Green Behavior in a Building

COJ's Partnering for Environmental Stewardship
September 8, 2006
FCCJ South Campus, Wilson Center

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Green Team Project

Agenda

- Green Building Standards
- Behavior in and use of a building
- Success stories from the GTP business program
- Beyond “eco-efficiency” to “eco-effective” products and services
- Discussion, Questions & Comments

US Green Building Council Leadership in Energy & Environmental Design (LEED) Rating System

Voluntary, consensus-based national standard for developing high performance, sustainable buildings, and representing every sector of the building industry.

- LEED-NC: New commercial construction and major renovation projects (2000)
- LEED-EB: Existing building operations (2004)
- LEED-CI: Commercial Interiors projects (2004)
- LEED-CS: Core and shell projects (2005)
- LEED-H: Homes (2006)
- LEED-ND: Neighborhood Development (2006)
- LEED-Application Guides: Retail (piloting), Multiple Buildings/Campuses, Schools, Healthcare, Laboratories, Lodging

Florida Green Building Coalition (FGBC) Designations

FGBC Designations Available:

Florida Green Home Standard

Florida Green Development Standard

Florida Green Local Government Standard for City and County Governments

Florida Green Commercial Building Standard

FGBC Green High Rise Residential Standard (in comment period)

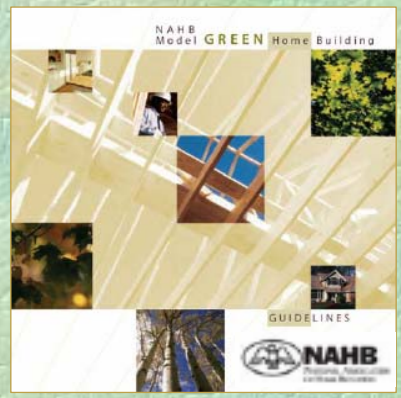
Trends in Green Housing

Green Standards Today

- 70 Local and Regional (including Florida Green Building Coalition)
- 2 National (NAHB, USGBC)

Comparing Levels of Certification

Florida Green Building Coalition



U.S. Green Building Council LEED for HOMES

build green,
everyone profits.

