Local Action Global Impact: The Universal Language of Green Building

May 21, 2007
High Performance Green Buildings
Dirksen Senate Office Building

Rick Fedrizzi
President, CEO &
Founding Chairman
U.S. Green Building Council
The Triple Bottom Line.
The Triple Bottom Line
Reduced Environmental Impact.
Peak Efficiency.
Improved Capitalization Rates.
Increased Marketability.
Higher Lease Rates.
Improved Productivity.
Reduced Absenteeism.
Build Green.
Everyone Profits.
Now that they’re warmer (1995-August 2005)

Storm paths
Lower intensity storm  Category 3-5 hurricane
Hurricane Katrina shown black
Risks of Global Climate Change

$75 billion in insured losses during 2004 and 2005, including $45 billion from Hurricane Katrina alone.
AVERAGE AMERICAN CREATES
10 tons
of carbon dioxide
CO₂ EMISSIONS BY SECTOR
OVERVIEW  RATIONALE

U.S. Building Impacts:

- 12% water use
- 30% 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**: 50-97%

Source: Capital E
Green buildings emit 40% less CO₂
USGBC membership growth reflects the expansion of green buildings in the market.
U.S. Green Building Council

HEREBY CERTIFIES THAT

36,979

HAVE ACHIEVED THE DESIGNATION OF

LEED® ACCREDITED PROFESSIONAL

DEMONSTRATING THE KNOWLEDGE OF GREEN BUILDING PRACTICE NECESSARY FOR SUCCESSFUL IMPLEMENTATION OF THE LEADERSHIP IN ENERGY AND ENVIRONMENTAL DESIGN (LEED®) GREEN BUILDING RATING SYSTEMᵀᴹ.
11 federal agencies
22 states
33 schools
66 cities & counties
The Federal Government’s Leadership in LEED:

05/07

FEDERAL GOVERNMENT

42

CERTIFIED PROJECTS
4,472,717 SQUARE FEET

346

REGISTERED PROJECTS
63,938,829 SQUARE FEET
Case Study
EPA

National Computer Center (NCC)
Research Triangle Park NC
New construction
LEED v2 Silver
100,000 sq ft

27% energy savings over ASHRAE 90.1-1999

100 tons per year avoided GHG emission through solar roof and solar street lights

Planet GSA Demolition Derby 2000 Award

100% of all storm water treated on site
Case Study
National Weather Service

Weather Forecast Office
Caribou ME
New construction
LEED v2 Silver
8,300 sq ft

86% of occupied spaces have natural daylight

32% water use reduction

30% energy savings over ASHRAE 90.1-1999

75% of total project waste diverted
Case Study
FAA
Seattle Terminal Radar Approach Control Facility
Burien WA
New construction
LEED v2 Gold
52,000 sq ft

33% water use reduction

14% energy savings over ASHRAE 90.1-1999
Savings of 7,650 kWh and $420 each year expected

49% locally fabricated manufactured materials

80% of spaces have daylight
Case Study
U.S. Department of Transportation

Lakewood CO
New construction
LEED v2 Silver
128,000 sq ft

33% energy savings over ASHRAE 90.1-1999

50% of building’s energy use is offset by 2-year green power contract

76% materials diverted from landfill

72% locally manufactured materials, 41% of those harvested locally

50% less irrigation water used through xeriscaping
Chicago

The city adopted “The Chicago Standard” to establish a LEED benchmark for all new city-funded projects, guidelines for private developers, and fast track permitting.
New York, NY
Following the success of high-profile private LEED projects, in September 2005 the city passed Int. No. 324-A requiring LEED Silver for all city owned new construction and renovations over $2 million.
Portland, OR
Adopted LEED for all city facilities or publicly funded private projects in 2001
Since 2005 requires LEED Gold for new public project and LEED Silver for all existing city-owned buildings
Austin, TX
Early adopter of municipal sustainability initiatives (1989)

Legislation passed in 2000 requiring LEED Silver rating for all municipal buildings
Seattle, WA
Adopted LEED in 2000 and currently requires LEED Silver rating all city-owned projects over 5,000 sq ft

Financial incentives for public/private projects to conserve water and energy and obtain LEED certification
Grand Rapids, MI
Requires city construction and renovations over 10,000 sq ft or $1 million to obtain LEED certification

Community Sustainability Partnership between public, private and academic sectors
California.

Executive Order

Gov. Schwartzenegger requires all new & existing state-owned facilities to be LEED Silver

95% of greenhouse gas emissions occur during operational lifespan
Tax Credits

Pre LEED incentive: 1.8 million sf
Post LEED incentive: 20.7 million sf
Period: less than 1 year
Linking interests in ways that can advance the larger common good
A new minimum standard that will serve as a baseline for high performance green building and potentially be incorporated into building code.
immediate & measurable
## Sustainable Sites

- Erosion and Sedimentation Control
- Age of Building
- Green Site and Building Exterior Management
- High Development Density Building and Area Alternative Transportation
- Reduced Site Disturbance
- Stormwater Management
- Heat Island Reduction
- Light Pollution Reduction
Sustainable Sites
Efficient Water Use

- Minimum Water Efficiency
- Discharge Water Compliance
- Water Efficient Landscaping
- Innovative Wastewater Technologies
- Water Use Reduction
Sustainable Sites
Efficient Water Use
Energy & Atmosphere
Materials & Resources

