

LOCAL LEADERS IN SUSTAINABILITY

SPECIAL REPORT FROM SUNDANCE

A National Action Plan for Greening America's Schools



The American Institute of Architects



ICLEI USA - Local Governments for Sustainability



The Redford Center



U.S. Green Building Council



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LOCAL LEADERS IN SUSTAINABILITY

Special Report from Sundance is the fifth report in the Local Leaders series focused on green building at the local level. This report is based on the outcomes of the Greening of America's Schools Summit that took place at Sundance, Utah, in late fall 2010. The U.S. Green Building Council, ICLEI USA - Local Governments for Sustainability and The Redford Center organized the event.

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aia.org

Founded in 1857, the AIA is the leading professional membership association for licensed architects, emerging professionals and allied partners. The AIA has more than 80,000 members and nearly 300 state and local chapters. The AIA serves as the voice of the architecture profession and the resource for its members in service to society; it carries out its goal through advocacy, information and community. Through various programs and initiatives, the AIA brings together architects and other professionals assembled from across the country to provide direction for communities seeking to improve their sustainability. The American Institute of Architect drives positive change through the power of design.



icleiusa.org

With more than 600 members nationwide, ICLEI- Local Governments for Sustainability USA is the leading local government association addressing climate change and sustainability. As a non-profit membership organization, ICLEI USA provides the expertise, technical support, training and innovative tools to help local governments advance their climate, energy and sustainability goals.



redfordcenter.org

The Redford Center shapes bold, distinctive programs that creatively, collaboratively, and efficiently address today's most complex issues. The Center works a catalyst for positive change in four key areas: leadership, community, grassroots, and stewardship. It connects the dots between social problems and environmental ones. It connects storytellers with listeners, artists with activists, and creative potential with the natural world. The Center's events empower program participants and leaders from all sectors both to envision a different way of living and working, and to act on it.



usgbc.org

The Washington, D.C.-based U.S. Green Building Council is committed to a prosperous and sustainable future for our nation through cost-efficient and energy-saving green buildings. With a community comprising 79 local affiliates, nearly 16,000 member companies and organizations and more than 162,000 LEED Professional Credential holders, USGBC is the driving force of an industry that is projected to contribute \$554 billion to the U.S. gross domestic product from 2009-2013. USGBC leads a diverse constituency of builders and environmentalists, corporations and nonprofit organizations, elected officials and concerned citizens, and teachers and students.

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FOREWORD: PROVIDING AN ENDURING BLUEPRINT FOR ACTION

*"This is the place where
it all started."*

Robert Redford
on the inspiring
spirit of Sundance

At the foot of Mount Timpanogos at the Sundance Resort in Utah, the American Institute of Architects (AIA), ICLEI-USA Local Governments for Sustainability, the Redford Center and the U.S. Green Building Council (USGBC) hosted a landmark event to advance a shared vision – that every child in America will attend a green school within this generation. Held in November 2010, the *Greening of America's Schools Summit* brought together national experts and local leaders, including mayor and superintendent teams from 10 cities, to develop a plan to achieve this bold vision.

Few issues facing our society are more urgent than creating schools that are healthy, conducive to learning and sustainable. Yet our schools are often unhealthy and neglected, impairing our children's learning and undercutting our educational system. Through the greening of America's schools, we have the chance to improve the health and education of our children, inspire future leaders and create a stronger America. We know the only way forward is together. So we gathered mayors, superintendents, educators, students, artists and community leaders at Sundance to better understand the steps needed to green America's schools and how best to lead the charge.

Participants spent three days sharing best practices and exploring innovative approaches to advance green schools. We openly discussed the complex issues involved, identified and addressed barriers and worked steadfast to develop strategic action plans that could be implemented in communities across the country. The following report distills the outcomes and provides an enduring blueprint for action to move us toward our goal.

The Summit was just the beginning. We have a long road ahead and now is the time to put this plan into action. With engaged and sustained leadership and renewed collaboration, we are confident we will meet the challenge to transform our bold vision into reality, ensuring that every child in America attends a green school within this generation.

Lee Bycel	Former Executive Director, Redford Center
Martin Chavez	Executive Director, ICLEI-USA Local Governments for Sustainability
Rick Fedrizzi	President, CEO and Founding Chairman, U.S. Green Building Council
Clark Manus, FAIA	President, American Institute of Architects

INTRODUCTION: TRANSFORMING A BOLD VISION INTO REALITY

"Some men see things as they are and ask why. Others dream things that never were and ask why not."

George Bernard Shaw



Robert Redford speaking to participants of the Greening of America's Schools Summit.
PHOTO COURTESY OF JACK ALLRED

"In my mind, the issues we are facing in the environment and education are inextricably linked, and I believe that this convening can lead to creative ideas and bold solutions and that people like you are key to creating them."

Robert Redford

The fountain of American exceptionalism springs from an unmatched educational system that nurtures and cultivates the intrinsic ability of all our children. Simply put, education is the bedrock of our country. It powers our productivity, fuels our innovation and sustains our prosperity. But, by sending students to schools that are often rundown, unhealthy and unsafe, we're chipping away at this precious cornerstone of American leadership and success.

Think for a moment about the limitless potential of our children. We often marvel at their natural curiosity and admire their wondrous imaginations. And every day we send 55 million students to K-12 schools¹. Schools we trust will foster a love of learning, instill critical thinking skills, inspire innovation and encourage creativity. But consider the poor state of many of America's schools and the message these aging and neglected facilities send our children.

Picture a student who wears a coat to stay warm in class because of the drafty windows, cannot hear her teacher because of poor acoustics or whose asthma is triggered by unhealthy indoor air. Imagine a school that wastes thousands of dollars each year because of its inefficient use of energy or lack of funds to make needed cost-saving renovations and maintenance such as fixing non-working toilets. Or envision a school where the students can't see out the window or, worse yet, sit in windowless classrooms all day.

Unfortunately, for far too many of America's students and schools, this is the reality. The average school is 42 years old². Inefficiency costs the average school approximately \$100,000 a year,³ money that could be spent on teachers, education materials, books or computers. Right now, 14 million students — over a quarter of all students — attend schools considered below standard or dangerous.⁴ A fifth of our schools, roughly 25,000 school buildings, require \$112 billion in extensive repairs and renovations just to bring them up to minimum building standards.⁵ And more than 15,000 schools have air that was deemed unsafe to breathe.⁶

1 Digest of Education Statistics

2 Lewis, Laurie; Snow, Kyle; Farris, Elizabeth; Condition of America's Public School Facilities: 1999, p. 37 Functional Age of Schools, National Center for Education Statistics, June 2000; <http://nces.ed.gov/pubs2000/2000032.pdf>

3 Kats, Greg, *Greening America's Schools: Cost and Benefits*. October 2006: A Capital E Report.

4 Government Accountability Office, *America's Schools Report Differing Conditions* (GAO/HEHS-96-03) June 1996 and *School Facilities: Condition of America's Schools* (GAO/HEHS-95-61) February 1995.

5 Ibid.

6 Ibid.

Sadly, the American Society of Civil Engineers gives the state of our public school facility infrastructure a shameful “D” rating, calling for tens of billions of dollars in urgent investment.⁷ The National Education Association estimates that our schools need a third of a billion dollars just to bring them into good repair.

Our children deserve better. They deserve to go to schools that are built and operated to be full of clean air and sunlight and free of toxic materials and harmful chemicals. These green schools are energy efficient, which helps to lower utility costs and reduce waste.

They conserve resources and preserve the surrounding habitats. Green schools showcase a community’s commitment to its children and their future. Children, in return, learn from an early age the importance and benefits of acting as responsible stewards of their communities and the larger world.

But how do we achieve the bold vision to green America’s schools?

We meet this challenge by working collaboratively on the local, state and federal levels and among key stakeholders, including teachers, students and parents, to support green schools policies and practices.



Graphic Recorder Jim Nuttle captured the outcomes of the Greening of America’s Schools Summit through visual illustrations. ILLUSTRATION COURTESY OF JIM NUTTLE

Greening of America’s Schools Summit

Participants discussed the ways green schools:

- Improve the state of public education in cities and towns across America.
- Contribute to local economic growth.
- Provide significant and immediate health, learning and community benefits for children, parents, teachers, faculty and administrators.

To model such a call to action, the *Greening of America’s Schools Summit* was convened in November 2010 in Sundance, Utah. Mayors and superintendents from cities across the United States, educators and students, environmentalists, entrepreneurs and artists came together for the first time to provide ideas and develop plans to advance a shared green schools agenda (list of participants can be found in Appendix A). The goal was to launch the next decisive phase in our nation’s effort to green its schools.

“Example is leadership.”

Albert Schweitzer

7 2009 Report Card for America’s Infrastructure, American Society of Civil Engineers.

Mayor and Superintendent Action Plans

The participating mayors and superintendents were asked to develop action plans before leaving the Summit. Criteria included:

- Draft a vision statement for greening your school district.
- List three short-term goals (1-4 years).
- List three long-term goals (5-10 years).
- Identify stakeholders who have yet to be engaged.
- Note the three most significant challenges you face in implementing your vision.
- Identify resources needed to actualize your plan; how will you get those resources?
- Indicate opportunities for public/private partnerships.

Participants engaged in a three day experience, skillfully designed and facilitated by Lee Bycel, that fostered a most open discussion and learning experience. The summit allowed participants to focus on the challenges of greening America's schools and the efforts needed to implement initiatives in their communities in new and creative ways. The summit agenda was designed to provide decision makers with effective tools for greening schools and education. Key objectives included:

- Understanding the complexity of greening America's schools and the importance of making it happen.
- Ensuring participants left with more information, greater motivation and new resources for putting strategic plans for improvement into action.
- Making explicit connections between the greening of schools and American education.

The summit ended with participants charged to create plans of action, helping to set the course to ensure that every child in America attends a green school within this generation.

Local Leaders in Sustainability: Special Report from Sundance outlines a national action plan that mayors and local leaders can use as a framework to develop and implement a green schools initiative. The report also provides a comprehensive review of the benefits of green schools; a summary of local, state and federal policy solutions; leadership profiles of green school advocates; and case studies from both large cities and small communities. Together, these resources can serve as a roadmap to begin your journey to green your community's schools.

