

# Going green: cost-efficient ways to make schools eco-friendly essay



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Concern regarding the global warming issue has been mounting. More and more projects have been established and implemented in order to address this issue. One of this is to make schools more eco-friendly. Various measures and projects have been proposed, but because of the limited budget that many academic institutions face, these projects are often put on hold. However, new projects have been introduced that could be used by schools in order to be considered as a “ green school”.

This paper will present different methods a school can implement in order to be considered a “ green school” while still maintaining its operating budget. Specifically, the paper will be presenting methods that schools may use in order to cut down energy and water consumption expenses and the usage of environmentally friendly products. It will also provide examples of schools that have utilized these projects successfully. Furthermore, the paper will discuss how these projects and methods will affect the communities where the school is located.

**Review of Literature** The school is usually the first public space children identify with outside the home. It serves as a setting and a source for formal and informal learning experiences. However, approximately 55 million students go to schools whose environments are considered unhealthy, and the primary factor for many restrictions in learning to be experienced by students (Burke & Grosvenor, 2003; Kats, 2006). This has led to the creation and implementation of various schools to be converted in what is now considered as a green school.

Definition of “ Green Schools” In order to properly address the issue of how can a school become a green school, the definition of a green school must first be determined. The American Association of School Administrators (AASA) had defined a green school as one that facilitates that creation of a “ healthy learning environment” for both the students and the educators by reducing activities that would negatively impact the environment as well as the costs of operations of the academic facility.

The structure of a green school is one that is maintained through the use of alternatives to chemicals that have been considered as toxic to the environment as well to the maintenance people who use them for the maintenance of the building structure and surroundings (American Association of School Administrators [AASA], n. d. Ross, Skinner & Fillippino, 2002). The set of guidelines laid down for all schools to comply with in order to become classified as a green school was created by the Leadership in Energy and Environmental Design, a voluntary national standard for developing high-performance, sustainable and eco-friendly buildings and structures (Savage, 2001).

Green schools have also been called high performing schools because the facilities have caused the students attending these kinds of schools are healthier and as such, these schools experience lower rates of absenteeism among students and teachers due to illness which would lead to the disruption of learning as compared to other school systems. This is the reason why students perform better in exams as compared to those in schools that have yet to be converted into green schools (AASA, n. . ).

Benefits of Green Schools Reduction of Building Costs. Many school administrators have decided to forego the conversion of their respective schools into becoming green schools because of the overhead costs. This was reflected in a survey conducted in 2005 by Turner Construction Company. However, careful studies have shown that conventional schools have been designed to only meet standardized building codes mandated by the state.

These building codes are often incomplete and do not provide comfortable, healthy and productive working environments needed by both students and educators. Based on the report presented by Gregory Kats (2006), a study conducted in 30 green schools show that their building costs not only cost less than 2% than conventional schools but also are able to provide financial savings of approximately \$70/square foot. Reduction of Energy Costs.

One of the major benefits of converting a conventional school into a green school is the reduction of energy costs that would be experienced by the school administrators. It was because of this reason that schools such as Blackstone Valley Technical School located in Upton, Massachusetts, the county schools in Greenville and Fossil Ridge High School in Fort Collins, Colorado have decided to convert their existing conventional schools into green schools (“Energy Savings = Classroom Spending”, 2006; Savage, 2001; Thomas, 2008).

Blackstone Valley Technical High School has long been plagued by expensive utility bills and overcrowding. In order to cut their costs to approximately \$160, 000 annually in energy costs, they have begun remodeling and

upgrading the schools with large solar panels, light sensors and solar water heaters. This decision was reached by school administrators as a result of the concern of global warming.

More importantly, Rachel Gutter, school sector manager of the U. S. Green Building Council (USGBC) had specified three practical reasons for the school administrators have reached this decision. The first of which are the benefits their students will receive once the upgraded have been implemented. Converting the school into a green school would lead to healthier students learning in a high-performance environment which has been described as one that is equipped with “ better lighting and temperature controls, a more comfortable indoor environment, improved ventilation and indoor air quality” (Thomas, 2008).

