioning, three dimensional reality.

The Roy Lee Walker Elementary School was named by the American Institute of Architects as one of the country's top-ten, most environmentally-responsible buildings in 1999.

Case Studies

Bluffview Elementary School

Worthington, Ohio

"What better a way to educate our students about alternative energy sources, prepare them to work as adults to conserve dwindling natural resources, and ultimately motivate them to improve the environment in which they live?"

Dr. Damon Asbury, Superintendent, Worthington Schools

Students at Bluffview Elementary School in Worthington, Ohio, have already been introduced to the promise of clean and renewable solar energy and technologies that convert the sun's energy into electricity. The installation of a two kiloWatt photovoltaic system on their school combined with an Internet link through American Electric Power's Datapult system lets them see how it actually works. Students can monitor the amount of power the solar panels create compared to the amount of energy the building consumes and can generate charts that provide a visual representation of the building's energy supply and demand. Kids also read special meters to see how capturing the sun's energy results in cost savings.

The \$20,000 system was purchased and installed as part of a pilot project of the US Department of Energy's Million Solar Roofs Initiative.

Owner:

Worthington Schools
7111 Linworth Road
Columbus, Ohio 43235

Contact:

Greg Viebranz
Director of Communications
Phone: 614-883-3000

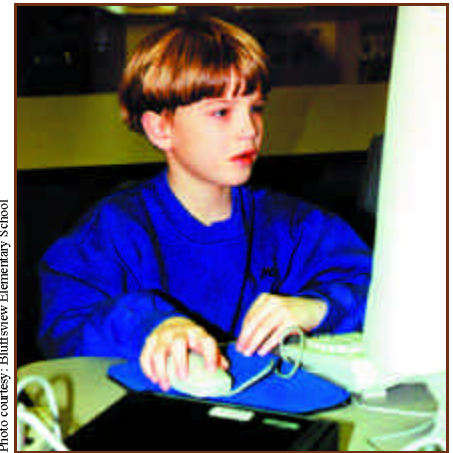


Photo courtesy: Bluffview Elementary School

Spirit Lake Community Schools

Spirit Lake, Iowa

"Education was the first priority. We need to teach preservation of the environment, and to do that we have to model it. I'm so excited. I've never been involved in something so accepted by so many."

Harold Overmann, Superintendent,
Spirit Lake Community Schools District

Owner:

Spirit Lake Community Schools
900 20th Street
Spirit Lake, Iowa 51360

Contact:

Jim Tirevold, Facilities Manager
Phone: 712-336-2820

"The development of wind energy is one of the most popular projects in the community. Everyone loves that we are helping to reduce our dependence on fossil fuels while educating our children about the importance of resource conservation."

Jim Tirevold, Facilities Manager
Spirit Lake Community Schools District

The Spirit Lake Environmental Impact Calculator at the Spirit Lake Community School District's Wind Energy website allows students to monitor and study the environmental benefits of wind power generated at their school. Wind production may be entered into the environmental impact calculator to see the natural resources saved and emissions avoided by the wind energy produced at their school.



Photo courtesy: American Wind Energy Association

The wind turbine has been integrated into the curriculum at the Spirit Lake Community School's Wind Energy Curriculum web page. Students may choose interactive lessons from all areas of the curriculum.

For Helpful Resources and More Information

Initiatives

Alliance to Save Energy
www.ase.org/greenschools

American Electric Power's Solar Schools Project
www.aep.com/environment/solar

Energy Quest
www.energy.ca.gov/education

Energy Smart Schools
www.eren.doe.gov/energysmartschools

Maryland's Solar Schools Program Plan
www.energy.state.md.us/executiv.htm#Plan

On-Line Renewable Energy Education Module
solstice.crest.org/renewables/re-kiosk/index.shtml

Solar Energy: A Science Unit for Intermediate Grade Students
alpha.fsec.ucf.edu/ed/solar-unit

School Going Solar Program- IREC
www.schoolsgoingsolar.org

Solar Schools - Brighter Future
www.ises.org

Solar Now
www.eren.doe.gov/solarnow/solarnow.htm

SolarQuest
www.solarquest.com

Solar Schools
www.eren.doe.gov/solarschools

Training Student Organizers Program
www.cenyc.org/HTML/EE/mainee.htm

Watts on Schools
www.wattsonschoools.com

This document has been developed by Innovative Design with technical assistance from Padia Consulting, BuildingGreen, and the Sustainable Buildings Industry Council and has been extensively reviewed by a technical review committee with broad based expertise in education, as well as energy and environmental issues.

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Innovative Design
850 West Morgan Street, Raleigh, NC 27603
Ph: 919.832.6303 • www.innovativedesign.net

Organizations

American Solar Energy Society
www.ases.org/solarguide

Center for Renewable Energy and Sustainable Technology (CREST)
solstice.crest.org

Energy Center
www.caddet-re.org

Energy Efficiency and Renewable Energy Network (DOE)
www.eren.doe.gov

Florida Solar Energy Center
www.fsec.ucf.edu

International Solar Energy Society
www.ises.org

Interstate Renewable Energy Council
www.irecusa.org

Million Solar Roofs Initiative
www.millionsolarroofs.org

National Energy Education Development (NEED)
www.need.org/need

National Network of Energy and Environmental Education Professionals
www.leeric.lsu.edu/network/network.htm

National Renewable Energy Laboratory
www.nrel.gov/ceb.html

North Carolina Solar Center
www.ncsc.ncsu.edu

Solar Energy Industries Association
www.seia.org

Solar Energy Research and Education Foundation
www.seref.org

US Department of Energy
www.doe.gov

This document was specifically developed for school board members and school system administrators and it is part two in a six part series on how implementing energy-efficient, environmentally-sound construction practices can help you in addressing your educational mission.

The Sustainable Schools Guide includes:

- Reducing Operating Costs
- **Buildings that Teach Sustainability**
- Improving Academic Performance
- Protecting our Environment
- Improving Health, Safety & Comfort
- Supporting Community Values