

Chicago Building for Green Technologies

Due Date: 25 – Oct. 2006

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The background of the slide is a solid blue color. In the lower right quadrant, there are several faint, concentric white circles that resemble ripples on water, creating a decorative effect.

Outline:

1. Overview
2. Design for Sustainability
3. Conclusions and Remarks

Overview of the Concept

- Owner: City of Chicago
- Project: Rehabilitation of existing building
- Size: 32,000 SF – 2 Floors high
- Cost: \$5,400,000

Green Strategies

- a) Using the Sun
- b) Saving on Water
- c) HVAC Details
- d) Sustainability of Materials
- e) Other Strategies

A- Using the Sun

- Photovoltaic Panels on building roof
- Window Awning
- Solar panels on top of parking structures
- Smart system Installed
- Significance:
 - Solar energy provides more than 45% of energy source according to building website
 - Solar energy will provide 20% of energy source in 5 years according to LEED website
 - 24% saving in required light energy anticipated by LEED

B- Saving on Water

- 1/3 of roof is filled with plants that absorb water
- 4 Water Cisterns are installed. They can capture 12,000 Gallons of storm water
- BioWales connecting the parking and sidewalks to the wetlands
- Efficiency:
 - Approximately 48% goes into the sewer system
 - Remaining water either treated in the wetland or used for irrigation

C- HVAC Details

- Operable Windows
- 28 Ground source heat pump that are 200ft deep are installed
- Make use of the relatively stable ground temperature
- Efficiency:
 - Can effectively cool the space in the summer
 - Need some help in the winter (provided by water boiler)

D- Sustainability of Materials

- 100% of the old building's structural shell was used
- 40% of material manufactured from within 300 miles of the site.
- 36% of building material was recycled content

E- Other Strategies

- Low-Flow Toilets
- Fountains run on their own solar panels, and use storm water
- Trees planted in the area to prevent corrosion of Top soil layer
- All asbestos material was removed from the building

Conclusion and Remarks

- Are the owners really interested in sustainability?
- Were the actual sustainability design techniques implemented in construction?
- If so, do they actually perform as efficiently as expected?
- Are the tenants happy with the environment they are living in?

References:

- (1) <http://leedcasestudies.usgbc.org/materials.cfm?ProjectID=97>
- (2) <http://egov.cityofchicago.org/city/webportal/home.do>
- (3) <http://www.cbe.berkeley.edu/mixedmode/ccqt.html>
- (4) <http://www.marvin.com/?page=Awning>
- (5) http://www.greenbiz.com/sites/greenerbuildings/case_studies_detail/
- (6) <http://www.est.org.uk/myhome/generating/types/groundsource/>