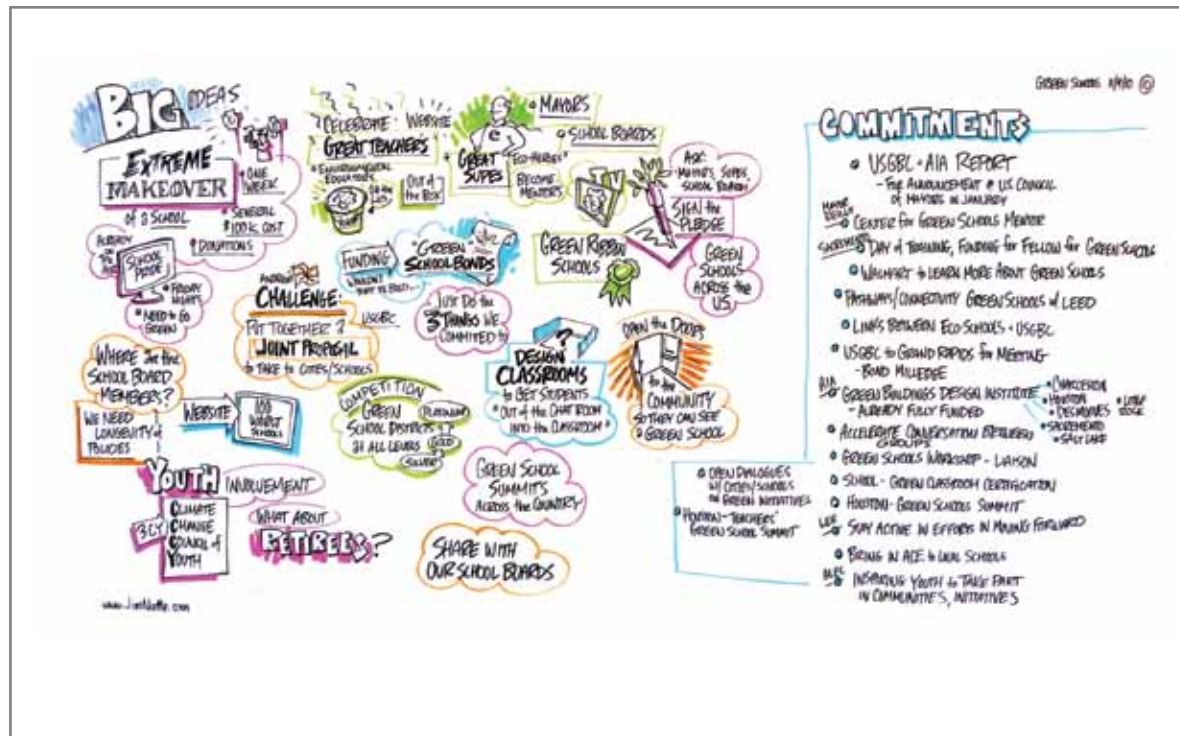
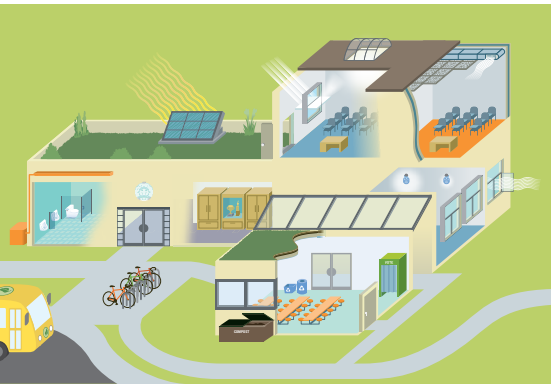


ILLUSTRATION COURTESY OF JIM NUTTLE

THE BENEFITS OF GREEN SCHOOLS: A TRIPLE BOTTOM LINE APPROACH

green school /grEn skül / n. a school that creates a healthy environment that is conducive to learning while saving energy, resources and money



Each year we invest billions of dollars into building and operating our schools. In fact, schools represent the largest construction sector in the United States, \$80 billion from 2006-2008. Yet the vast majority of our nation's schools are designed to minimum standards, waste millions of dollars in energy consumption and most importantly, fail to meet our children's needs. We know, however, from examples around the country that green schools can be built at or below the cost of conventionally designed schools and that amazing things happen when schools are designed, constructed and operated with a focus on occupant health and energy efficiency.

Characteristics of a Green School

- Conserves energy and natural resources
 - Saves taxpayer money
 - Improves indoor air quality
 - Removes toxic materials from places where children learn and play
 - Employs daylighting strategies and improves classroom acoustics
 - Employs sustainable purchasing and green cleaning practices
 - Improves environmental literacy in students
 - Decreases the burden on municipal water and wastewater treatment
 - Encourages waste management efforts to benefit the local community and region
 - Conserves fresh drinking water and helps manage stormwater runoff
 - Encourages recycling
 - Promotes habitat protection
 - Reduces demand on local landfills
-

A green school creates a healthy environment that is conducive to learning while saving energy, resources and money. The benefits focus on people, prosperity and the planet.

People: Green Schools Promote Health and Learning

GREEN SCHOOLS IMPROVE STUDENT HEALTH, DECREASING ABSENTEEISM

By improving indoor air quality through the exclusion of toxic materials and improved ventilation, green schools can improve the health of students, faculty and staff and can result in decreased absenteeism. More time in school translates into increased productivity and enhanced student performance. Improved attendance is of particular importance to schools in which federal funding is tied to Average Daily Attendance (ADA) rates.

Students in America miss approximately 14 million school days per year because of asthma, according to the U.S. Centers for Disease Control and Prevention.⁸ Studies show that asthma is the leading cause of missed school days among children ages 5 to 17.⁹ Controlling exposure to indoor environmental factors, such as carbon monoxide, dust and pollen, could prevent more than 65 percent of asthma cases among elementary school-age children, reports the *American Journal of Respiratory and Critical Care Medicine*. According to a 2005 study, asthma in school-age children is estimated to have a total economic cost of nearly \$2 billion (\$1993.6 million or \$791 per child with asthma) annually.¹⁰

Key components of a green school are improved indoor air and environmental quality. When toxic chemicals — often found in paint, flooring and furniture as well as conventional cleaning, pest management and snow removal products — are eliminated, students and staff report less eye, nose and throat irritation, and asthma-related incidents decline. Doctors have found that 65 percent of asthma cases among grade school students could be prevented through strategies to improve indoor air.¹¹ In 2000, a multiple building study of 39 schools in Sweden, Smedje and Norback identified a 69 percent reduction in the two-year incidence of asthma among students in schools that received a new displacement ventilation system with increased fresh air supply rates, as compared to students in schools that did not receive a new ventilation system.¹² In 2005 Carnegie Mellon University Center for Building Performance identified 17 separate studies that found that various improvements to indoor air quality (increased outside air, individual control/task air, moisture control, pollutant source controls) resulted in reduced illness symptoms ranging from 13.5 to 87 percent improvement.¹³

GREEN SCHOOLS HELP IMPROVE STUDENT PERFORMANCE

These same green building oriented improvements – ventilation, thermal control and lighting – also correlate with increased productivity, or in the case of children, better learning. An extensive amount of research shows that green school design features positively impact learning. According to educational facilities expert Dr. Glen Earthman in a 2002 study, “School building design features and components have been proven to have a measurable influence upon student learning. Among the influential features and components are those impacting temperature, lighting, acoustics and age. Researchers have found negative impact upon student performance in buildings where deficiencies in any of these features exist.”¹⁴ A meta-analysis examining 53 studies showed a strong correlation between daylighting and student achievement.¹⁵

Good teachers are the most important factor in improving student performance, but healthy and welcoming schools contribute significantly. When working and learning in a high-performing acoustic environment, children and teachers are given the opportunity for effective communication. Optimizing classroom acoustics so children can hear is a primary foundation for learning and helps preserve teacher health — the average teacher misses two days per year due to vocal strain. A school with clean indoor air, temperature control systems that create a comfortable classroom and efficient use of daylighting offers a welcoming learning environment that lessens distractions, encourages participation and instills a sense of pride and importance in students.

8 Asthma's Impact on Children and Adolescents. Atlanta: National Center for Environmental Health, Centers for Disease Control and Prevention. (No authors given.) 8 June 2005.

9 Asthma Facts and Figures. Washington: Allergy and Asthma Foundation of America.

10 Wang LY, Zhong Y, Wheeler L. “Direct and Indirect Costs of Asthma in School-Age Children.” *Preventing Chronic Disease*, 2(1): [serial online], January 2005.

11 American Journal of Respiratory and Critical Care Medicine

12 Smedje, G., and D. Norback. “New ventilation systems at select schools in Sweden—effects on asthma and exposure.” *Archives of Environmental Health* 55 (1): 18–25 (2000).

13 Kats, Greg, *Greening America's Schools: Cost and Benefits*. October 2006: A Capital E Report.

14 Earthman, Glen, “School Facility Conditions and Student Academic Achievement,” William Watch Series: Investigating the Claims of Williams v State of California, Virginia Polytechnic Institute and State University, 2002.

15 Lemasters, Linda Kay, “A Synthesis of Studies Pertaining to Facilities, Student Achievement and Student Behavior,” Virginia Polytechnic University, 1997.

MODEL ADVOCATE



A Mayor Leading by Example: The Honorable Joseph P. Riley, Mayor

CHARLESTON, S.C.

Mayor Riley is committed to a strong educational system in Charleston and believes in green schools, noting that students should learn in an environment that is healthy, inviting and promotes sustainability. When asked why school design has changed so much over the years, Riley noted that culturally we have moved away from making our schools great civic spaces. He believes this shift has been detrimental to our children and communities. Riley thinks schools are important public buildings; they should be handsome, beautiful and inspiring. To ensure schools again take their rightful place as cultural and stirring icons, Charleston has implemented a one-cent sales tax to support green school construction.

*"A school should be innovative
and make a civic statement; it
should be a building that makes
the community proud."*

The Honorable Joseph P. Riley,
Mayor, Charleston, S.C.

PROFILE OF A GREEN SCHOOL PROJECT

Hood River Middle School

Portland, Ore.

A MAJOR RENOVATION OF AN EXISTING SCHOOL YIELDS A NET-ZERO ENERGY SCIENCE LAB.

KEY PROJECT FACTS

Project Size: 6,712 square feet

Project Costs: \$1,573,142 (1.8M including PV array)

Energy Cost Savings: \$6,565/year

Annual Savings: \$6,842.23

Simple Payback Period: 19.89 years

Architect: Opsis Architecture

Reductions:

Energy: 67% of energy used produced on-site

[58% reduction in energy use after renovation.]

Water: 98% potable water-use reduction (136,000 gal/year)

Emissions: reduction of 2,412,589 lbs annually, which equates to removing 162 cars from the road or planting 330 acres of trees.

Diverted Waste from Trash: over 95%

Background

Hood River Middle School in Portland, Ore., was built in 1927. The school's major renovation included the addition of a free-standing science lab. The school's Historical Preservation Committee wanted the addition to keep in line with the architecture of the original building, but also sought to showcase the school's commitment to sustainability. The new building is a net-zero energy facility that received LEED Platinum certification. The added costs for the energy-efficient measures were \$284,640, but with total incentives of \$154,000, the net added cost was \$130,640.

Green Performance Measures

The school's sustainability features include efficient lighting and plumbing fixtures, a storm water management system and low-water landscaping. The school also used renewable and recycled materials and enacted a robust plan to recycle construction waste. The historical building installed all new major mechanical systems, such as boilers, heating and ventilation systems and updated the lighting and plumbing systems as well.