The second practical reason is that the conversion of the school into a green school will also serve as a means of educating their students and the faculty of the environment. Because of the solar panels that will be installed in the schools, they will be able to appreciate alternative forms of energy each time that they will be using the school’s facilities (Thomas, 2008). The third reason is its financial payback.

Through the alternate sources of energy and other energy-saving factors that would be implemented would allow the school to save an annual approximate amount of \$100, 000 since green schools use 30 – 50% less energy than a conventional school. This would eventually reduce carbon dioxide and other greenhouse gas emissions of approximately 40% in their city at least (Thomas, 2008). This was the same reason for officials in

Greenville, South Carolina to convert their elementary and high schools to green schools.

They have also stipulated that by installing climate control systems in the different schools, they would be able to save a total of \$1 million in electricity expenses. This would be supported by the installation of monitors when no one is in the room as well as the installation of roofs with radiant barriers, high-efficiency windows and light colors throughout the classrooms in order for the students to take advantage of daylight more, which have been proven that could help in the performance of students (“Energy Saving = Classroom Spending,” 2006; Savage, 2001).

In the case of Fossil Ridge High School in Fort Collins, Colorado, the school district of the town of Poudre decided to build this new school with the primary goal to provide the healthiest and the most comfortable environment possible for the students who will be studying in the school once it was completed. Despite the tight budget Poudre had to deal with the construction of the new high school building, they were able to build a school that met their goals at no additional costs.

Because of the modifications done by the school administrators and the school district on the new building, they were also able to cut their energy bills by 30%, according to Stu Reeve who is the energy manager for this district. This allowed the school administrators to allocate the savings to the purchase of materials and equipments that may be used in the classrooms to provide higher quality of education for its students such as art supplies and art programs (“Energy Saving = Classroom Spending,” 2006).

Reduction of Water Costs. It is not only the reduction of the cost and use of electricity that is experienced by the administrators of green schools.

Another benefit that they will be able to take advantage of is the reduction in water use by 32%, which would result not just to the lowering of utility bills but would be able to lower the amount of water that is considered as wastewater which is the primary cause of water pollution, illness, river contamination and beach closings (Kats, 2006). Such was the case of Clearview Elementary School in Hanover, Pennsylvania.

The school had modified and restructured its plumbing fixtures and created water-efficient landscaping to lower its usage of potable water. The urinals in the schools use waterless technology. The lavatory sinks have been installed with automatic faucets that control the amount of water use. Finally, the landscaping of the school used indigenous plant species which are more suited to the environment. As such, these plants do not require to be watered as frequent as those plant species that are considered as not indigenous to the area (“An Enlightened Learning Environment,” 2006).

The same thing holds true for Sidwell Friends School in Maryland. As part of their move to become a green school, they placed huge emphasis on smart water management. The school administrators constructed a wetland located between the new wing and the old wing of the Middle School building in order to treat the wastewater coming from the kitchen of the cafeteria and the bathrooms of the schools. This water is then reused in toilets and in cooling towers.

On the roofs of the cafeteria, students have been encouraged to grow vegetables and herbs that would then be used for food consumption in the cafeteria while sequestering rainwater to reduce storm water runoffs during the rainy season. Excess water that is not sequestered is then directed to the school's rain garden and pond. As a result, potable water is no longer used for the maintenance of their landscapes at the same time provide areas in the campus where students can learn biology, ecology and chemistry first-hand (" Stewardship at School," 2006).

Use of Environment-Friendly Products. In order to ensure that the school and its facilities remain hygienic and well-maintained, maintenance personnel have used a variety of cleaning products depending on the equipment or facilities that are being maintained. However, cleaning products have also been known to reduce the quality of air indoors which could cause a variety of health problems which include irritation of the eyes and throat, nasal congestion, nausea, fatigue and dizziness.

