

Green on the Cheap

Sustainable design-build projects don't have to break the budget



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Contrary to myth, the first costs of a sustainable building are sometimes the same or lower than those of a conventional building. Owners can incorporate many practical strategies that are intrinsic to the design and add little, if any cost. By going green, owners will reap the benefits of reduced operating costs from their buildings for years to come.

Taking the LEED

Baseline sustainable projects, those that could achieve Certified status from the U.S. Green Building Council's (USGBC's) Leadership in Energy and Environmental Design (LEED) program, one of the best-known green standards, can be built within the same cost range as non-LEED projects. To obtain LEED certification, a project must earn between 26 and 32 points (out of a possible 69) in six categories: 1) sustainable sites, 2) water efficiency, 3) energy and atmosphere, 4) materials and resources, 5) indoor environmental quality, and 6) innovation and design process.

A 500,000-square-foot warehouse that includes 10 percent office space, for example, could achieve LEED Certified status within a reasonable budget and with a premium of approximately 2 to 3 percent over construction costs. For this example, the project will be built using a design/build approach, which is typical for industrial buildings, but any other method could be used.

Do the Math

An owner could qualify for 18 LEED points up front at no cost by incorporating the following sustainable elements in each of the six categories:

Sustainable Sites

- Owners earn one point by avoiding sites that are considered "prime" farmland or parkland, as well as those that are near wetlands, or contain endangered species.
- Providing preferred parking for fuel-efficient vehicles and installing signs for those spaces for at least 5 percent of the parking lot capacity earns one point.
- Meeting local zoning requirements that pertain to parking capacity and providing preferred parking for carpools achieve one point.
- Choosing a white roof, such as one made of thermoplastic olefin (TPO), rather than a traditional black roof made of ethylene propylene diene M (EPDM)-class rubber, garners one point. While white roofs generally cost more than their conventional counterparts, they do not require gravel ballast, so builders can use lighter (and less expensive) structural steel. This cost-savings equalizes the overall expenditure.

Water Efficiency

- Incorporating native plants and grasses on site typically requires less water than traditional landscaping. Owners who decrease their potable water usage for landscape irrigation by 50 percent will achieve one point. Going one step further, they will earn another point by incorporating landscaping that does not require irrigation or any potable water.
- Reducing the building's water usage by 20 percent garners one point. Low-flow water fixtures can accomplish this objective; they often cost the same as traditional fixtures.

Energy and Atmosphere

- Optimizing the building's overall energy performance, say with high-efficiency heating and cooling systems and/or T5 fluorescent lighting in the warehouse, an upgrade from standard fluorescent lights, gains at least another point. Although these components are frequently more expensive than standard equipment, the utility savings will offset the cost and

continue delivering on the investment for years to come.

Materials and Resources

- Recycling 50 percent of construction waste rather than disposing the materials in a landfill garners one point.
- Using construction materials that contain 20 percent recycled content achieves two points. Similarly, incorporating 20 percent of materials that are regionally extracted, processed and manufactured earns two points.

Indoor Environmental Quality

- Owners earn one point each for incorporating adhesives and sealants; paints and coatings; and carpeting that are low in volatile organic compounds (VOC), a source of air pollution. Low-VOC products often do not increase the cost of the project if they are researched and selected properly.

Innovation and Design Process

- Owners who go above and beyond in one of the six categories earn one point. For example, Chicago-area construction projects can easily exceed the requirements for regional and recycled products because of the proximity to materials manufacturers and recyclers.
- Receive one point toward LEED accreditation simply by employing a LEED-accredited professional on the project.

TOTAL: 18 points

Almost There

Owners who want to seek LEED certification still need to pursue a minimum of eight points to reach LEED Certified status. It's a good idea, however, to aim for 11, which includes three "cushion" points in case the USGBC does not credit all initiatives. This sometimes happens when sustainable initiatives are not documented adequately or are carried out incorrectly. The following measures can be implemented at minimal cost:

Green on the Cheap... continued on page 2

Green on the Cheap...

continued from page 1

Sustainable Sites

- Installing a bike rack and a room where building occupants can shower and change garners one point.
- Creating a site that minimizes storm-water runoff earns one point.
- Minimizing outdoor light pollution achieves one point. This can be achieved by positioning outside lights strategically and adding motion sensors to all indoor areas.

Water efficiency

- Installing ultra-low-flow water fixtures or those that have automatic sensors could reduce water usage by 30 percent, earning one point.

Energy and Atmosphere

- Significantly optimizing energy performance, say by using energy-efficient T5 fluorescent lighting throughout the building (not just in the warehouse as above) and automated lighting controls on all light fixtures, earns three points.
- Owners who hire a commissioning agent will earn one point. A commissioning agent is an independent consultant who verifies that all building systems meet sustainable design and operating requirements.
- Using an environmentally sensitive refrigerant in heating and cooling systems garners one point.
- Providing 35 percent "green power" to the building for two years earns one point. Green power is energy provided through alternative sources, such as wind farms.

Materials and Resources

- Recycling 75 percent of construction

waste earns one point.

- Using wood-based construction materials harvested from Forest Stewardship Council (FSC) Certified forests earns one point.

Indoor Environmental Quality

- Owners earn one point if the contractor develops and follows an indoor air quality management plan during construction. The goal is to prevent the migration of construction dust.
- Using low-emitting composite wood products gains one point.
- Installing adjustable task lighting throughout the building earns one point.

TOTAL: 15 points, from which an owner needs to choose a minimum of eight and ideally, three buffer points. Remember, only 26 points are needed for a baseline LEED certification.

Seeing Green

By following LEED provisions, building owners earn long-term savings. Green buildings use an average of 40 percent less water and 39 percent less energy, according to U.S. Green Building statistics. Outside analysts agree that annual costs for energy, water, maintenance and other operating expenses are usually lower than those for traditional structures.

Sustainable design and construction can also yield public relations benefits. A LEED rating conveys prestige for an owner and can be used for marketing purposes. Most communities view green owners as good neighbors who care about the environment. Who doesn't want to be seen as conscientious, responsible and concerned for the planet?

Call on the Experts

Owners shouldn't try to go green alone. Partnering with design/build general contractors who are knowledgeable in the subtleties of green building early on will prove to be the most valuable and cost-effective approach.

In addition, applying for and obtaining LEED certification or other recognition, such as Green Globes™ from the Green Building Initiative, is a complex and labor-intensive effort. LEED-accredited professionals, such as those at Krusinski Construction Company, are trained and certified in sustainable design and construction practices and principles. They have the necessary expertise and experience to help owners achieve their green goals – all while controlling costs.

Dollars and sense

There are many shades of green; owners can invest significant capital into obtaining the highest LEED certification possible (Platinum) or incorporate basic sustainable strategies within reasonable budget constraints. Close, collaborative interaction early on with a LEED-accredited professional helps keep costs in check and maximizes the bottom line for years to come.

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