Through its energy-efficiency efforts — such as photovoltaic panels on the roof and thermal walls — the science lab produces as much energy as it consumes (net-zero). All systems will be commissioned regularly to ensure they are working at full capacity and that the planned energy and cost savings are realized. Other green features include bicycle parking, a recycling program, a green cleaning policy and a vegetable garden.



PHOTOS COURTESY OF OPSIS ARCHITECTURE/MICHAEL MATHERS



Roger Platt,
Senior Vice President
of Global Policy & Law,
USGBC, at Sundance

*“Education and Infrastructure—
Hardware and Software— the
payoff lasts for generations, but
our country’s investment in both
is far lacking. With the greening
of our schools we have an
opportunity to change this.”*

Mayor Patrick Henry Hays,
North Little Rock, Ark.

GREEN SCHOOLS SERVE AS A TEACHING TOOL

Teachers at green schools can use the building as the basis for project-based, experiential learning. Green schools provide a clear opportunity to connect students with curricula in environmental and science technology engineering and mathematics (STEM) education and can serve as a tool for interactive lessons. For example, math students can track and chart utility cost savings, science students can analyze and compare the difference between eco-friendly and traditional cleaning products. All students can learn first-hand about renewable energy and water conservation systems. These types of exercises provide students with the opportunity for hands-on learning and demonstrate the interconnectedness of the built environment and natural systems.

GREEN SCHOOLS BRING THE COMMUNITY TOGETHER

Cities and towns rely on public schools as the venues for thousands of organized community events and activities. “The nation’s schools serve as pillars of local communities and often serve a dual purpose as disaster-relief shelters,” according to the American Society of Civil Engineers 2009 Infrastructure Report Card. “As local governments hold the prime responsibility for funding schools, the economic downturn has had a negative impact on rehabilitation, modernization and security improvements.”

By inviting the community to be part of the collaborative process to green a school, and by including them in on-going sustainability initiatives, a green school can become a source of civic pride. Local horticulture experts can be invited to conduct research with biology students on native plants and how they can save water, builders and facilities managers can help students in math class track the energy savings generated from the use of solar panels and students can plan community-wide recycling programs based on the success of their own school’s efforts. Students can become green ambassadors, educating their family, friends and community about the value of going green. The school’s website can provide an opportunity to share the school’s green initiatives with the community, including tracking the school’s reduced utility costs, highlighting the pounds of trash sent to the recycling center and showcasing sustainability programs that are bringing the school and community together.



Participants at the Greening of America’s Schools Summit at Sundance, Utah
PHOTO COURTESY OF JACK ALLRED

Prosperity: Green Schools Strengthen the Economy

GREEN SCHOOLS CREATE JOBS



Jayni Chase,
founder, Center for
Environmental
Education at Unity
College, at Sundance

Green schools strengthen the local economy, advance the use of new technologies and contribute to job growth. A recent study found that green building will support 7.9 million U.S. jobs and pump \$554 million into the American economy over the next four years (2009-2013).¹⁶ In another current report, researchers at Rutgers University found that each \$1 million of spending on school construction generates \$467,000 in income, more than \$13,000 and \$16,000 in state and local tax revenue, respectively, and \$611,000 in gross state product and local jobs. Over a five-year period, the state of New Jersey alone will spend \$5.4 billion on school construction, which will generate almost 9,400 full-time jobs annually, \$2.5 billion in income, \$3.3 billion in GDP, \$369 million in tax revenues, \$72 million in state tax revenues and \$87 million in local tax revenues.

GREEN SCHOOLS SAVE MONEY

According to *Greening America's Schools: Costs and Benefits* by Greg Kats, green schools use 33 percent less energy and 32 percent less water than conventionally constructed schools, significantly reducing utility costs over the average 42-year lifecycle of a school. The state of Ohio is currently investing about \$4 billion in green schools, and expects to generate \$1.4 billion in operational savings over the next 40 years.

On average, green schools save \$100,000 per year on operating costs — enough to hire at least one new teacher, buy 200 new computers or purchase 5,000 textbooks. Further, green schools have a positive net present value of more than \$7/square foot from energy alone, meaning that a 50,000 square foot green school would save \$350,000.¹⁷ And as previously mentioned, if we scaled up these solutions in America's schools over the next 10 years, we would save \$20 billion.

The cost savings in green schools are generated from many sources, including energy-efficient heating and air conditioning systems and energy-efficient lighting as well as occupancy sensors, daylighting strategies, water-efficient fixtures and lower operations and maintenance expenses. The landscaping at green schools can minimize water use and decrease maintenance costs by using native, drought resistant plants, rainwater harvesting and innovative irrigation systems.

GREEN SCHOOLS INCREASE PROPERTY VALUES

According to the Turner Construction 2005 *Survey of Green Buildings*, 87 percent of school executives who have invested in green buildings report improved community image as one of the top benefits of green schools. Well-regarded schools increase property values, encourage business investment and job creation and serve as the cornerstone of vibrant communities.

¹⁶ Booz Allen Hamilton and U.S. Green Building Council (2009). Green Jobs Study.

¹⁷ Kats, Greg, *Greening Our Built World: Costs, Benefits, and Strategies*. 2010: Washington, DC, Island Press, pg. 18



During the first four year's of the LEED-Gold Great Seneca Creek Elementary School in Germantown, Md., only one teacher made a lateral transfer to another school. In a recent survey, every member of the 100-person staff said they worked in a safe and healthy environment and that they would recommend the school to a friend for employment. Great Seneca Creek Elementary School, Germantown, Md.

PHOTO COURTESY OF GRIMM + PARKER ARCHITECTS/KENNETH WYNER

GREEN SCHOOLS INCREASE TEACHER RETENTION

Attrition among new and experienced teachers is a common challenge for school districts. Green schools help improve teacher retention. Studies show teachers in green schools report they are more satisfied with their school environments than teachers in conventional schools, making them more likely to stay.¹⁸ They cite indoor air quality, access to daylight and outside views and better acoustics as reasons they prefer these high-performing schools. Increasing teacher retention helps to lower a school district's personnel replacement, recruitment and training costs.

GREEN SCHOOLS DO NOT COST MORE THAN CONVENTIONAL SCHOOLS

A 2007 report, *The Cost of Green Revisited*, looked into 100 buildings achieving LEED certification. When compared to a random sample of traditionally designed buildings and controlling for time, location and cost, the study found no significant difference in average costs for green buildings as compared to non-green buildings.¹⁹

By utilizing the integrated design process, a process that brings all stakeholders together to identify and resolve problems early in the process, green schools can be built for no additional premium. Costs to operate energy and water efficient schools are far less than conventional schools. To create green schools, a community does not have to build new schools. There are many cost-effective measures available to turn the approximately 99,000 existing public schools in the United States into green schools.

¹⁸ Buckley, Jack et. al. "Fix It and They Might Stay: The Effects of School Facility Quality on Teacher Retention in Urban School Districts," Supported in part by the Ford Foundation and the 21st Century Schools Fund, Teachers College Record Volume 107 Number 5, 2005, p. 1107-1123

¹⁹ Davis Langdon. *The Cost of Green Revisited: Reexamining the Feasibility and Cost Impact of Sustainable Design in the Light of Increased Market Adoption*. July 2007



*Great Seneca Creek Elementary School, Germantown, Md.
PHOTO COURTESY OF GRIMM + PARKER ARCHITECTS/KENNETH WYNER*

Planet: Green Schools Protect the Environment

GREEN SCHOOLS LESSEN ENVIRONMENTAL IMPACTS AND CONSERVE RESOURCES

Buildings are one of the heaviest consumers of natural resources, consuming more than 70 percent of electricity and contributing to nearly 40 percent of CO₂ emissions in the United States.²⁰

Along with the environmental benefits generated from reduced energy and water usage, green schools lessen environmental impacts through responsible approaches to the building site and local ecosystems. This is achieved by recycling efforts during and after construction, native and adaptive landscaping and practices that reduce the demand on municipal infrastructure. On average, green schools reduce water by 32 percent compared to conventional schools. Green schools often help improve wastewater systems. These applications are beneficial to the school and the community. As Greg Kats notes, “In Dedham, MA, the school design team, through providing rainwater storage capacity on site, saved the town the cost of enlarging an off-site stormwater retention facility. The city valued this infrastructure improvement at \$400,000.” Green buildings are built with sustainably produced, recycled and recyclable materials and products. They also lessen the reliance on fossil fuels, thus decreasing carbon dioxide emissions and other forms of harmful pollution.

Green Schools Cut Harmful Pollutants

As a rough estimate, a green school could lead to the following annual emission reductions per school:

- 1,200 pounds of nitrogen oxides (NO_x) – a principal component of smog.
 - 1,300 pounds of sulfur dioxide (SO₂) – a principal cause of acid rain.
 - 585,000 pounds of carbon dioxide (CO₂) – the principal greenhouse gas and the principal product of combustion.
 - 150 pounds of coarse particulate matter (PM₁₀) – a principal cause of respiratory illness and an important contributor to smog.
-

²⁰ Energy Information Administration (2008). Assumptions to the Annual Energy Outlook.

PROFILE OF A GREEN SCHOOL PROJECT

River Crest Elementary School

Hudson, Wis.

A GREEN SCHOOL CONSTRUCTED BELOW THE COST OF A CONVENTIONAL SCHOOL.

KEY PROJECT FACTS

Project Size: 93,450 square feet

Project Cost: \$15.5 million (excluding land)

Completion Date: 2008

Architect: Hoffman LLC

River Crest was built for \$166 per square foot — 25% below the \$233 per square-foot-average construction cost for elementary schools in the region.

Reductions:

Energy: 30%

Water: 40%

Diverted Construction Waste: 97%

Background

River Crest Elementary School is located in Hudson, one of the fastest growing counties in Wisconsin. In seeking ways to cut costs and cater to the community's concern for the environment, the Hudson School District decided to build a green school. The school is the first elementary school in Wisconsin to receive LEED Gold certification and was completed in 2008.²¹ The school has state-of-the-art classrooms, media center, gym and cafeteria as well as a walking and bike trail that connects the school to the surrounding environs. The school is open to the community after hours and has become a source of civic pride for Hudson residents.

River Crest Elementary is bordered by pastoral land and the St. Croix River where geese, turkeys and deer roam freely. To protect the wildlife, the development plan emphasized land preservation, and the architects reflected the school's surrounding environment in the building's design, including a west-side exterior that mirrors the silhouette of the St. Croix shoreline.

Green Performance Measures

The majority of the school's windows were placed to optimize daylight and views and to minimize glare and heat. The energy-efficient light fixtures have motion sensors, and the building is 30 percent more energy efficient than the ASHRAE requirement. The building has a 40 percent reduction in water usage through its water conservation features, such as low-flow lavatories, dual-flush water closet levers and waterless urinals.

The majority of materials used were manufactured within 500 miles of the construction site, reducing transportation pollution and fuel cost and supporting the local economy. Over 97 percent of construction waste was recycled. The school displays information about its green features on smart boards located in each classroom that are used as teaching tools to educate students and faculty about sustainability.



