



Green Construction

UW System

Sustainability Meeting

Central Wisconsin Station

November 18, 2009

Maura Donnelly
Architect, LEED AP
UW System Administration
Capital Planning & Budget
mdonnelly@wsa.edu

Is this Green Construction?



*Architect Ronald Gunderson
Whole Tree Architecture and Construction*

Definition of Green Construction

Guidelines for Green Construction (Federal)

- **Employing Integrated Design**
- **Optimizing Energy Performance**
- **Protecting & Conserving Water**
- **Enhancing Indoor Environmental (Air) Quality and**
- **Reducing the Environmental Impact of Materials**

Definition:

- **Integrated design is a collaborative method for designing buildings which emphasizes the development of a holistic design. (wikipedia)**

‘A Better Definition’

- **Integrated Design involves a “whole building design” approach. A building is viewed as an interdependent system, as opposed to an accumulation of its separate components (site, structure, systems and use). The goal of looking at all the systems together to make sure they work in harmony rather than against each other.**

Optimizing Energy Performance

- **Currently this is the single most important credit in LEED, as reflected in the number of points available. To earn those points, projects have to show a reduction in predicted energy use, based on computer simulations, compared with a base-case buildings.**
 - *Previous* versions of LEED gave this up to 25% of the points. Current version it is up to 32%.
 - Governor's Executive Order 145 (30% lower than code) is an example of a reduction in predicted energy use.

Protecting & Conserving Water

The protection and conservation of water must be considered throughout the life of the building, and facility owners must seek to:

- **Reduce, control, and treat surface runoff;**
- **Use water efficiently through low or ultra-low flow fixtures, elimination of leaks, water conserving cooling towers, and other actions;**
- **Improve water quality;**
- **Attempt to recover non-sewage and gray water for on-site use (such as irrigation)**
- **Attempt to maintain or restore predevelopment hydrology of the property with regard to the temperature, rate, volume and duration of flow.**

Indoor Environmental Quality

Focuses on airborne contaminants, outdoor air delivery, materials that release fewer harmful chemicals. IEQ also focuses on ergonomics, acoustics, lighting, (both natural & artificial).

The idea is to prevent IEQ problems in design and construction which is less expensive than after occupancy. However improvements can occur at any point during the use of the building.

Reducing Environmental Impact of Materials

- **Recycled Content-Products** are made from materials that would otherwise have been discarded.
- **Post Consumer Content-Material** that has served its intended use and instead of being disposed of it is being reused in a different product.
- **Construction Waste**-The separation and recycling of recoverable waste materials generated during construction and remodeling.
- **Building Reuse**-Do we really need to demolish?
- **Regional Materials**-Utilize material in the construction project that do not have to travel great distances.

When did we start building Green?



Did it start with
Mary Ann Cofrin Hall
At UW-Green Bay?

(69,150/129,850 =53% Efficiency)



Recycled Building UW-Stevens Point Student Center

UW-Stevens Point Dreyfus Student Center



- **Leadership in Energy & Environmental Design Developed by the US Green Building Council**
 - Began in the late 90's
 - Biggest attribute is the 3rd party validation
 - Initial focus was on office buildings. Making it hard to get LEED certification on Laboratories & Residence Halls. UW-System does very few office buildings



Projects Currently Seeking LEED

La Crosse--*Academic Building & New 500 Bed Residence Hall*

Madison--*School of Education, Chazen Museum, SoHE, South Campus Union, Memorial Union, Wisconsin Energy Institute & Wisconsin Institutes for Discovery*

Oshkosh--*New Academic Building, New Residence Hall*

Stevens Point-- *New Suite-style Residence Hall*

Superior—*Rothwell Student Center*

Whitewater--*New Residence Hall*

Why aren't all our buildings LEED?

- **Why don't we have any LEED Buildings?**

Color of Money

- GPR General Purpose Revenue
 - state tax dollars
- PR Program Revenue
 - auxiliary money or GiftsCost

Does LEED increase building cost?

- Yes & No

Program Revenue Funded LEED

Why did we reject LEED when the campus/students were willing to pay?

- ASHRAE 62 vs. DSF



UW-River Falls Student Center

Executive Order 145

- **Directs the Department of Administration to work with the Building Commission and the Energy Center of Wisconsin to ensure that new state facilities are constructed to be 30% more energy efficient than commercial code.**

Taking 30% Even Farther

Current Energy Modeling has:

UW-Oshkosh Academic Building
– 48% better than code

UW-Whitewater New Residence Hall
– 55% better than code