These cleaning products have also been known to be highly toxic, corrosive and flammable which presents a safety risk in the school's facilities if improperly handled. As a result, many have also sought alternative forms in order to reduce these risks (" Building Design, Maintenance and Operations," n. d. ). One of those that have done such was the Bellingham School District located in Washington. The school district adopted a Green Housekeeping Program which utilized products that were environment-friendly which had been referred to as " green" products.



These products proved to be beneficial in promoting a cleaner, healthier and more productive indoor environment in the school campuses. This program was first implemented in Birchwood Elementary School through the hosting of a “ Healthy High Performance Cleaning Workshop” which was participated by seven schools within the Washington state. Through this program, the school district had reduced the number of cleaning products used in their inventory (“ Building Design, Maintenance and Operations,” n. . ).

Another eco-friendly product used by schools today are green roofs. These roofs are usually flat and either partially or completely covered by soil and plants. Initially used in countries such as Germany and Japan, this kind of roof is becoming more and more popular among eco-friendly cities in the United States and in green schools. Not only do green roofs bring the natural world to the students, but also cools the roofs, lowering energy bills.

St. Simon Stock Catholic School is one of the many schools in New York that have incorporated green roofs to their building structure. Its roof has been considered as the “ lone patch of green in the quilt of gray, beige and black that stretches across the southeast Bronx” (Gleason, 2006, p. 14). The roof not only absorbs rainwater that run-off from the roof and collected as waste water in the sewage system, but also provides a small ecosystem where native species including columbine flowers, milkweed, monarch butterflies and bumblebees to thrive (Gleason, 2006).

Impact to the Community With more and more schools converting from conventional into green schools, the concern for the environment would eventually cause the community where these schools are situated in to also

become more and more concern of the community's environment. As a result, the community would become more active towards the overall goal of the community to become an eco-friendly environment. One such method is through the establishment of contests regarding the environment.

Each year, Canon would hold the Canon Envirothon which is designed to instill to high school students a deeper understanding on environmental science and responsible land use. The contest tests the knowledge of the students on what they have learned in the classes regarding soils, aquatic ecology, forestry and wildlife and how they apply this knowledge in a current environmental issue posted by the panel of judges (" Students Win Green for Green," 2007).

The creation of more green schools would pave the way for other environment-friendly projects to be established and implemented. One such project is the " Green Communities" project. This is a 5-year project whose goal is to establish approximately 8, 500 homes that are healthy and efficient for low-income families. The project would provide funding and expertise to developers to state and local governments in order for them to rehabilitate homes belonging to low-income families to establish a healthier and more energy-efficient home without compromising its affordability.

Already, the project has provided homes in 180 developments in 23 states as well as more than 3, 000 affordable housing professionals trained in sustainable design, 20 states promoting healthy living and 10 states forming advance holistic changes in their systems (" Green is the New Affordable," 2007). Perhaps the greatest impact of the move of green schools to the

community is the fact that the members of the community will become healthier. In the country, more than four million children are plagued with asthma. About half of them live within urban communities.

Through the efforts made to convert conventional schools into green schools, the community is able to provide environments for these children that have minimal moisture retention and proper ventilation, minimizing doctor-diagnosed asthma among children. Furthermore, because children have gained knowledge in the schools about the causes of pollution and global warming, they will tend to use alternative forms of transportation such as biking and walking, making them more active and as such making them healthier (“Green is the New Affordable,” 2007).

Inflation and the increase of energy and gas prices have caused families to spend more on utility bills and less on healthy food and other basic necessities. Through the various efforts conducted not just in schools, but also in the community in general, utility costs will be cut by about 30% which families may use for more important expenses such as medical bills, tuition fees and ensuring that the family eats healthier (“Green is the New Affordable,” 2007). Summary and Conclusions Summary The presented the reasons why more and more schools are slowly converting themselves from conventional to green schools.