PHOTOS COURTESY OF HOFFMAN LLC

²¹ Pigeon, Scott. (2009). Hoffman LLC: River Crest Elementary School earns LEED® Gold. www.wisbusiness.com/index.html?Article=167814

MODEL ADVOCATE

A State Representative Championing Sustainability: Jules Kopel Bailey

PORTLAND, ORE.

"Healthy, high-performance schools mean healthy, high-performing kids. I don't think that we have to convince anybody of the value of green schools; we have to convince people to prioritize it. We need them to understand that green schools create jobs and save money."

Jules Kopel Bailey
State Representative,
Portland, Ore.

Representative Jules Kopel Bailey was elected to the Oregon state legislature in 2008. During his time in the legislature, he has championed sustainability issues, including forming a working group on green schools. To Bailey, retrofitting schools for energy performance is one of the best ways a community can create jobs, trim budgets and support healthy learning environments for students.

Representative Bailey is currently working with his colleagues in the legislature to advance a program that would retrofit every school in Oregon to green building standards. This program will tap a new category of bonds recently approved by voters that allows state bonds to match local school-district bonds to renovate school facilities. "This is essentially an off balance sheet solution for districts that does not cost general fund dollars," says Bailey. "A small investment by a local school district can leverage money from other sources."

In addition to his efforts to advance green schools within Oregon, Bailey also serves on the National Advisory Council of USGBC's 50 for 50 Green Schools Caucus initiative. In this role, Rep. Bailey helps guide a national network of leading state legislators who are working to bring the benefits of green schools to their communities. He has participated in meetings with legislators from around the country who agree that the timing is right to have a national focus on green schools. "States learn from what other states are doing. In Oregon, for example, we looked at the green schools bill that Washington State passed to guide our efforts," he explains. Through the 50 for 50 initiative, Bailey and his colleagues are able to share best practices and draw on each other for support.

Rosa Parks Elementary School

Rosa Parks Elementary School in Portland, Ore., is located in an affordable housing development with a high proportion of its children coming from low-income families. The school earned LEED Gold certification and showcases Bailey's belief that green schools can serve as tools to educate parents and the community on how to save on energy costs and conserve resources.

For more information visit: www.usgbc.org/ShowFile.aspx?DocumentID=5110

Bailey sees green schools as a learning tool for the entire community. "Sometimes you think of green schools as being something for the urban elite, but that has not been the case in Oregon." To Bailey, building green schools in low-income neighborhoods has made a tangible difference in helping families understand the value of water and energy efficiency. Not only are students becoming advocates for sustainability, they are also helping to educate their parents about how green measures lower utility bills and conserve resources.

THE COURAGE TO LEAD: PASSING GREEN SCHOOLS POLICIES TO ACCELERATE CHANGE

As policymakers consider how their work influences societal change and affects future generations, education will be at the forefront of any plan. Policymakers need to ask themselves: Do we want to continue to teach our children in schools designed for a pre-industrial past or do we want to teach our children in high-performing green schools that will equip them with 21st century skills? Change on this scale requires leadership at the local, state and federal levels and presents leaders in both the private and public sectors a unique opportunity to envision and craft a world they want their grandchildren to inherit. To accelerate a green schools revolution, we need to change policy, and the time is now for policymakers to lead the charge.

Many innovative policymakers and their private-sector colleagues have answered the question by enacting green school policies and practices. Examples of successful local and state policies are highlighted below, along with a description of recent federal efforts. The important roles that superintendents, mayors and the community play in greening schools are also outlined.



Superintendent Dr. Terry Grier,
Houston, Texas, at Sundance

Local Policy

THE ROLE OF SCHOOL DISTRICTS AND SUPERINTENDENTS

School districts balance the values and goals of the community with the needs of the students. They often encompass several cities and towns and school district leaders can provide a unified message to promote the design and construction of green schools and encourage the renovation of existing schools.

The majority of U.S. cities and towns have school districts that operate independently of the local government jurisdiction. These school districts have elected school board members and superintendents who are responsible for establishing school policies and programs. As a result, school district leaders play a key role in enacting green school initiatives.

School districts can craft green school policies that require schools to achieve sustainable design standards. The policies often include improving daylighting by requiring larger and more plentiful windows, energy-efficient HVAC systems to improve indoor air quality and energy and water conservation measures to minimize building operation costs. School districts may also require schools to enhance stormwater management and use alternative

energy applications, such as solar panels and geothermal heating systems. Additionally, school districts are leverage points in creating programs that integrate sustainable values and design into the curriculum. They are also establishing green purchasing and green cleaning programs and requiring schools to certify under the LEED green building certification system (See page 20 for information on LEED).

THE ROLE OF MAYORS



"This isn't something we ought to do, it's something we have to do."

Mayor T.M. Franklin Cownie,
Des Moines, Iowa, at Sundance

Even if mayors do not directly control their local schools, they are critical advocates to advance new green school policies and practices. Constituents look to mayors to initiate and lead community change.

In 2005, the U.S. Conference of Mayors (USCM) created the Climate Protection Agreement, in which signatories agree to advance the goals of the Kyoto Protocol and fight climate change by promoting green infrastructure, anti-sprawl policies and the reduction of greenhouse gas emissions.

The Mayors' Alliance for Green Schools

Recognizing that sustainability in schools must come from grassroots-level efforts, the Mayors' Alliance for Green Schools unites mayors from major cities and small towns across the country around a common goal: bringing the benefits of green schools to their local communities.

Initiated in October 2008 by Mayor Manuel A. Diaz of Miami and Mayor Greg Nickels of Seattle and in partnership with the USGBC, the Alliance is united in a belief that in order to provide a high-quality education for children, the school environment must be safe, clean and supportive of excellence.

The Alliance works to harness the leadership and creativity of local community leaders nationwide. Members of the Alliance introduced and helped pass resolutions at a recent USCM meeting, vowing that "in a generation every child in America will attend a green school."

A major Alliance initiative is the development of public-private partnerships with local businesses to enable schools to install green roofs and solar panels, implement recycling and sustainable purchasing programs and advance other green improvements.

Participating mayors also champion innovative legislation to promote the construction and retrofit of green schools and related projects such as safe biking and walking routes for students, developing and integrating green curriculum and greening school facility operations and maintenance.

USCM has been a strong supporter of local efforts to advance green schools. Since 2007, the conference passed three green schools resolutions addressing new construction, existing schools and public-private partnerships. In 2010, USCM adopted a resolution supporting green schools. For information on the resolution, see Appendix B.

Approximately 60 mayors have joined the Mayors' Alliance for Green Schools, a coalition that educates mayors about the benefits from energy and water conservation, reduced carbon dioxide emissions and improved indoor air quality. The Alliance provides tools and resources to assist mayors in their efforts to promote sustainability.

THE ROLE OF LOCAL GOVERNMENT

Although most school districts and schools operate independently of municipal administration, the influence of local government leadership should not be understated. It often plays a significant role in ensuring that schools provide a nurturing environment for students, operate efficiently and use tax-payer dollars sensibly. In addition, local governments possess authority over planning, zoning and construction standards, which can mandate or encourage the construction and design of high-performance school buildings.

THE ROLE OF THE COMMUNITY

School buildings are the centers of learning for the entire community, so the community needs to be involved in the process to advance green schools. Community members are paramount because they are able to influence the priorities of school districts through direct election of school boards and superintendents. Parents and all community members should push for the election of like-minded individuals to key education posts to advocate effectively for green schools programs and policies.

INNOVATIVE GREEN SCHOOLS POLICY INITIATIVES

GREEN SCHOOLS POLICY

Cincinnati, Ohio

On Sept. 10, 2007, the Cincinnati Board of Education resolved to adopt “Green Guidelines” for its future public school projects. Pursuant to this resolution, all new Cincinnati public schools will strive for LEED Silver, requiring a minimum of four schools to meet LEED Silver and one additional school to achieve either LEED Gold or LEED Platinum. The resolution also requires all certified schools to make readily available graphic information on sustainable features for educational purposes and also encourages the integration of sustainable design principles into the curriculum for the entire school district.

Washington, D.C.

In May 2010, the Council of the District of Columbia unanimously passed the Healthy Schools Act of 2010, which was signed into law by Mayor Adrian M. Fenty. More than 350 stakeholders, including 100 students, participated in the transparent, inclusive process to craft this legislation. The act aims to improve the health, wellness and nutrition of the public and charter school students in the District of Columbia, and among numerous measures, amends the Green Building Act of 2006 to encourage school construction to achieve LEED Gold certification.

GREEN SCHOOLS RESOLUTION

New Orleans, La.

In May 2008, the New Orleans City Council adopted Resolution 08-246, requiring all new construction and major renovation of public schools to earn LEED for Schools certification. The resolution further directs Orleans Parish School Board and City departments to recommend policies that facilitate implementation and to commit to higher levels of LEED.

GREEN SCHOOLS GUIDE

New York, N.Y.

New York City’s Department of Education created a green schools guide and rating system to advance sustainable design and construction and to promote green building management practices. The guide was developed in order to comply with Local Law 86 of 2005²² and the mayor’s challenge to public institutions to reduce its carbon footprint by 2030.²³ Local Law 86, signed into law by Mayor Bloomberg in 2005, requires city-funded capital projects to use LEED for New Construction, LEED for Existing Buildings, or LEED for Commercial Interiors. Non-residential capital projects costing over \$2 million must achieve LEED Silver certification. Schools and hospitals must meet the LEED Certified level. The law also requires energy cost reductions. The law became effective Jan. 1, 2007.

²² Local Law 86 of 2005 – Requires sustainability construction and design standards for New York City buildings.

²³ New York City Department of Education (2005). New York City Green School Guide. <http://schools.nyc.gov/Offices/SCA/DoingBusiness/AE/NYCGreenSchoolsGuide/default.htm>

PROFILE OF A GREEN SCHOOL PROJECT

School Without Walls High School

Washington, D.C.

A 19TH CENTURY SCHOOL UNDERGOES A GREEN RENOVATION.

KEY PROJECT FACTS

Project Size: 68,000 square feet

Project Cost: \$39 million

Energy Cost Savings: \$0.35 /square foot

Architect: Ehrenkrantz Eckstut & Kuhn Architects

Reductions:

Energy: 25.6%

Water: 40.7%

GHG Emissions: 22.6%

Diverted Waste from Construction: 75%

Background

School Without Walls is located in the Grant School building, one of the oldest schools in Washington, D.C. (1882). The school is surrounded by George Washington University's campus and has access to many of the university's facilities, including research libraries, auditoriums and gyms. The building's design creates a non-conventional atmosphere that is inviting to students and reflects the school's focus on interactive and experimental learning.

Green Performance Measures

The building designers sought to restore the original school and create a four-story addition with a focus on sustainability. The addition received LEED Gold certification in 2010. Green measures include sensed lighting and an energy-efficient HVAC system. The large, picturesque 19th century windows were insulated with interior storm windows and the windows in the addition were placed to maximize natural light. Low-flow urinals and showers, dual-flush toilets and high-efficiency commercial grade dishwashers help contribute to a 40.7 percent reduction in water usage. The school has a recycling program and green cleaning policy, and implemented a program to purchase power from renewable resources. Teachers are also encouraged to incorporate the school's sustainability measures throughout the curriculum.