Earn 211 Pts

Meet all Minimums

CERTIFIED

Earn 403 Pts

Meet all Gold Minimums

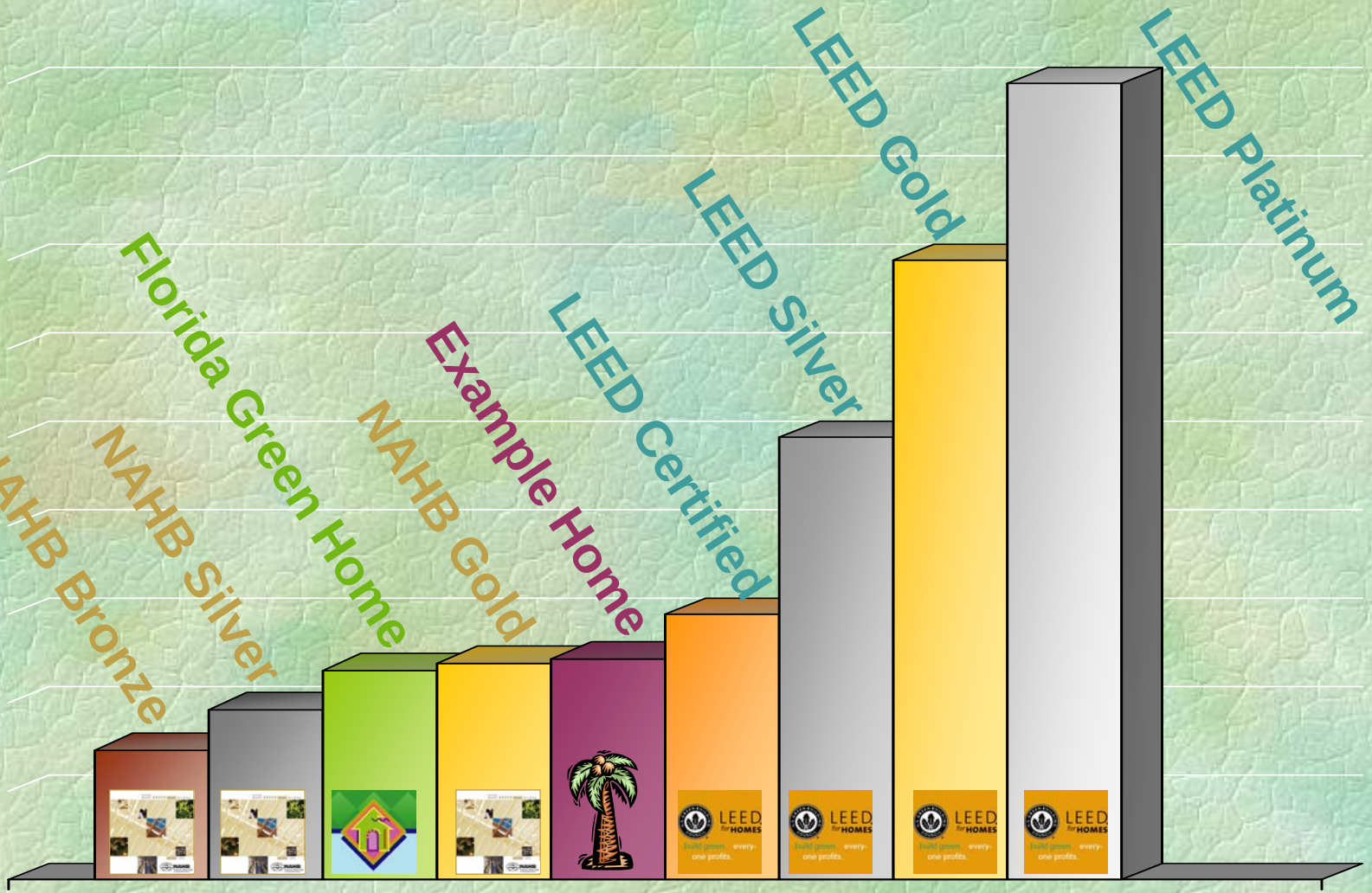
GOLD

Earn 25 Pts

Effort needed for prereqs

***Need 5 more**

Comparison to 3 Standards



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Built Green

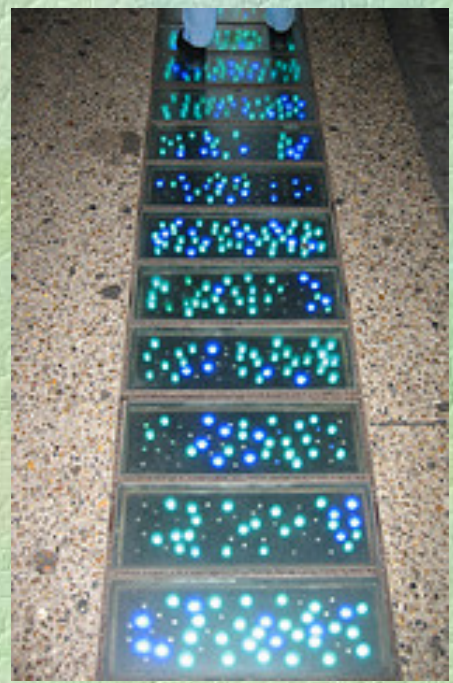
- Interior: LEED-EB, CI & H
  - Guidelines
  - Technological, physical & equipment “fixes”
  - Structured point system
  - Recertification
- FGBC?

Built Green -- Now What Do You Do?

YOU KEEP GOING, OF COURSE!

<u>Remember</u>:
Cost of building new = ~11%

Cost of operating & maintaining that new building = ~75%

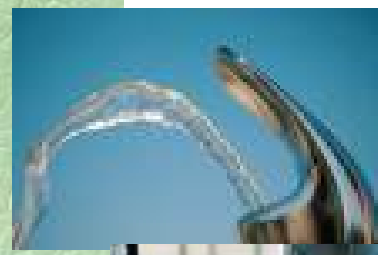


Down the green brick road

Built Green -- Now What Do You Do?

