"LEED"ing by Example

Leadership in Energy and Environmental Design*

Grand Bay National Estuarine Research Reserve

Did You Know buildings in the United States account for:

- Over 65% of total U.S. electricity use
- 35-40% of municipal solid waste generated
- 25-30% of wood and raw material use (40% globally)
- 12% of potable water use in the U.S.
- 30% of greenhouse emissions
- 136 million tons of construction/demolition waste

How can we reduce this waste, save money and increase worker productivity?

Waste and its associated costs can be reduced significantly and employee productivity increased by using Green LEED Designs and BMP's which take into consideration:

1. Sustainable Planning for Site Conservation
2. Water Conservation
3. Energy Conservation and Atmosphere
4. Conservation of Materials and Resources
5. Indoor Environmental Quality and Human Factors

Using these BMP's and designs will reduce or eliminate the negative impact of the facility on the environment and the employees and minimize costs over the life of the project.

Sustainable Planning for Site Conservation

- Design building to be in harmony with site
- Build on previously-disturbed areas
- Delineate boundaries of site with a low berm or brush pile
- Minimize parking areas and footprint
- Orient the building to take advantage of the viewshed

http://www.nps.gov/dsc/dsgncnstr/gpsd/16.jpg

- Use Enviroscaping techniques
- Heal the landscape
- Coordinate with all user groups.
- Etc.

Worth 14 Points

Water Conservation

- Shape roof surfaces to catch rainfall and direct towards cisterns
- Use captured water for irrigation, toilet flushing, etc.
- Install low-flow plumbing fixtures
- Install a Living Machine to purify water and recycle it back for use on the site
- Landscape with plants that require little watering and maintenance

www.audubon.org

- Grow shade trees, etc.

Worth 5 Points

Green building design or development is defined as:

A process to design the built environment while considering environmental responsiveness, resource efficiency, and cultural and community sensitivity. The process includes all players in the building design, from the design team (building owners, architects, engineers and consultants) the construction team (materials manufacturers, contractors and waste haulers) maintenance staff and building occupants—LEED

Buildings are judged on their "green-ness" according to the number of criteria that they meet. These criteria, represented by credits outlined in the LEED guidelines, fall within the five categories detailed to the right. (A sixth category, Innovation and Design Process, covers design measures not covered under the other five and requires the use of a LEED-Certified professional—worth five extra points)

The LEED Rating System

LEED Platinum: Project incorporates 52 or more of the available credits
LEED Gold: Project incorporates between 39 and 51 of the available credits
Leed Silver: Project incorporates between 33 and 38 of the available credits
Leed Certified: Project incorporates between 26 and 32 of the available credits

Energy Conservation and Atmosphere

- Orient the building to utilize the sun and prevailing winds
- Use passive solar techniques including shading during summer and openness during winter
- Incorporate rotating solar and wind collectors within the budget's parameters
- Incorporate natural lighting elements

http://www.solarnow.org/solsolutions.htm

- Use low-energy appliances
- Use active ventilation
- Etc.

Worth 17 Points

Conservation of Materials and Resources

- Consider embodied energy when choosing materials
- Use recycled or salvaged materials when possible. Use recycled plastics outdoors
- Outside wood should be ACQ-pressure treated not CCA
- Incorporate a recycling and compost center into project design

www.cityoforlando.net/planning/ orlhouse/deck.gif

- Use pre-existing facilities whenever possible
- Use recyclable furnishings

Worth 13 Points

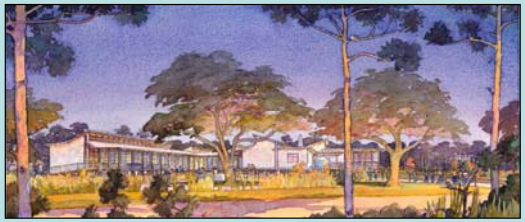
Indoor Environmental Quality and Human Factors

- Buildings should be designed to collect the prevailing winds and use natural ventilation when possible
- Use ceiling fans to move air
- Use plants that absorb chemicals
- Plan a window in each office
- Views from and in the building should be people friendly

http://www.uoregon.edu/~eesbl/es_site/student_option/explanations_folder/ventilation.htm

- Use air cleaning systems
- Etc.

Worth 15 Points



Construction of the Mississippi Department of Marine Resources (DMR)/Grand Bay National Estuarine Research Reserve's (NERR) "green" headquarters will begin this summer (2006). The new building is targeted for Leadership in Energy and Environmental Design (LEED) **Gold-Level Certification**, which means it will adhere to the strict set of energy and water saving criteria set by the U.S. Green Building Council. The new building will house interpretive exhibits pertaining to the biodiversity of Mississippi's coastal habitats such as our open bays, expansive saltwater marshes, maritime pine forests, pine savannas and pitcher plant bogs. It will also house classrooms, laboratories, a dormitory for visiting researchers and graduate students, and administrative office space staffs of the Grand Bay NERR and the U.S. Fish and Wildlife Service.

* Information obtained from U. S. Green Building Council LEED Workshop, Unabridged Architecture, Eskew + Architecture, Environments and Urban Design, the Dept. of Energy's Federal Energy Management Program (FEMP) and others as cited