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GO GREEN SCHOOLS PROGRAM

San José, Cali.

The San José Unified School District operates independently of the City of San José. However, the city created a green schools program to foster sustainable design and other green initiatives amongst K-12 public schools.²⁴ Partnering with a regional environmental organization, the program provides San José schools with recycling supplies and resources for green purchasing, funding for green initiatives and environmental education. It receives funding from the city.

GREEN BUILDING ORDINANCE

Syracuse, N.Y.

In September 2007, the Syracuse Common Council adopted a Green Building Ordinance, requiring all new municipal construction and major renovations, including public school projects, to achieve LEED Silver certification.

State Policy

Even though local school districts typically control day-to-day operations and manage capital budgets, there remains much that state legislators can do to lead efforts to green schools. Many important school funding and policy decisions are made at the state level. Across the country, state legislators are actively working to set green building standards for the construction of new schools and major renovations, encouraging policies to ensure operations and maintenance best practices and providing innovative funding mechanisms that create financing opportunities for green schools and promote green job training.

50 for 50 Green Schools Caucus Initiative

In September 2008, six state lawmakers, with the support of USGBC, launched the 50 for 50 Green Schools Caucus Initiative. The initiative seeks to encourage and support the formation of a green schools caucus or working group in every state legislature in the country.

For more information visit: www.centerforgreenschools.org/50for50.

By promoting the design and construction of new green schools and by greening the approximately 99,000 existing public schools, local leaders can work with state legislators to make a tremendous impact on improving student performance and health, while decreasing operational costs and protecting the environment.

SUCCESSFUL STATE-LEVEL GREEN SCHOOLS INITIATIVES

Green School Policies for New Construction

As of April 2010, 13 states, including the District of Columbia, have adopted green school policies for new construction based on LEED. The states include: Arizona, Connecticut, Colorado, Florida, Hawaii, Illinois, Kentucky, Maryland, New Jersey, Ohio, Rhode Island, Washington and Washington, D.C.



"The opportunity to bring mayors and superintendents together with green building and environmental experts is central to achieving healthy, sustainable schools for our children. The Greening of America's Schools Summit represents an important first step in charting the course; one that will ensure an improved educational environment for our children to grow and excel. Now that we have the plan, it is time to take concrete actions that will make green schools a reality for every child in America."

Martin J. Chávez,
Executive Director, ICLEI USA, three-term mayor of Albuquerque, N.M., and co-chair of the Center for Green Schools at USGBC Advisory Board

²⁴ City of San José. (2010). San José Green Schools Program. <http://www.sanjoseca.gov/esd/schools/>

What is LEED?

In 2000, USGBC established the Leadership in Energy and Environmental Design (LEED®) rating system as a way to define and measure “green buildings.” It is an internationally recognized certification system that measures how well a building performs using several metrics, including energy savings, water efficiency, CO2 emissions reduction, improved indoor environmental quality and stewardship of resources.

LEED provides a concise framework for identifying and implementing practical and measurable green building solutions. Based on established sustainable building practices and emerging concepts, the LEED rating systems are performance-based and comprehensive in scope.

The LEED for Schools rating system recognizes the unique nature of the design and construction of K-12 schools and addresses issues such as classroom acoustics, master planning, mold prevention and environmental site assessment.

The LEED for Existing Buildings: Operations & Maintenance rating system can be used to green existing schools. It focuses on high-performance buildings systems and implementing sustainable operations and maintenance best practices.

As of April 2010, 34 state governments have included LEED as a part of their climate change and green building strategies, 24 of which have established “Leadership by Example” policies, requiring LEED for state government-owned buildings.

Collaborative for High Performance Schools – California

California’s Collaborative for High Performance Schools (CHPS) were the first green building guidelines created for school construction in the United States. The program offers tools and technical resources for school districts to design and promote high-performing schools. Dozens of school districts have used the system in California, proving to be an effective tool in shaping change in the way schools are designed. The success of the program has been replicated in eleven states.

Federal Policy

Although no federal green schools legislation has been signed into law, the examples cited below demonstrate a genuine effort from members of Congress to focus on green school construction, and we anticipate that federal legislation will soon assist our goal of ensuring that every child in America will attend a green school within this generation.

CONGRESSIONAL GREEN SCHOOLS CAUCUS

United in the belief that healthy, environmentally friendly schools promote learning, save taxpayers’ money, and benefits everyone, the Congressional Green Schools Caucus brings together leaders across political parties.

Now approaching 60 members, the Caucus was formed by retired Rep. Darlene Hooley, D-Ore., Rep. Michael McCaul, R-Texas, and Rep. Jim Matheson, D-Utah, as a way to educate and inform members of Congress on the enormous impact they have on our nation’s approach to new and existing school buildings. With programmatic support from USGBC, the Caucus empowers federal legislators to work together and with their constituents to take advantage of opportunities to make our schools greener, our students and teachers healthier and our communities stronger.

The Green Schools Caucus hosts regular briefings on the benefits of green schools, supports policy discussions, creates opportunities for caucus members to work to advance legislative and programmatic goals together and equips members of Congress with resources for their constituents. Caucus members and their staff also participate in educational programs to keep current on what is happening in their districts and nationally, including site visits to green schools and educational panels with teachers, architects and school officials from across the country.

MODEL ADVOCATE

A Superintendent Advocating for High-Performing Schools: Thomas DeBolt, Superintendent of Manassas Park City, Va., Public Schools

MANASSAS PARK CITY, VA

"Through its sustainable facilities, policies and practices, a school system can produce a group of graduates that share those green values. We then have given the earth something precious: people that will make it a better place for all of us to live."

Thomas DeBolt,
Superintendent of Manassas Park
City Public Schools

Thomas DeBolt, Superintendent of Manassas Park City Public Schools in Virginia, has been the driving force behind efforts to renovate and construct high-performance public schools. In 2009, DeBolt was named planner of the year by Virginia Educational Facilities Planners for overseeing five major construction projects in 14 years.²⁵

In 2004, the Manassas Park School District completed an extensive renovation of its high school, doubling its size to accommodate continued growth. The renovation integrated sustainable design and construction measures that conserved energy and lowered maintenance costs and had a positive environmental impact. In 2006, the construction of the Manassas Park Middle School was completed using green design and in 2009 the school district constructed its first LEED certified school.

To complete these projects, DeBolt assembled a "Dream Team" composed of teachers, principals and administration officials. DeBolt was responsible for ensuring cohesion among the three central players that included the Dream Team, the construction manager, and the architectural team. DeBolt was able to secure support from state officials and the community in constructing green schools.

The Manassas Park School District participates in the Virginia School Board Associations' green initiative, which requires implementing recycling programs, establishing recycling teams for each building, and conducting energy audits. DeBolt believes changing behavior is a big component in greening schools. As a result, he has partnered with a firm that explains how human behavior can be changed, and he applies their methodology to ensure students and teachers adhere to the school's green initiatives.

For example, the school district's energy-efficiency measures include turning off lights when the school is not in use and recycling — efforts that require occupants to participate. DeBolt has also advocated for biodiesel fuel in school busses and the prohibition of bus idling. A resolution addressing both these issues was passed by the school board. As a result of DeBolt's commitment and advocacy, the school system has saved more than a million dollars over the past four years in energy and operation costs.

²⁵ VMDO Architects. (2009). Superintendent of Manassas Park City Schools named VEFP "Planner of the Year" http://www.vmdo.com/firm_news_pr_DeBolt.asp



Author, speaker and environmentalist Bill McKibben addressing attendees of the Greening of America's Schools Summit at Sundance.
 PHOTO COURTESY OF JACK ALLRED

\$6.4 Billion for Green Schools: the 21st Century Green High-Performing Public School Facilities Act

On May 14, 2009, a significant green schools funding bill passed in the House of Representatives that authorized \$6.4 billion for modernization, renovation or repair of public school facilities nationwide. Although the 21st Century Green High-Performing Public School Facilities Act (H.R. 2187) died in the Senate, it would have assisted states and local communities in meeting the staggering need to repair schools, employ tens of thousands of construction workers and reduce energy costs.

A NATIONAL ACTION PLAN FOR GREENING AMERICA'S SCHOOLS



Joseph Sanches, Facilities Management, Palm Beach, Fla.; Rachel Gutter, director of the Center for Green Schools at USGBC and Anne Bryant, executive director of the National School Board Associate at Sundance.

PHOTO COURTESY OF JACK ALLRED

The five-point action plan outlined below is derived from successful green schools initiatives from across the United States. It provides a general framework on how to develop and implement your own plan. This blueprint outlines basic concepts and cites specific examples, but you will want to reference the green schools resources provided at the end of the report to assist you in crafting a comprehensive plan that is best suited for your city and district. Many local jurisdictions will focus initial green school efforts on one or two schools with the goal of applying lessons learned at the district level later in the process, so consider establishing a pilot program to get your green schools initiative started.

Connect with the Green Schools Movement

JOIN THE MAYORS' ALLIANCE FOR GREEN SCHOOLS

The Mayors' Alliance for Green Schools unites mayors around the country to help them bring the benefits of green schools to their local communities. Recognizing that sustainability in schools must come from grassroots-level efforts, the Alliance works with the approximately 60 mayors to provide the tools, strategies and resources needed to foster innovation and inspire community members to take action.

For more information visit: www.centerforgreenschools.org/mayors.

WORK WITH YOUR LOCAL AIA AND USGBC CHAPTER

Contact the local AIA and USGBC chapter to meet green building professionals and establish a reliable network of experts to tap throughout the process.

Engage Stakeholders and Raise Awareness

CREATE A GREEN SCHOOLS TASK FORCE

Formalize your efforts to green schools by creating a task force to identify barriers and recommend solutions. Have the superintendent co-chair it. Tap advocates, experts, parents, teachers and students to participate and meet regularly to keep these key stakeholders informed.

HOST A GREEN SCHOOLS SUMMIT

Convene a greens school summit with local leaders to provide an opportunity to bring the community together to learn about the issues and hear how others have implemented solutions. Ask experts and advocates to present and invite the local media to attend.

In October, 2010, the first ever National Green Schools Conference drew over 1000 attendees and 70 exhibitors to Minneapolis, Minn., for three days of networking and discussions to advance the national green schools movement. The next Green Schools National Conference is scheduled for February 27-29, 2012, in Denver, Colorado. Based on the enormous success of the first conference, the organizers are planning to attract 5,000 attendees to this event.

For more information visit: www.greenschoolsnationalconference.org.

DEVELOP A COMPREHENSIVE COMMUNICATIONS PLAN

Mayors and policymakers should prepare a comprehensive communications strategy that highlights the benefits of green schools for different audiences, including those who may have misconceptions about the value of green schools. Showcase the triple bottom line, using statistics to outline how green schools have social, economic and environmental impacts. Work to hone a message that explains why green schools are good for your community.