- Measure – Can't manage what you don't measure
- Set-up systems and policies that include continual auditing, monitoring, targets and goals, and performance-based
  - Environmental Management System (EMS – ISO 14000/1)
  - LEED-EB Recertification
- Training, training, training
  - New employee training (video, speakers, green teams)
  - Updates to long term employees (newsletters, meetings, video)
- Openness to learning (trial and error) and incorporating and awarding new ideas
- Turn to your products and services and analyze how you can make them "restorative"

Solid Waste Examples



- Source Reduction
  - Procurement/inventory – recycled content, bulk
  - Avoid buying in first place – cups/water fountain
- Reuse
  - Mugs
  - Products of service (Lease equipment/carpet)
- Recycling & Composting
  - Training/Physical indicators
  - Incentives/Disincentives
  - Figuring out and getting rid of obstacles (yuck factor in composting)

Chemicals Example

Exercise Club

- spending $50/mo on 16 different products such as toilet scrub, shower scrub, etc.
- switched to one all purpose non-toxic effective cleaner for a cost of $13/yr
- less time spent shopping

1 action led to a savings of $444

LEED-EB -- Cleaning products that meet the Green Seal GS-37 OR if GS-37 is not applicable use products that comply with the California Code of Regulations maximum allowable VOC levels.

Energy Examples

Typical office

- leaving equipment on at night and weekends at a cost of ~$45/yr per equipment.
- set default setting on all computers to automatic double-sided printing.

2 actions led to a savings of $4,560/year ($2,250 and $2,310 or 42% cut in paper use)

Movie Theater

- Turn projection machine off when not in use

1 action led to a savings of $1,000/year

Water Example

Sit-down and Take-Out Restaurant

- switched to energy/water efficient commercial dishwasher (only 10 gals/job), low-flow toilets, aerators on their faucets and shut-off valves on their sprayers, training to employees not to leave water on

A few actions led to a cut in their water consumption by 52% which paid for that new dishwasher in 8 months.

Transportation Example

Real estate brokerage office

- purchased a hybrid for brokers to use out on calls
- great conversation starter

1 action cut their emissions and gas bills by more than half

Regulation Examples

Regulation – staying ahead of the game

Dry cleaners in Mandarin could not get a business loan if he used the toxic chemical perchloroethylene (perc) because of the federal CERCLA law. Now uses a cleaner alternative.

3 local printers have switched to to all soy/vegetable-based or water-based (non-petroleum) inks because many fewer health issues and OSHA and believes it is just a matter of time before it is required.

Turn to Your Products & Services
Beyond "Eco-Efficiency" to "Eco-Effectiveness

Natural Capitalism: Creating the Next Industrial Revolution

Paul Hawken, Amory Lovins and L. Hunter Lovins

Cradle-to-Cradle: Remaking the Way We Make Things

William McDonough and Michael Braungart

Cradle-to-Cradle Approach

- Very positive, hopeful, challenging, innovative solution
- Re-designing how we think
- Current system not working – using brute force
- Explains why being “less bad” or “doing more with less” is not good enough; why try to optimize the wrong system?
- Eco-efficiency is a good transition strategy to help current systems slow down and change but should not be the long term goal – does not reach deep enough; just delays the destruction

Cradle-to-Cradle Cont'd

- Waste equals food concept – design only what can be safely returned to the soil (biological nutrient) or be "upcycled" over and over again (technical nutrient)
- Design from the beginning with the parameter that waste does not exist
- Product of service and product of consumption concept
- Eco-effective technology not depleting but replenishing and based on nature's laws
- Going to have struggles and missteps and make mistakes but US could come out incredibly strong and competitive

Cradle-to-Cradle Cont'd

Five Steps to Eco-Effectiveness

1. Get "free" of the known culprits (widely recognized harmful substances – PVC, cadmium, lead & mercury)
2. Follow informed personal preferences (begin somewhere and do the best you can)
3. Creating a "passive positive" list (complete inventory of materials in a given product, service and process) – X List (urgent), Gray List (not so urgent) & P List (preferred)
4. Activate the Positive List – stop being less bad and figure out how to actually be good
5. Reinvent – design not a car but a "nutrivehicle"

