The Green Wave… Are you riding it?

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President, Chair, USGBC Colorado
Director of Sustainability, RNL
Real Estate’s Latest Movement

Build Green, Make Green

It’s Easy Being Green
What’s Hype?

What’s Real?
Xcel to move headquarters into new tower
22-story building at 1800 Larimer St. under construction
By John Rebchook
Wednesday, May 7, 2008

...LEED-Platinum
Why this growing interest in green building?
The Triple Bottom Line

Reduced Environmental Impact.
Peak Efficiency.
Improved Capitalization Rates.
Increased Marketability.
Higher Lease Rates.
Improved Productivity.
Reduced Absenteeism.
U.S. Building Impacts:

- 12% Water Use
- 39% Greenhouse Gas Emissions
- 65% Waste Output
- 70% Electricity Consumption
Average Savings of Green Buildings

- **Energy Savings**: 30%
- **Carbon Savings**: 35%
- **Water Use Savings**: 30-50%
- **Waste Cost Savings**: 50-90%

Source: Capital E
Case Study
Commerce City
Civic Center

City of Commerce City owner

Government Office 90,000 sq ft

32% Energy savings

35% Carbon reduction

41% Water savings

55% Waste diverted from landfill
Improved Bottom Line.

- 30-70% Energy Savings
- Verified Performance
- Enhanced Productivity
- Increased Value
- Reduced Liability & Improved Risk Management
- Increased Value
Test

Improved Bottom Line.

- 30-70% ENERGY SAVINGS
- VERIFIED PERFORMANCE
- INCREASED VALUE
- REDUCED LIABILITY & IMPROVED RISK MANAGEMENT
- ENHANCED RECRUITMENT
- IMPROVED EMPLOYEE MORALE
- PRODUCTIVITY
- REDUCED ABSENTEEISM

Incorporating sustainable practices can lead to significant improvements in the bottom line, including energy savings, verified performance, increased value, reduced liability, improved risk management, enhanced recruitment, improved employee morale, and productivity. Incorporating these practices can also lead to reduced absenteeism and improved employee morale, contributing to increased productivity and value in the organization.
We spend 90% of our time indoors.
Average Productivity Gains

- High-performance lighting enhances productivity by 6.7%.
- Individual temperature control enhances productivity by 3.6%.
High performance lighting
- Daylight harvesting
- Controls, sensors
- Personal control
- Lower energy use

Underfloor air distribution
- Personal control
- Improved air quality
- Lower energy use
- Future flexibility
Additional Benefits

- INSURANCE
- EMPLOYMENT
- EQUITY
- SECURITY
- REDUCED PUBLIC INFRASTRUCTURE COSTS
- VALUATION & BRAND APPRECIATION
Additional Benefits

- Insurance
- Employment
- Equity
- Security
- Reduced Public Infrastructure Costs
- Valuation & Brand Appreciation
INSURANCE

Reduced Property Insurance Costs

- Fireman’s Fund, Green-Gard Policy
- For green certified properties
- Covers unique green building features
A $4 investment per square foot in building green nets a $58 benefit per square foot over 20 years.
What is green building?
Design and construction practices that meet specified standards, resolving much of the negative impact of buildings on their occupants and on the environment.
### Nutrition Facts

**Serving Size**: 8 crackers (28g)

**Servings Per Container**: About 2

<table>
<thead>
<tr>
<th>Amount Per Serving</th>
<th>% Daily Value*</th>
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<tbody>
<tr>
<td>Calories</td>
<td>120</td>
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<tr>
<td>Calories From Fat</td>
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<tr>
<td>Total Fat</td>
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<tr>
<td>Saturated Fat</td>
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<tr>
<td>Trans Fat</td>
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<tr>
<td>Polyunsaturated Fat</td>
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<td>Monounsaturated Fat</td>
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<td>Cholesterol</td>
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<td>Dietary Fiber</td>
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<tr>
<td>Protein</td>
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- *Percent Daily Values are based on a 2,000 calorie diet.*
ENERGY STAR Labeled Buildings

- EPA program
- A way to benchmark energy performance
- Energy performance is scored from 1-100
- Scores of 75 or better can be labeled ENERGY STAR
- There are 186 labeled buildings in Colorado
Denver Place

ENERGY STAR 86
(Also LEED-EB)
Green Globes

• Green building rating system
• 1000 points
• Rating is 1 to 4 globes
• Third party verification ($4,000 to $6,000)
Green Globes

- One Green Globes project in Colorado
- Summit County Materials Recovery Facility
- Received 2 Globes rating
What is the LEED System?

**LEADERSHIP in ENERGY and ENVIRONMENTAL DESIGN**

A leading-edge system for certifying DESIGN, CONSTRUCTION, & OPERATIONS of the greenest buildings in the world

Scores are tallied for different aspects of efficiency and design in appropriate categories.

For instance, LEED assesses in detail:

1. Site Planning
2. Water Management
3. Energy Management
4. Material Use
5. Indoor Environmental Air Quality
6. Innovation & Design Process

<table>
<thead>
<tr>
<th>Green Facts</th>
<th>John M. Langston High School Continuation &amp; Langston-Brown Community Center Arlington, Virginia</th>
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</thead>
<tbody>
<tr>
<td>LEED-NC rating out of</td>
<td>69</td>
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<tr>
<td>Silver</td>
<td>35</td>
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<tr>
<td>Sustainable Site</td>
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<tr>
<td>Water Efficiency</td>
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<td>Energy &amp; Atmosphere</td>
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<td>Materials &amp; Resources</td>
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<td>Indoor Environmental Quality</td>
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<td>Innovation &amp; Design</td>
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</table>

Green Buildings worldwide are certified with a voluntary, consensus-based rating system. USGBC has four levels of LEED.
Categories of LEED Ratings

LEED for New Construction
LEED for Commercial Interiors
LEED for Existing Buildings
LEED for Core & Shell
LEED for Homes
LEED for Neighborhood Development
LEED for Schools

NEW PROGRAMS

Healthcare Laboratories
Retail
Multi-building Campuses
Multi-family Residential
LEED addresses the complete lifecycle of commercial buildings.
Programs are in pilot for Homes and Neighborhoods.
LEED projects totals:
As of May 2008

1,471 LEED Certified Projects

11,188+ LEED Registered Projects
LEED projects in Colorado totals:

As of May 2008

50
LEED Certified Projects

295+
LEED Registered Projects
51,000 LEED APs

25 accreditations per day (average)
LEED: Streamlined, refined, and online.
Cost of LEED

1. Building a quality, high performance building
2. Use energy modeling during design
3. Commission the building
4. Register with USGBC - $450
5. Prepare and submit LEED documentation
6. LEED Certification fee – varies $1,750 to $17,500 (3.5 cents / SF)
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Value of LEED

1. Requires collaboration and goal setting
2. Requires performance metrics
3. Built on rigorous industry standards
4. Third party certification
5. Accountability / avoid green washing
6. Recognized and valued in the market
Recent LEED Cost and Benefit Studies

“there is no significant difference in average cost for green buildings as compared to non-green buildings.”

Cost of Green Revisited, Davis Langdon, July 2007
Recent LEED Cost and Benefit Studies

LEED premium = 1% to 6%

Soft costs averaging 0.8% or $1/SF

Net present value of predicted energy savings = $2 to $10/SF

Costs and Benefits of LEED-NC in Colorado, Governor’s Office of Energy, March 2007
Recent LEED Cost and Benefit Studies

LEED buildings = 25 to 30% energy performance

LEED Gold and Platinum buildings approached a 50% improvement

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