"The City of Houston and HISD both have resources that can be of use to one another. The City of Houston is committed to applying any available resources to help our schools, especially those that can provide our children with a green, sustainable environment."

Houston Mayor Annise Parker

Build Community Support and Capacity

PARTNER WITH THE SCHOOL DISTRICT SUPERINTENDENT

Mayors, by leveraging their resources, expertise and experience, can partner with the school superintendents to implement green building best practices and apply lessons learned from a green school pilot program to a district-wide initiative.

Houston Mayor Seeks Partnerships to Accelerate Green Schools

After the Greening America's Schools Summit at Sundance, attendee and Houston Mayor Annise Parker teamed up with the school district Superintendent Terry B. Grier to advance a cooperative strategy between the City of Houston and Houston Independent School District (HISD).

The partnership will help increase energy efficiency and implement other sustainability initiatives in Houston's schools.

CONDUCT A GREEN SCHOOLS CHALLENGE

Engage the community by leading a challenge or contest to solicit ideas from students, teachers, parents and other stakeholders.



Jason Hartke, vice president of National Policy, USGBC, speaking to participants of the Greening of America's Schools Summit.

PHOTO COURTESY OF JACK ALLRED



"The greening of America's schools is a moral imperative. Our children's future is at stake. Green Schools provide healthy learning environments for better educational experiences that stimulate imagination, creativity, and critical thinking. Our efforts do make a difference."

Lee Bycel
Executive Director
at the Redford Center

"When I arrived in New Orleans to work with the Recovery School District (RSD) in 2008, I was given a computer, a phone, and a broad assignment. Two years later—with the help of some hard work and strong partnerships—the RSD was on track with one LEED Gold certified school completed, 14 LEED registered schools under construction, three additional schools completed and nearing certification, nine LEED Green Associates and two LEED APs on school project management staff, an Indoor Air Quality Manager and an Energy Manager in place, a district recycling program, and a green school curriculum resource in circulation. My position through USGBC enabled me to focus completely on these important efforts at the RSD; with the Center for Green Schools Fellowship program, I know that we will open the opportunity for additional school districts around the country to leap forward on their sustainability goals."

—Anisa Baldwin Metzger, Center for Green Schools at USGBC Fellows manager

SEEK FUNDS TO HIRE A GREEN SCHOOLS FELLOW

The Center for Green Schools Fellowship program helps ensure school districts have the tools and resources to green existing buildings and to sustain these improvements over time. For a three-year term, the fellow works with the school district to initiate and/or accelerate various initiatives that may have languished for lack of manpower or resources including: monitoring energy usage and decreasing consumption by educating staff and students, disseminating environmental curriculum resources, establishing indoor air quality policies and practices, revising maintenance and transportation contracts and improving recycling, school garden and composting programs.

For more information visit: www.centerforgreenschools.org/fellowship.

Make it Happen: Benchmarking, Policy and Financing

BENCHMARK THE ENERGY USE OF EXISTING SCHOOLS

Policymakers can promote the greening of existing schools by passing legislation requiring all facilities to conduct energy audits, providing a baseline to help identify opportunities for improvement. Local initiatives can benchmark using the ENERGY STAR Portfolio Manager. Portfolio Manager is a free online tool that allows building owners to track and assess energy and water consumption, performance and cost information for individual buildings and building portfolios.

Nebraska High Performance Green Schools Transparency Act

Introduced by Nebraska State Senator Ken Haar in January 2011, the High Performance Green Schools Transparency Act (LB 522) would require school districts to generate and maintain Energy Star efficiency ratings on each of the district's school and administrative buildings using EPA's free online tool, Portfolio Manager. The act states that "[it's] necessary so that the Legislature, parents, and taxpayers can clearly see the energy efficiency of each school building to assure that public schools in Nebraska are energy efficient."

For more information visit: http://nebraskalegislature.gov/bills/view_bill.php?DocumentID=11850.

MODEL ADVOCATE

A Student Inspiring Others: Christian Torres, Tarkington School of Excellence

CHICAGO, ILL.

How many eighth graders will tell you, “I love my school”? When Christian Torres walked through the doors of the newly opened LEED Certified Tarkington School of Excellence in the South Side of Chicago four years ago, he had no idea what impact the school building would have on his health and future.

“When I first entered Tarkington I was a kid with breathing problems,” says Christian, now in high school. “At my old school I had to use my inhaler 2-3 times a day to keep my breathing at a normal pace, but after my first year at Tarkington I rarely used my inhaler, even in situations where I was moving around a lot. Now I can breathe on my own without it.”

Christian Torres,
Student

Tarkington School of Excellence serves approximately 1,000 students from pre-K through 8th grade living in Chicago’s 18th Ward. During the 2008-2009 school year, 90 percent of Tarkington students were eligible to receive free or reduced lunch. In Tarkington’s first year of operation in its LEED Certified building, standardized test scores improved by 36 percent. In the second year, they improved by an additional 5 percent.

After attending Tarkington for four years, sustainability has become a part of Christian’s values. In his future, Christian wants to pursue his interest in technology and work with computer systems. “I want to learn ways that I can make an impact on the earth and ways I can get people to help out as well.”

ADOPT A GREEN SCHOOLS RESOLUTION

Adopt a district-wide green schools resolution to set priorities, solidify the school district's commitment to sustainability and empower leadership and staff. (See USGBC's model resolution at www.centerforgreenschools.org/pass-a-resolution)

PASS A GREEN CLEANING POLICY

Implementing a green cleaning policy is a high-impact, low-cost initiative that can play a key role in creating healthy and safe schools. A green cleaning policy includes criteria for the purchase and use of sustainable cleaning chemicals and products, methods for managing the disposal of cleaning materials, best practices for mixing concentrates, criteria for the purchase and use of janitorial equipment and plans to assess cleaning performance.



The Paid-From-Savings Guide to Green Existing Buildings provides information to help building facilities managers and energy service companies (ESCOs) leverage utility cost savings to fund comprehensive green building retrofits.

For more information visit:
www.usgbc.org/paidfromsavings

ADVANCE “GREEN” SCHOOL CONSTRUCTION BONDS

To help ensure that future schools are built green, mayors and superintendents can work together to require school bond issuances include language that stipulates green building.

CONSIDER A “PAID-FROM-SAVINGS” APPROACH TO GREEN EXISTING SCHOOLS

Mayors and superintendents who are seeking to implement a district-wide green school initiative may want to consider the paid-from-savings approach to funding building improvements. This funding strategy leverages the savings generated from system improvements to help fund greening projects. Paid-from-savings projects “bundle” or combine the utility cost-saving measures from the new, more energy efficient systems with other green project measures to ensure an acceptable return on investment (ROI) and simple pay-back period. When longer pay-back measures are combined with the quicker measures, the project will have a shorter overall pay-back period and higher ROI.

Celebrate Success

SHARE YOUR STORY

A critical component of the communications plan will be efforts to highlight the success of your green schools initiative. Share stories with your constituents, the media, state officials and colleagues. Emphasize the economic, health and environmental benefits of green schools and cite specifics, including statistics on energy cost savings and improved school attendance rates.

CONDUCT TOURS OF LOCAL GREEN SCHOOLS

Take community leaders and stakeholders on a tour of a green school and ask your local AIA or USGBC chapter to help organize it. Tours are an excellent way to increase awareness and generate community support. In some green schools, students serve as the tour guides, highlighting the waterless urinals, explaining the eco-friendly features and underscoring the unique design.



Students at Stoddert Elementary in Washington, D.C., giving green school tours.
PHOTO COURTESY OF USGBC

ENCOURAGE INNOVATION

Make sure to assess your green schools plan and consider ways to build on it and make improvements, if needed. Work with local experts, teachers, students and parents to generate new ideas and discover ways to refine and advance your community's sustainability efforts.

The U.S. Environmental Protection Agency (EPA) and the U.S. Department of Energy (DOE) administer dozens of programs, grants and initiatives to encourage healthy, high-performing schools. Here are three that can help begin the process and connect stakeholders to additional resources:

- Through the EnergySmart Schools public/private partnership, DOE seeks to catalyze significant improvements in energy efficiency in schools by providing information on resources and financing, tools, resources and examples of best practices for all stakeholders.

For more information visit: www.eere.energy.gov/buildings/energysmartschools.

- DOE's ENERGY STAR for K-12 School Districts (in partnership with EPA) provides schools a standardized set of guidelines defining an energy efficient school and tools to help reach that standard.

For more information visit: www.energystar.gov/index.cfm?c=k12_schools.bus_schoolsk12.

- EPA's IAQ Tools for Schools Program is a comprehensive resource to help schools maintain a healthy environment in school buildings by identifying, correcting, and preventing indoor air quality problems.

For more information visit: www.epa.gov/iaq/schools.



Participants of the 2010 Greening of America's Schools Summit

PHOTO COURTESY OF JACK ALLRED

PROFILE OF A GREEN SCHOOL PROJECT

Manassas Park Elementary School

Manassas Park, Va.

A GREEN SCHOOL BUILT FOR THE SAME COST AS A CONVENTIONAL SCHOOL.

KEY PROJECT FACTS

Project Size: 140,463 square feet

Project Cost: \$28,026,925 (land excluded)

Annual Cost Savings: \$79,265.42

Completion Date: 2009

Architect: VMDO Architects, P.C.

Reductions:

Energy: 42.2%

Equals about 2,488,765 kBTUs/year, enough to provide electricity to 77 average Virginia homes for one year

Water: 83.8%

Equals about 1.84 million gallons/year; enough to provide water to 23 average Virginia homes for one year.

Diverted Construction Waste: 98.9%



PHOTO COURTESY OF VMDO ARCHITECTS

Background

Manassas Park, Va., is a small, independent city in the northern Virginia suburbs of Washington, D.C. Ten years ago the city began rebuilding all of its public schools with a focus on sustainability. The new Manassas Park Elementary School and Pre-Kindergarten (MPES) campus sits surrounded by tract housing, a private forest and Camp Carondelet, a historic landmark, and showcases the city's efforts to go green.

Green Performance Measures

The school's sustainable features include capturing rainwater on building roofs, which is then filtered and collected in a 79,000-gallon concrete cistern, yielding an estimated 1.3 million gallons per year. A portion of the harvested rainwater is further filtered and treated for delivery to the building's flushing fixtures. The remainder is used for irrigation. Mounted on the outside of the cistern pump house is a 96-square-foot mural that illustrates the system layout and the area's natural water cycle. The illustration is used as an educational tool to teach children how rainwater flows through Bull Run, the Occoquan and Potomac Rivers and on to the Chesapeake Bay. The green feature with the greatest potential for energy savings is the ground-source mechanical system, which includes over 200 wells. Lifecycle cost analysis on previous projects demonstrates that similar systems pay for themselves in seven to nine years.

The school installed high-performing building systems when energy modeling revealed cooling, ventilation and lighting to be the largest baseline energy loads. Educational signage and "truth" windows in mechanical room walls teach students and visitors about the building systems and their environmental benefits.