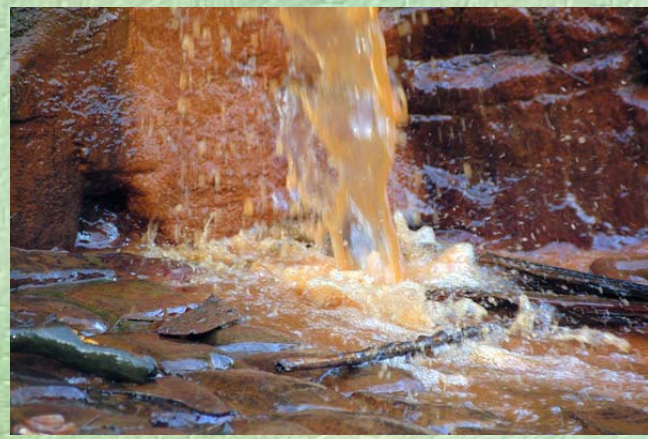
Solid Waste Statistics

- 9 pounds of garbage per day per person; Total annual wastes in the US exceed 50 trillion pounds a year (1 million lbs of materials per person per year)
- In Jacksonville, 38% of landfill waste is residential and 62% is commercial.
- One half of a typical dumpster is recyclable.
- Americans generate up to 70% of their waste at work.
- On average, one office worker can recycle enough paper every year to save at least one tree.
- Every ton of paper (2000 pounds or 40 cases) that is recycled saves approximately 17 trees from being cut down to make virgin paper.

(*Source*: SWARM and FDEP)

Chemicals Statistics

- Average American uses around 40 pounds of unsafe household cleaners each year -- 64% of victims of poisoning are under the age of six.
- 24 billion pounds of toxins that are developmentally and neurologically damaging to children are released into the environment every year – 1/200
- Studies found that indoor air contained at least five (but typically 10 or more) times higher concentrations of pesticides than outside air.
- 800-900 storage tanks with hazardous substances discharge into the environment in our area every year



(*Source*: U.S. EPA and FLDEP)

Energy Statistics

Energy

- American businesses waste up to $4 billion worth of electricity every year due to inefficient use of office machines.
- Lighting accounts for 25-50 percent of the energy used in commercial spaces.
- General -- Only 10% of the energy used by standard incandescent bulbs contributes to light; the other 90% is wasted as heat.
- Average home in Atlantic Beach $1,695/year; Energy efficient home $1,005/year; $692 savings

(*Sources*: USEPA, US EIA, & Lawrence Berkeley National Lab)

Transportation Statistics

- True cost of driving is about $1.19 per mile -- 0.863 cents in direct driver expenses & 0.329 cents in societal costs
- Floridian's use about 20 million gallons of gasoline every day – enough to fill 10,000 standard-size swimming pools.
- Every second in America, cars collectively burn 3,000 gallons of gasoline and release 60,000 pounds of carbon dioxide into the atmosphere."
- Americans lose 200,000 hours a day to traffic congestion.
- Almost 90 percent of automobile trips in Florida are made with one occupant.

(*Source*: Santa Cruz County Regional Transportation Commission and St. Johns River Water Management District)

Water Statistics

- Average residential consumption in Duval County with irrigation is 6,700 gallons a month or 223 gallons per day.
- In Florida, it rains an average of 54 inches per year, or nearly 150 billion gallons of water a day. However, an estimated 110 billion gallons is lost to evaporation and plant life consumption.

- The largest user of water in Florida is the agriculture industry, accounting for 42 percent of consumption. Homes, offices and hotels are responsible for 11 percent of consumption and the rest is consumed by other industries.
- A steady drip can waste 20 gallons of water per day, and a toilet leak up to 200.

(*Source*: JEA and US EPA)

Green Team Project

Quotes

“You must be the change you wish to see in the world.”

Mahatma Gandhi

“In planetary terms, we are all downstream.”

Willam McDonough

"We are all part of the web of life. During our brief visit here, we have a choice to make: we can either help it or hurt it. The old mind-set or the new? Exploitation and destruction or restoration? Which will it be? Every day of your life with every action you take, every investment you make, everything you buy and every person you teach: it's your call."

Ray Anderson

Questions, Comments & Discussion

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