Green schools have been defined as those schools that provide a learning environment for students and educators that are both healthy for the students and educators and eco-friendly. Because converting the schools would mean having to upgrade the facilities and the lack of information on

the benefits of converting a school into a green school, many school administrators have been discouraged to make the changes. After all, many eco-friendly products and building materials are comparatively more expensive than conventional building materials.

Not to mention that since most of these schools are already established, it would mean that the school facilities would be torn down in order for these to be upgraded for the school be considered a green school. Recently, however, school administrators are slowly being educated of the vast benefits that establishing a green school may have in the long run. The first is that their costs in utility expenses will greatly be reduced to as much as 30% a year. This is because green schools utilize alternative forms of energy such as solar panels and cooling towers in order to provide them energy and regulate the temperature within the campuses.

Scientific studies have also shown that the more students are exposed to daylight, the more proficient they are in their studies, particularly in the fields of mathematics and the sciences. Another benefit that green schools enjoy that conventional schools do not is a decrease in the rate of absenteeism that is seen among students and faculty. Because building codes that have been standardized in the country did not provide much attention to health requirements, many buildings that have been considered within the building codes are also those that do not have sufficient ventilation.

This is the primary cause for many students and faculty members to become ill. When that happens, the students are the most affected. On one hand,

being absent from school due to illness will force them to have to catch up with past lessons which may prove to be burdensome to them. On the other hand, teachers and educators who are sickly would not be able to provide the quality of education that parents expect their children to receive with either a substitute teacher providing lessons to the students or the students not having classes altogether.

Either way, the students are not guaranteed that they will be able to acquire the needed knowledge and training that they would need in order to go to the college of their choice or going to college at all. By managing the ventilation of the school classrooms through allowing fresh air to cool the classrooms and faculty rooms instead of air-conditioning units, the students and faculty would less be prone to becoming absent due to illness resulting from these kinds of surroundings.

As a result, the students will be able to learn more in school and with the scientific studies showing how daylight will be able to positively affect the success of students understanding the course materials presented by their educators, the students of green schools will be able to do well not just in their respective exams, minimizing the number of students being retained on a certain level but also in aptitude exams such as the SATs which would allow them to be able to go to the college or university of their choice. Furthermore, this would provide a positive form of marketing on the part of the school.

Because of the excellence in the quality of education provided by the school seen from the quality of students graduating from the school would entice

more and more parents to enroll their children in these schools, increasing the cash inflow on the part of the school. Since using alternative forms of energy to cover some, if not all, of the electricity used in these schools, they are then able to allocate these funds in different projects and facilities for the betterment of the quality of education received by the students.

Examples of these may be the increase of the salary of teachers, which will lead to the teachers not to feel that they are overworked and underpaid, purchasing of reference materials and other equipment that would be able to help students to do their projects and their assignments more efficiently.

Having landscaped areas in these green schools would also prove to be beneficial to the school, their students, members of the faculty and the staff.

Not only would these landscape areas facilitate in the lowering of the amount of wastewater that is dumped in the sewage system of the county, but also would make the school campus pleasing to the eyes of those who go there. Having more greenery in the school would also ease any feelings of tension felt by the students particularly when exams draw near. They would be able to find their own respective niches within the greenery where they would be able to study their lessons for upcoming exams more efficiently.

More importantly, because of the greenery that is present in these landscape areas, the campuses will be relatively cooler than what it really is. Many schools have become living testimonies on the benefits of having a green school as opposed to conventional schools. All these schools shared the same benefits. They had experienced lower expenses in energy and water costs and more efficient students and teachers. Above all, they are able to

contribute in their small way to the betterment of the quality of the environment within that particular district.

Green schools have also become a model that institutions may be able to create environment-friendly facilities and buildings on a very tight budget. This had prompted other projects to be implemented to other sectors of the community. Among this was the project of Green Communities to establish eco-friendly homes for low-income families. The reason why the project targeted low-income families rather than relatively upper class families is because of the similarities between schools and low-income families.