Students and faculty are able to monitor real-time building performance data via a building dashboard or "green screen" in the school's main lobby. Each classroom can also access the green screen, which includes energy and water usage data and other information about the school's sustainability practices.

CONCLUSION: SACRAMENTO MAYOR KEVIN JOHNSON'S SUMMIT SUCCESS STORY



Mayor Johnson with Robert Redford at Sundance
PHOTO COURTESY OF JACK ALLRED

In his 2011 State of the City Address, Sacramento Mayor Kevin Johnson prioritized green schools as a key strategy for long term success. Mayor Johnson, an attendee of the Greening of America's Schools Summit and member of the Mayors' Alliance for Green Schools, understands that green schools create a foundation for children to excel.

Outlining a plan to make green schools a reality in Sacramento, Mayor Johnson remarked, "...we want to "green" our schools. Over the next 10 years, we will retrofit 15 million square feet of school facilities to meet LEED standards for green buildings. We can pay for it by raising \$100M from the county treasuries across the region. Schools will spend less money on energy costs. This savings will potentially free up dollars to pay off the loan and protect teacher positions."

In addition, the Sacramento Unified School District has been awarded one of the first two 2011 Center for Green Schools Fellowships funded through generous support from United Technologies Corporation. This Fellowship is a three year commitment and will ensure the district has the tools and resources to not only implement improvements to facilities and operations but also to sustain these improvements over the years.

A building will never be the answer to all of America's educational challenges, but it can serve as a powerful platform for change. A high-performance building provides the equalizing presence of a healthy, acoustically sound, sunlit space for students to thrive in. It is an inherently conservative idea that everyone be offered equality of opportunity and green schools are part and parcel of the opportunity that needs to be provided to American children.

Right now, local leaders have the opportunity to create a lasting legacy in their schools that will pay dividends for years to come. As Mayor Johnson noted in his plan for Sacramento, "This is a matter of seizing our own destiny and acting. It's about our mentality. We can go one of two ways: We can be a leader or we can be a laggard. If we are complacent, we will watch other cities and regions take the lead. And a decade from now, we will look at their progress longingly and start to ask what we can do to replicate their success."

For more information visit: www.cityofsacramento.org/mayor/documents/2011_MKJ-State-of-the-City.pdf.

ORGANIZATIONS IN ACTION



*Leah Qusba, Lead Educator, presents the ACE Assembly at
World Language High School in Chicago, IL*
PHOTO COURTESY OF THE ALLIANCE FOR CLIMATE EDUCATION

Alliance for Climate Education

ACE is the national leader in high school climate science education. Since fall of 2009, ACE Educators in 10 regions have reached more than 800,000 students at more than 1,300 high schools.

There's a gap between what scientists report about climate change and what the public understands. ACE bridges this gap by blending a multimedia assembly presentation with a hands-on experiential education program - presenting climate science that sticks.

ACE Educators deliver science from peer-reviewed reports by the IPCC, a group of over 1,200 of the world's leading climate scientists, via a live in-school assembly that blends custom animation, video, text messaging, music and storytelling. A recent independent study performed by Loyola University with Chicago Public Schools showed that the ACE Assembly contributed to a 58 percent improvement in climate science understanding.

After the assembly, students are eager to get involved. ACE helps committed students start Action Teams to take on carbon-reducing projects at school - anything from starting a recycling club to solarizing the school district. ACE also holds Leadership Trainings, where students and teachers from a region gather to workshop projects, build community and gain expert advice on bringing projects from idea to reality. More than 24,000 students have joined ACE Action Teams and more than 1,000 have attended a Leadership Training.

ACE's unique educational experience is building a groundswell of informed, motivated youth who are forming habits for life - making eco-friendly behavior the norm. Looking ahead, this understanding will spur a generational shift toward solving the climate crisis.

Students in Action

The ACE Action Team at West High School in Los Angeles held a drive-through e-waste event in February of 2011 that recycled 26,000 lbs of used electronics and earned the school more than \$2,600.

For more information visit: acespace.org.

American Architectural Foundation



"Our ability to influence, inform and engage local leaders has really been enhanced by the leadership provided by the U.S. Green Building Council. If the Center for Green Schools at USGBC didn't exist, we would need to invent it. It would have been one of the bold ideas to come out of the Sundance Summit."

Ron Bogle
President and CEO, the American Architectural Foundation

Constructing a new school or renovating an existing facility is a once-in-a-generation undertaking in most communities. By helping school district leaders understand the potential of design as a tool for innovation they can begin to use design to create learning environments that enhance educational achievement, establish long-term efficiency and create multiple benefits for the community.

The American Architectural Foundation's (AAF) programs are designed to support sustainable schools and cities throughout the country. AAF's marquee national programs include the Sustainable Cities Design Academy, the Mayors' Institute on City Design and Great Schools by Design. Through Great Schools by Design specifically, AAF has been providing leadership training since 2005 for superintendents, school board members and other district leaders on the role they play in school design.

Great green schools take work; they should function both as a learning resource for the entire community and as an example of excellent stewardship to the environment and limited public budgets—not just the day they open, but for the life of the facility.

By becoming engaged in the design process early on, leaders can more effectively realize their educational vision for the community and develop a green school facility that enhances the curriculum—and at a cost that is often the same or reduced from what it would have been otherwise.

At the Greening of America's Schools Summit, AAF committed to convening a National Green Schools Design Institute. This Design Institute will be presented in association with the Center for Green Schools at the U.S. Green Building Council with funding support to AAF by United Technologies Corporation. AAF has invited the 10 mayors and 10 superintendents who participated in the Greening of America's Schools Summit with the objective of helping each of these leaders develop design concepts and an implementation plan for green schools in their community.

Planned for September 2011, AAF's National Green Schools Design Institute will translate the energy and ideas of the Summit into a practical, implementable process for addressing the real-world challenges and opportunities of greening America's schools.

For more information visit: www.archfoundation.org.

THE CENTER FOR GREEN SCHOOLS



"We see an opportunity to also educate the new generation of leaders – sustainability natives – who are capable of driving global market transformation toward healthy, high-performance learning environments."

Rachel Gutter,
Director, Center for Green Schools

Center for Green Schools at the U.S. Green Building Council

Approximately 25 percent of our national population goes to school every day. Many of these students, teachers, staff and administrators walk into classrooms, libraries, cafeterias and lecture halls that are compromising their ability to learn and teach. USGBC is working to transform the way buildings and communities are designed, built and operated, enabling an environmentally and socially responsible, healthy and prosperous environment that improves the quality of life.

In the fall of 2010, in an effort to equip the people who make the case, the people who make the decisions and the people who get things done when it comes to greening our schools, USGBC launched the Center for Green Schools. The Center is working toward a bold mission: green schools for everyone within this generation. We believe that everyone, from the kindergartner entering the classroom, to the Ph.D. student performing research in a lab, should have the opportunity to learn in a green building.

The Center is convening conversations with key decision makers, collaborating with leading education, green building and environmental associations and creating tools and resources that help make green schools possible. The Center's initiatives bring elevated dialogue, accelerated policy and increased innovation toward greener schools and campuses and outreach has grown substantially.

While the Center for Green Schools at USGBC engages various groups of leaders who want to make a difference, we have only just begun to scratch the surface. Help us make green schools a reality by getting involved.

For more information visit centerforgreenschools.org.



The Center's programs are supported in part through financial contributions, grants and partnerships, including a multi-year, multimillion-dollar financial commitment from the Center's first Founding Sponsor, United Technologies Corporation (UTC). UTC's contribution is helping lead the movement for schools across the nation to become greener, healthier and higher performing.

Earth Day Network



"Green schools are at the vanguard of the national education and environmental movements, combining traditional education approaches with 21st century innovations in building science, renewable energy and green economy support."

Sean S. Miller,
Education Director,
Earth Day Network

With one-fifth of America going to school five days a week, Earth Day Network's (EDN) seeks to help make green schools the norm across our nation.

Growing out of the first Earth Day in 1970 – "a national teach-in on the environment" – the EDN Education program carries this original message of environmental education into the 21st century world. During the 2005-2006 school year, EDN was one of the first organizations to champion what has since become a national green schools movement. Two years later, former President Clinton, on behalf of the Clinton Climate Foundation, the U.S. Green Building Council and Earth Day Network, among others, announced a commitment to "green America's schools within a generation."

Since then, EDN has advanced sustainability projects and policies at hundreds of schools and provided critical leadership to thousands of students, teachers, schools and communities nationwide. Annually, the program directly reaches over 30,000 educators, offers guidance and commentary in such notable publications as the *New York Times*, *Washington Post*, *USA Today* and *Slate*, and saves communities not only millions of dollars, but millions of pounds of pollution as well. In one exemplary instance, EDN was asked to co-write a seminal book on green schools with PBS, *Growing Greener Schools*.

For more information visit: www.earthday.org.



GREEN Community Schools

It is the mission of GREEN Community Schools to build long-term holistic partnerships among all members of the school community, local community residents, stakeholders, resources and families utilizing the intrinsic connectivity of environmental awareness – we are all in this together.

GREEN Community Schools is a model for sustainable environmental education in any school. The unique model provides a full-time resource coordinator housed in the school being served for a minimum of 3-5 years. This coordinator is responsible for creating and supporting out-of-school opportunities; developing green leadership and job opportunities; facilitating curriculum integrations with all teachers; and supporting facilities enhancements – all of which position the school as an environmental center for the whole community. Most importantly, the resource coordinator will teach the school and community how to maintain these practices for years to come.

The MGR Foundation and GCS has made a Clinton Global Initiative Commitment to implement GCS in 10 urban cities over the next five years. Since March 2010, it has launched at Al Raby High School in Chicago and Edison High School in Minneapolis. Plans are already in the works to successfully implement GCS in two additional cities before the end of the year. Staying ahead of timelines underscores the need for immediate action.

After just one year, GCS is already seeing exciting results. By the end of the 2010-2011 school year, nearly 100 percent of the classes at Al Raby High School in Chicago will have environmental education topics caringly integrated into the existing curriculum. Approximately 75 percent of the students will have significant and meaningful experiences in environmental field trips, natural experiences and green service learning; a significant increase for our urban youth that have rarely, if ever, spent time exploring nature. This work has been supported by over 30 community partners and environmental non-profits.

For more information visit: www.greencommunityschool.org.



National Wildlife Federation

Eco-Schools USA, hosted by the National Wildlife Federation, is a holistic program that aims to help schools “go green” inside the school building, outside on the grounds and throughout the curriculum. Eco-Schools USA is part of the international Eco-Schools program, which began in 1994 and now works in 51 countries, involving 38,000 schools and 10.5 million students.

