

CHILD CARE, ENERGY EFFICIENCY AND INDOOR AIR QUALITY

Attracted by the prospect of lower utility bills, a growing number of child care centers *has* decided to invest in energy efficiency upgrades. Perhaps unexpectedly, a large number of these green child care facilities primarily serve *low-income* families. Energy and air quality upgrades enable these centers to offer healthier learning environments, while reducing utility bills. Examples include Educare, a program designed to close the low-income achievement gap, which has opened LEED-certified centers in Illinois, Maine, and Oklahoma.¹ Similarly the Low Income Investment Fund has assisted *twenty-five* child care centers in California in making energy efficiency improvements to their facilities.²

Financial Considerations

Reductions in utility usage are extremely beneficial to child care providers who serve low-income families, as these centers often do not have the savings and/or the profit margins to withstand rising utility rates.³ They also do not have the capacity to pass on such increases to their clients through tuition increases. Preschools participating in Florida's Green Schools pilot program have reported a 30% reduction in utility costs.⁴ Such cuts can result in big savings. For example, the average educational facility in the South Atlantic spends \$1.17 per square foot on energy annually.* If a 10,000 sq. ft. preschool in Charlotte cut its energy usage by the *same* 30% as the Florida preschools, it would result in an estimated annual energy savings of \$3,520.

Recent studies from K-12 schools provide evidence that energy efficiency upgrades can be beneficial in *all* educational settings, including child care. A 2006 Capital E report confirmed *that*, while green schools cost *about* \$3 more *per* square foot *during construction*, *energy efficiency* upgrades can lead to direct savings that equal more than \$12 *per* square foot over the lifetime of the school.⁵ This is equivalent to a 300% return on investment. These savings are attributable to lower energy and water bills,

*Consumption data is 2003 CBECS data for Educational Facilities from the U.S. D.O.E. for the South Atlantic Division. Energy prices are the March 2012 average retail price to Commercial consumers and from the US. E.I.A. A 30 percent savings rate is consistent with a major energy rehab. Actual results may differ as all buildings vary.

Financial Benefits of Green Schools (\$/ft²)

Energy Savings	\$9
Emissions	\$1
Water and Wastewater	\$1
Increased Earnings	\$49
Asthma Reduction	\$3
Cold and Flu Reduction	\$5
Teacher Retention	\$4
Employment Impact	\$2
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Total	\$74
Cost of Greening	-\$3
Net Financial Benefits	\$71

Source: *Greening America's Schools, Cost and Benefits*



lower health care costs, and lower staff turnover. Absent from this calculation are the lower operations and maintenance costs from the usage of more durable materials typically associated with green buildings.⁵

The Capital E report calculates that the potential benefits to society from greener schools are even higher, totaling more than \$70 *per* square foot.⁵ This calculation includes an increase in lifetime earnings potential derived from an increase in learning and test scores, and the net benefit to society from a reduction in carbon emissions, energy demand, and water usage.

Educational Benefits

Preschool is a busy time for young *children*. They are developing both socially and mentally, making cognitive connections, improving motor skills and learning self-control.⁶ Educational environments greatly impact all of these developmental milestones. Investments in green upgrades can substantially improve learning environments. In a 2005 survey of green buildings, 71% of executives reported that they believed green schools improved student performance.⁵ In *addition*, 87% felt that green schools improved the image of the community.

TURNING OFF THE LIGHTS



(To the tune of "Farmer in the Dell")

We're turning off the lights
We're turning off the lights
To help save energy
We're turning off the lights

We close our doors and windows
We close our doors and windows
To help save energy
We close our doors and windows

We use the curly light bulbs
We use the curly light bulbs
To help save energy
We use the curly light bulbs

Source: Bradford, Iris. California
Preschool Energy Efficiency Education
Activities: Bright Ideas for Children.

Young children are especially sensitive to temperature. Studies show that increasing the comfort level of a room through increased temperature controls results in an average productivity increase of 3.6%.⁵ At the Gorham Community Learning Center in New Hampshire, insulating the foundation means children no longer take naps on cold floors.⁷

Where major renovations are underway, one design choice that has resulted in tangible gains for green schools is daylighting. Daylighting is the practice of illuminating spaces with natural light and without glare—*through the use* of large windows and skylights. Young children express a strong affinity for daylighting and for being able to see nature.⁸ When given the choice, primary school children overwhelmingly choose to sit closer to windows. Studies have found that daylighting both encourages good behavior and raises student achievement.⁵

In addition to improving performance, green child care centers offer valuable opportunities for learning more about nature and about the environment. Children in California's Preschool Energy Efficiency Program sing the 'Turning Off the Lights Song,' make 'Lights Off' door hangers, and count the number of 'curly' light bulbs in their homes.⁹ At the Terra Nichol



301 West Main Street, Durham, NC 27701

Tel: 919.956.4406 | green@self-help.org | www.self-help.org/greenloans

Academy in Florida, preschool children water the organic garden with water collected from rain barrels and then top their pizzas with vegetables from the garden.³

Health Benefits

Between home and school, it is estimated that children spend up to 90% of their time indoors.⁵ High indoor air quality is essential to preserving the health of children in daycare. Poor indoor air quality disproportionately affects minority *and low-income* children. One in four African-American children suffers from asthma, compared to *one in eight among all children* nationwide.¹⁰ Children from *low-income families* are 30 to 50% more likely to have a respiratory ailment.⁵ Children are particularly adversely affected by poor indoor air *quality*, as their rates of respiration are twice those of adults.¹¹ In *addition*, their *immune* systems are still developing and not as capable of filtering pollutants from the air. Parents of children with asthma pay three times as much *in health care costs* as parents of children without asthma.⁵ In addition to respiratory ailments, poor indoor air quality also leads to increased outbreaks of cold and flu *among both* children and teachers.

A recent review of studies by Carnegie Mellon confirms that investing in indoor air quality upgrades results in dramatic improvements in health.⁵ Such upgrades include increasing the amount of air circulating from outside, filtering for pollutants and regulating moisture levels. Asthma was reduced on average *by 38.5%*.⁵ *Cold and flu outbreaks were reduced by 51%*. Teacher sick days were reduced by 1.41 days a year at Clearview Elementary School, a LEED-certified gold school in Pennsylvania, after green upgrades were completed in 2002.⁵ The benefits from improved health are tremendous and quantifiable in increased staff productivity, lower absentee rates, higher student motivation, and quicker learning among students. Investing in green upgrades undoubtedly leads to a happier, healthier environment for both children and staff. In light of the countless financial, educational and health benefits of investing in energy efficient upgrades, it is no wonder that so many centers have decided to go green.

Money Saving Tips

Turn down the thermostat at night and on weekends. You can save 33 percent on heating and cooling by doing so.

Save over \$75 a year by investing in a front-loader washing machine.

Use a battery charger instead of disposable batteries. Savings for a daycare baby swing start at \$120 each year.

Want to learn more?

Visit [Eco-Healthy Child Care](#) for information on creating an environmentally healthy center.



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