

## **Leading without LEED: Practical and cost effective approaches to a sustainable campus**

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The Leadership in Energy and Environmental Design (LEED) process has been generating significant buzz in the architecture, engineering, and construction industries for some time now. Owners and developers are interested in being socially responsible by using sustainable products and following the LEED guidelines - but they may be hampered by the associated costs. Some owners feel that spending additional funds on obtaining a certificate that confirms your new or renovated building is "green" is money wasted, especially in these strained economic times.

Instead, many institutions, academic in particular, are focusing on ways to green their entire campuses, rather than building one new LEED certified building. This approach is particularly appropriate when you consider that a LEED certification does not necessarily mean that your building is energy efficient.

A recent New York Times article suggests that many LEED certified buildings are not living up to their "green" label. In fact, the article references a study by the United States Green Building Council - the body that administers the LEED program - that says "of the 121 new buildings certified through 2006, more than half (53%) did not qualify for the Energy Star label [granted by the EPA, which ranks buildings after reviewing a year's worth of utility bills] and 15% scored below 30 in that program, meaning they used more energy per s/f than at least 70% of comparable buildings in the existing national stock." So, while LEED is currently the most universally accepted system used for measuring sustainability, it by no means guarantees that you'll reduce your energy costs or increase your efficiency.

We've found that many academic institutions are trying to find the most environmentally and fiscally responsible ways to reduce their campus's carbon footprint and energy costs without breaking the bank. Following are some creative ways to incorporate sustainable systems and materials into their academic campuses without striving for LEED accreditation.

### **Mass. Maritime Academy**

Back in 2006, when MMA was first contemplating adding more residential space to their campus, they made a commitment to utilize sustainable design and renewable energy. In June of that year, they installed a 660-kilowatt wind turbine that now meets 20% of the campus' electrical requirements. In 2007, the renovation and upgrade of their cadet dormitory complex earned a LEED Gold certification - the first state-owned dorm to receive such a designation. It features waterless urinals; and low-flow toilets, shower fixtures, and lavatories. Despite the dorm project's prestigious LEED rating, the school was still not satisfied with its energy efficiency. They decided to add a cogeneration plant, 84-kilowatt photovoltaic panels, and solar-powered outdoor lighting - making the 880-bed residence hall one step closer to zero net energy.

This school's commitment to greening its entire campus and reducing its carbon footprint is not only

impressive - it's inspirational. In just three short years, MMA realized its goal of becoming a beacon of sustainable design and renewable energy. While the dormitory project did earn a LEED Gold rating, the school was more concerned with making the most significant environmental impact within its limited funds than with earning certifications. Moving forward, MMA is currently building a new library with plans to include a geothermal system that will help make the new building completely energy self-sufficient.

#### The Pike School

The Pike School - an independent primary day and boarding school in Andover, Massachusetts - has long been devoted to environmental responsibility and educational excellence. So, it was an easy decision to incorporate green design into the new Dahod Center for Community and Creative Learning in an effort to reduce the use of non-renewable resources and minimize impact on the environment. Sustainable construction was incorporated into this project from the very beginning, even as the site was being cleared. Reuse of the site for construction, erosion control during construction, stormwater design, and reduction of light pollution by using full cut-off lights outside contributed to that end. Choice of materials and resources further reinforced the school's desire to use sustainable elements, from reuse of existing concrete pavers and recycling of gypsum board, steel, and acoustic ceiling tile, to the use of low-emittance glass in all new windows and insulation of the walls beyond the minimum code requirements. The new building also feature dozens of other energy-saving systems and materials.

Early on, The Pike School decided not to pursue a LEED certification. They were interested in saving money on the documentation and filing and invest that money back into the project instead. But, they were adamant that the project team follow the LEED certification checklist. The Pike School was committed to building the new Dahod Center for Community and Creative Learning a sustainable and environmentally conscious structure. For the school, it was important to use this as a learning tool for their students - to teach them, by example, about being responsible members of society.

#### Hillside School

Hillside School - an independent day and boarding school for boys in grades 5-9 - was also interested in incorporating sustainable elements into their new Academic and Health Center building. Designed as a sustainable structure, the new center has a specially designed roof that will facilitate growing plants, bushes, and grass. The roof was built to eventually accept specially designed architectural trays filled with gravel, soil and seeds to facilitate growth. The roof's green covering will then act as natural insulation to reduce heating and cooling costs and helps to avoid water run off. Another feature is a geothermal energy system that offers significant energy savings. Cool water pumped through the naturally occurring ground source heat into the center's piping system makes it less expensive to keep the building warm in the winter and cooler in the summer. The geothermal system can also be used to heat and cool other buildings on campus in the future.

#### Making a Commitment

With these few examples, we can see that schools, in particular, are trending towards incorporating sustainable elements throughout their campuses during construction, rather than building one new LEED certified building. The goal is to help the environment while also saving their bottom line. These schools show that you can be a leader in building green without going for LEED certification. Rick Jensen is group manager at Erland Construction, Burlington, Mass.