

> Incorporating sustainable features in design

by Lorna Dare

Sustainability has become the catch phrase for reducing negative impacts on our environment.

There are many sustainability rating programs such as Green Globes, Collaborative for High Performance Schools (CHPS) or Leadership in Energy & Environmental Design (LEED) where projects can attain certification.

But can businesses, organizations and individuals promote healthy, energy and resource efficient buildings without participating in a sustainability rating program?

For example, by understanding the basic categories of the LEED rating system, it can guide an architect and owner in making decisions and selections during the design process whether the project is eventually certified or not. This approach was used by murakami/Nelson at Beach Elementary School in Piedmont. The project did not participate in a formal CHPS or LEED certification process; however, many sustainable features were incorporated into the design that did not significantly impact the budget.

Under the LEED Materials & Resources category, building reuse, use of recycled materials, and recycling of construction waste materials were addressed by maintaining the majority of the existing building structure and by removing, refinishing, and reinstalling wood cabinets, windows and paneling. Wood trim was removed, re-milled, refinished and reinstalled. Historic chandeliers were removed, reconditioned, U.L. certified and rewired to accept new energy efficient fixtures. Linoleum bulletin boards made with linseed oil and cork, a rapidly renewable material, were installed. New carpeting was made from recycled materials. Clay roofing tiles were salvaged from another building and reused. Any existing building can take a similar approach to reusing resources.

In this same school, Indoor Environmental Quality was addressed with low VOC paints and finishes, removal of extensive vinyl covered bulletin boards (to reduce off-gassing,) reorientation of white boards (to minimize glare), installation of energy efficient lighting with triple switching (to increase user control), and easily operable windows (to increase ventilation).

To optimize Energy Performance the existing building was fully insulated, a mechanical system that could use either outside or recirculated air was installed, and large shade trees were strategically planted to reduce heat gain in the classrooms. Water Efficiency was addressed with installation of low flow plumbing fixtures.

Under the LEED Sustainable Sites category, the heat island effect was reduced by the removal of hardscape and the creation of a rain garden, an



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edible garden, and an ecology teaching garden to integrate with the school's science program. Shade trees were planted in the outdoor lunch area. For higher solar reflectance new light colored concrete walkways were installed. Light colored paint was used to delineate play courts, and rubberized

matting around and under play structures is light colored as well. A "cool roof" with a high solar reflectance was installed.

To address storm water management, storm water runoff is captured and directed to a rain garden where the water is filtered and can be used in the edible garden or released into the city's storm water system.

All of the above measures were undertaken without a formal certification process and most were achieved with little or no impact to the project budget. Ideally each project should be accessed at its outset for opportunities to incorporate sustainable measures. And, depending on the sustainability goals of the owner or client, be considered for formal certification. Where this is not possible there still are ways to reduce the use of our limited resources. ■

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