In the United States, Eco-Schools USA currently serves K-12 schools in 42 states. The program strives to make environmental awareness and action an intrinsic part of the culture of a school. It’s free to participate, and a step-by-step framework guides schools through the process, from forming an Eco-Action team to conducting an environmental audit and developing an action plan. Schools progress through three award levels—Bronze, Silver and Green Flag—as they achieve milestones in the program. Eco-Schools USA is meant to be integrated into an existing academic curriculum, not tacked on as an extra requirement. Schools implement it at their own pace, in a way that complements their situation, choosing their focus from among eight different pathways such as Energy, Water and Transportation.

Participating in Eco-Schools USA benefits schools in a number of ways. It can save money; taking action to conserve energy, water and other resources can significantly reduce facilities expenses. At the same time, student performance—from academic achievement to engagement and leadership—gets a boost, while Eco-Schools’ international connections foster global awareness, helping students understand that individual actions have impacts around the world.

The National Wildlife Federation is also working with Congress and the Administration to support policies such as the No Child Left Inside Act to help green our nation’s schools and ensure our children graduate environmentally literate.

For more information visit: eco-schoolsusa.org.

Kids VS. Global Warming



Alec Loorz,
Kids vs Global Warming

My name is Alec Loorz. I'm 16 years old, and I am a climate change activist. I've spent my entire teenaged life traveling around giving speeches and presentations at schools and conferences about the role that youth play in addressing the climate crisis. I founded the non-profit group, Kids vs Global Warming, when I was 12 to empower and mobilize my peers to lead the way in creating a sustainable and just world.

Climate change is the most urgent issue of our time. Our society's addiction to fossil fuels is messing with the perfect balance of nature and threatening the survival of my entire generation. We simply must break our addiction to fossil fuels within our lifetimes. I believe it is possible.

And May 7-14, we marched. The youth rose up in our communities and let the world know that climate change is not about money, it's not about power, it's not about convenience, it is about our survival. It's about the future of this and every generation to come. And we are ready to do whatever it takes to change it: in our own habits, in greening our schools, and in changing our communities.

We matter. This is our time.

For more information visit: imattermarch.org.

National School Boards Association



Anne Bryant,
Executive Director, NSBA

“Going green” is not color therapy. It is a movement that can, if properly executed, transform the teaching and learning environment of a school and school district.

What I have seen, by working with the U.S. Green Building Council and by participating in the Sundance meeting, are terrific examples where school district leaders partner with mayors and city council leaders to take ownership of this revolution. The pledge to go green, and the results of lower operating costs, a healthier environment for our young citizens and a healthier planet, can unite even the most diverse groups and community members.

As the ones who hold the purse strings, school boards have shepherded some of the most innovative and effective projects around the country. We now have so many examples of high-performing, high-efficiency school buildings that not only save their school districts thousands of dollars on operating costs but also provide a laboratory for student learning, whether that be a math lesson calculating the energy supplied by solar panels, a science experiment on native plants used to landscape a school garden or a writing lesson on the beauty of natural daylighting.

Now, we also are seeing older buildings, even the most historic, being renovated and reborn with the same principles.

Working together, we can take hold of our schools and communities, foster a spirit of innovation and ask, “How can we create the best learning environments for our children?” Planning the school design or renovation with students as the center of the process, with input from the community, will create a great school.

For more information visit: www.nsba.org.

APPENDICES

APPENDIX A: Greening of America's Schools Summit

PARTICIPANTS

Superintendent Parvin Ahmadi
Pleasanton, CA

Mayor Ralph Becker
Salt Lake City, UT

Ron Bogle
President & CEO, American Architectural Foundation

Anne Bryant
Executive Director, National School Boards Association

Jayni Chase
Founder, Center for Environmental Education at Unity College

Chef Ann Cooper
Director of Nutrition Services for Boulder Valley School District

Mayor Mick Cornett
Oklahoma City, OK

Mayor T. M. Franklin Cownie
Des Moines, IA

Sharon Gallagher- Fishbaugh
President, Utah Education Association

Mary Ganzenmuller
Environmental Philanthropist, Rutgers Prep

Monica Garcia
Los Angeles Unified School District Board President

County Superintendent David W. Gordon
Sacramento, CA

Superintendent Dr. Terry Grier
Houston, TX

Mayor Patrick Henry Hays
North Little Rock, AR

Mayor George Heartwell
Grand Rapids, MI

Roger Platt, J.D.
Senior Vice President of Global Policy and Law, U.S. Green Building Council

ORGANIZERS

Lee Bycel
Executive Director at the Redford Center

Martin Chavez
Executive Director at ICLEI USA – Local Governments for Sustainability

Jason Hartke
Vice President of National Policy at the U.S. Green Building Council

LEADING VOICES

Bill McKibben
Author, Speaker, Environmentalist

Robert Redford
Activist

CREATIVE PERSPECTIVES

Chad Hoopes
Featured Artist

Rachel Gutter
Director, Center for Green Schools at the U.S. Green Building Council

Alec Looz
Student Activist

Leah Qusba
Lead Educator at Alliance for Climate Education (ACE)

ATTENDEES

Mayor Jennifer Hosterman
Pleasanton, CA

Jordan Howard
Student, Green My Parents

Mayor Kevin Johnson
Sacramento, CA

Superintendent Kenneth Kirspe
North Little Rock, AR

Wyck Knox
VMDO Architects

Judy Marks
Director, National Clearinghouse for Educational Facilities

Kathleen McCartney
Dean, Graduate School of Education at Harvard

Superintendent Dr. Nancy McGinley
Charleston, SC

Mayor Annise D. Parker
Houston, TX

City Superintendent Jonathan Raymond
Sacramento, CA

Mayor Joseph P. Riley
Charleston, SC

Joseph Sanches
Facilities Mgmt., Palm Beach, FL

Charles Saylors
President, National PTA

Superintendent Dr. Nancy Sebring
Des Moines, IA

Superintendent Karl Springer
Oklahoma City, OK

Carey Stanton
Senior Director of Education and Integrated Marketing, NWF

Andrew Suter
Keep Britain Tidy, Eco-Schools, England

Superintendent Bernard Taylor
Grand Rapids, MI

Andrea B. Thomas
Senior VP Sustainability at Walmart

Laura Trombley
President, Pitzer College

Superintendent Dr. McKell Withers
Salt Lake City, UT

Charles Woodruff
CFO, American Association of School Administrators

OBSERVERS

Amy Hill
Senior Director of Public Affairs at Walmart

Mickey Ibarra
President and Founder of Ibarra Strategy Group

Lidia Martinez
Manager of Corporate Community Affairs at Southwest Airlines

Sean Miller
Earth Day Network

Brooks Rainwater
Director of Local Relations at The American Institute of Architects

Pic Walker
Executive Director of Alliance for Climate Education

APPENDIX B: U.S. Conference of Mayors Green Schools Resolution

SUPPORT FOR THE GREENING OF SCHOOL DISTRICTS

WHEREAS, in 2007 and 2009 The U.S. Conference of Mayors led the green schools movement by passing a seminal resolution to ensure that in a generation every child in America will attend a green school; and

WHEREAS, twenty percent of America - including our students, faculty, staff, and administrators - spends their day in a school building; and

WHEREAS, children in green schools are healthier and more productive because green schools emphasize excellence in areas such as day lighting, thermal comfort, and classroom design – all of which have been shown to improve children’s well- being and ability to learn; and

WHEREAS, the benefits of cleaner indoor air quality -- a key emphasis of green schools – have been linked to lower asthma rates, fewer allergies, reduced absenteeism, and improved teacher satisfaction; and

WHEREAS, green schools provide a learning experience that transcends the classroom by using the built environment as a context for learning, encouraging environmental literacy and hands on, project-based learning; and

WHEREAS, greening existing schools using tools like the LEED (Leadership in Energy and Environmental Design) green building rating system can optimize building performance, resolve operational inefficiencies, and dramatically reduce utility costs; and

WHEREAS, greening existing schools can happen through low or no-cost operations and maintenance improvements, such as implementing water efficiency measures, green cleaning programs, sustainable purchasing practices, recycling and waste reduction initiatives, and energy management plans that can save a school district millions of dollars a year in direct operating expenses; and

WHEREAS, many of the policies, programs, and plans for greening existing schools are most cost-effective and yield the largest operational cost-savings when implemented at the district level; and

WHEREAS, mayors can positively influence construction, operation, and maintenance practices in a school district even if they don’t have direct control over it,

NOW THEREFORE BE IT RESOLVED, that The U.S. Conference of Mayors calls upon its constituents to partner with their local school districts to implement green initiatives such as appointing sustainability managers, establishing a green advisory team, providing training for municipal and district staff, and adopting policies that call for all district schools to pursue certification through third-party rating systems like LEED; to the extent that local school district are subject to statutory tax caps and/or debt limitations, said caps and/or debt limitations should be waived for projects related to greening school facilities.

APPENDIX C: Green Schools Timeline

- **March 2007:** USGBC launches a National Green Schools Campaign to achieve the vision of green schools for every child within this generation.
- **April 2007:** USGBC launches LEED for Schools, a comprehensive green building rating system designed especially for schools.
- **June 2007:** U.S. Conference of Mayors unanimously passes the first green schools resolution, endorsing “that in a generation every child in America will attend a green school as the necessary and appropriate goal of our nation.”
- **November 2007:** Members of Congress establish a Green Schools Caucus.
- **April 2008:** USGBC reaches LEED registration rate of one school a day.
- **September 2008:** USGBC kicks off its 50 for 50 Green Schools Caucus Initiative at the National Press Club, with the goal of establishing a green school caucus in every state of the country.
- **December 2008:** Mayors partner with USGBC to create the Mayors’ Alliance for Green Schools.
- **December 2008:** the National Wildlife Federation (NWF) was granted Eco-School host status for K-12 schools in the United States.
- **June 2009:** The U.S. Conference of Mayors passes a second green schools resolution, the “Make Green Schools a Reality”. The resolution emphasizes the urgency to green existing schools throughout the U.S.
- **September 2009:** With 11 leading national educational and environmental groups, USGBC launches the Coalition for Green Schools, whose collective membership represents more than 10 million Americans.
- **September 2009:** USGBC convenes the first annual Green Schools State Legislative Summit, bringing together 30 leading state legislators from 25 states.
- **April 2010:** The 50 for 50 Green Schools Caucus Initiative expands its reach to 32 state legislatures.
- **July 2010:** USGBC announces the *Greening Our Schools: A State Legislator’s Guide to Best Policy Practices* at the National Conference of State Legislatures’ annual Legislative Summit.
- **September 2010:** The second annual Green Schools State Legislative Summit takes place in Washington, DC, where 28 leading state lawmakers from 20 states and other stakeholders from across the country came together to share best-practices, communications strategies and policies to advance green schools.
- **September 2010:** USGBC launches the Center for Green Schools to elevate dialogue, accelerate policy and institute change and innovation toward green schools and campuses for everyone.
- **November 2010:** NWF’s Eco-Schools program reaches nearly 500 schools in 40 states.
- **November 2010:** *Greening of America’s Schools Summit* brought together national experts and local leaders, including mayors and superintendent teams from ten cities, to develop a plan to achieve the bold vision of green schools for all within this generation.