Both had to survive on a very minimal budget. Unlike middle-class and upper-class families, low-income families are those whose earnings are slowly being eaten up by utility expenses which are increasing along with gas prices. Their limited income had hindered them from acquiring more important needs such as healthy food and medical attention. As a result, those who come from low-income families are those who are more prone to illness which would further hamper their ability to earn money in order to pay for the daily expenses.

Through the project of Green Communities, they were able to provide low-income families homes that are not just more attractive than what they previously had, but allowed them to spend less on their utility expenses and more on health and other expenses without having to increase their rent expenses. The project of Green Communities has provided low-income families a better lifestyle, allowing them and their children to become healthier and as such able to contribute more to the community.

As a result, communities of where these projects have been implemented have become more aware of the importance and feasibility of protecting the environment while still maintaining the kind of lifestyle that they used to have. This led to other activities promoting environment awareness such as essay writings. Conclusion The potential of green schools in the community is indeed attractive. Through its establishment, the community experiences a chain reaction in the community.

Students and faculty members who are part of the community and members of the green schools would be able to carry what they experience in school to their households. As a result, it will effect and influence other members of the household to do their part, which would lead to some individuals creating more projects that promote environmental awareness to the community. Having students and faculty members in the green schools would also cause more and more people to support the community's efforts in promoting environmental awareness.

In short, green schools would eventually cause the members of the community to become more environment conscious and would cause them to do their share in being able to help conserve the environment. It should be noted that converting conventional schools into green schools involves more than just merely upgrading the facilities of the schools to make it more eco-friendly. In fact, there are a number of hurdles that would need to be considered the administrators of the schools before this could be even implemented.



One of these hurdles is getting the consensus of the school district to provide them with the needed financial aid that they would need in order to implement this. Because this kind of project would involve hundreds of thousands of dollars, the administration and the school board must be able to convince the school district that this project will be beneficial not just for the school board but for the community in general. Without this financial aid, they might not be able to even begin the project to convert their conventional school into a green school.

The second is to convince members of the school faculty, staff members and the students as well. Because there will be various upgrades that will be done to the facilities of the school, this may cause noise disruptions particularly during classes. The administration must be able to gain the consensus of the entire student and faculty body to be in consensus with their goal to create a school that is eco-friendly. Otherwise, the administration may expect that this would cause friction to arise between students and the faculty.

Also, not all of the issues faced by the school may be solved through the conversion of the school into a green school. For instance, while there are some benefits to the progress of students in school. Other factors contribute to the unsatisfactory rating of student's performance academically. One is the achievement gap issue that is a national concern. Many students coming from different ethnical backgrounds are unable to cope with the educational requirements presented in school because of their difficulty in communicating and understanding English.

The academic achievement gap is fueled more with the presence of educators who do not have the needed experience in order to provide the necessary tutoring to students for a particular subject matter, primarily due to the fact that teachers with the required experience would often demand salaries higher than what the school district may be able to shoulder. Based on this, even if the school is converted from a conventional school into a green school, unless the above mentioned are simultaneously addressed by the school administration, the administration might become disappointed with the results.

Furthermore, students and faculty members have a number of reasons for not attending classes. Illness is just one of these reasons. Some are unable to go to school because of various personal and emotional issues. While the paper provided evidence that having an eco-friendly environment will cause students and faculty to absent due to illness, it does not follow that these eco-friendly classes be able to prevent these students from skipping classes altogether for one reason or another. More importantly, school administrators must take into consideration if the school's budget would allow them to set the project in motion.

Eco-friendly products are relatively more expensive than conventional materials and by doing so, they will need to cover these expenses first before they are able to experience the long term benefits. In closing, the benefits of converting a conventional school into a green school greatly outweigh the cons. However, there are a number of hurdles that the school administration would need to undertake in order for this to happen. It would

need the support of the entire community for this project to be a success.

Only then would the green school be able to benefit in the long term.