- Source Reduction & Waste Management
- Toxic Material Source Reduction
- Construction Waste Management
- Optimized Use of Alternative Materials
- Optimized Use of IAQ Compliant Products
- Sustainable Cleaning Products
- Occupant Recycling
- Additional Toxic Material Source Reduction
- Recycled Content
<table>
<thead>
<tr>
<th>Sustainable Sites</th>
<th>Outside Air Exhaust</th>
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<tbody>
<tr>
<td>Efficient Water Use</td>
<td>Tobacco Smoke Control</td>
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<tr>
<td>Energy &amp; Atmosphere</td>
<td>Asbestos/PCB Removal</td>
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<tr>
<td>Materials &amp; Resources</td>
<td>Outdoor Air Delivery Monitoring</td>
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<tr>
<td>Indoor Environmental Quality</td>
<td>Increased Ventilation Construction</td>
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<tr>
<td>IAQ Management Plan</td>
<td>Documenting Productivity Impacts</td>
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<tr>
<td>Indoor Chemical &amp; Pollutant Source Control</td>
<td>Controllability of Systems</td>
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<tr>
<td>Thermal Comfort</td>
<td>Daylighting &amp; Views</td>
</tr>
<tr>
<td>Contemporary IAQ Practice</td>
<td>Green Cleaning</td>
</tr>
</tbody>
</table>
Increase in LEED projects since 2002.

- 2002: 80 million sq ft
- 2003: 141 million sq ft
- 2004: 180 million sq ft
- 2005: 500 million sq ft
- 2006/2007: More than 1,062 million sq ft
### Nutrition Facts

<table>
<thead>
<tr>
<th>Serving Size 8 crackers (28g)</th>
<th>Servings Per Container About 2</th>
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<tbody>
<tr>
<td><strong>Amount Per Serving</strong></td>
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<tr>
<td><strong>Calories</strong></td>
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<tr>
<td>Calories From Fat</td>
<td>30%</td>
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<tr>
<td>% Daily Value*</td>
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<tr>
<td><strong>Total Fat</strong></td>
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<td>Trans Fat</td>
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<td>0%</td>
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<td><strong>Sodium</strong></td>
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<tr>
<td><strong>Total Carbohydrate</strong></td>
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<tr>
<td>7%</td>
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<tr>
<td>Dietary Fiber Less than 1g</td>
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<td>3%</td>
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<td>Sugars 7g</td>
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<tr>
<td><strong>Protein</strong></td>
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<tr>
<td><strong>Vitamin A</strong></td>
<td>0%</td>
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<tr>
<td><strong>Vitamin C</strong></td>
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<tr>
<td><strong>Calcium</strong></td>
<td>10%</td>
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<tr>
<td><strong>Iron</strong></td>
<td>4%</td>
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</table>

*Percent Daily Values are based on a 2,000 calorie diet.
LEED® Facts

Banner Bank Building
Boise, ID

LEED for Core & Shell Development
Certification awarded July 27, 2006

Platinum 49*

Sustainable Sites 13/15
Water Efficiency 5/5
Energy & Atmosphere 12/15
Materials & Resources 6/9
Indoor Environmental Quality 10/13
Innovation & Design 3/5

*Out of a possible 62 points
Increased Productivity.

- Schools: 20% better test performance
- Hospitals: 2 ½ day earlier discharge
- Factories: Increased production
- Offices: 2-16% productivity increase
- Retail: Increase in sales per square foot
immediate & measurable
Case Study
The Willow School Phase 1

Willow School
Gladstone, NJ
owner

K-12 Education
13,866 sq ft

LEED Gold

25% energy savings

34% water savings

84% waste diverted from landfill
Case Study
Milton Academy
Schwarz
Student Center

Milton Academy
Milton, MA
owner

K-12 Education
50,984 sq ft

LEED Certified

30% energy savings

30% water savings
Case Study
Combined Transportation Emergency & Communications Center

City of Austin owner/manager

14 acre “mission critical” emergency response campus 80,600 sq ft

LEED Silver

25% energy savings

100% of irrigation is reclaimed water

12% recycled content site is redeveloped brownfield
LEED Gold

67% energy savings

88% water savings

93% construction waste salvaged
Case Study
SUGEN, Inc.
Building 3

SUGEN, Inc.
San Francisco, CA
owner

Laboratory
67,674 sq ft

LEED Gold

46% energy savings

36% water savings

82% waste diverted from landfill
LEED Silver

40% energy savings

50% of storm water is reclaimed

84% construction waste salvaged
LEED for Homes

52 Baldwin Road
Freeport, ME

LEED Silver

Lot 20
Millstream Subdivision
Case Study
Ford Rouge Visitor Center

Ford Motor Company owner/manager

Visitor center
31,200 sq ft

LEED Silver

N/A energy savings

30% water savings

51% waste diverted
Case Study

Seven World Trade Center

Silverstein Properties, Inc. developer

High-rise commercial office building 1.7 million sq ft

LEED Gold

17% energy savings

53% water savings

75% construction waste salvaged
Case Study
REI Portland

Recreational Equipment, Inc.
Portland, OR
owner

Retail
37,448 sq ft

LEED Gold

32% water savings

96% waste diverted from landfill
Case Study
Calvin College Bunker Interpretive Center

Leed Gold
60% energy savings
74% water savings
84% construction waste salvaged

Calvin College owner
Multiple use 5,270 sq ft
Case Study
Oregon Convention Center

**LEED Certified**

30% energy savings (over Oregon code)

39% water savings

80% construction waste salvaged

Largest convention center in NW
1,000,000 sq ft
Case Study
City of Seattle Justice Center

City of Seattle owner

Municipal courts and police headquarters 288,000 sq ft

LEED Silver

33% energy savings

Rainwater reclaimed for irrigation

88% construction waste salvaged
Case Study
Vancouver
Port Authority
Offices

Vancouver Port Authority
Vancouver, BC
Canada
owner

Offices
55,000 sq ft

LEED Gold

37% energy savings

40% water savings

70% waste diverted from landfill
Case Study
Chong Partners
Architecture

Chong Partners
Architecture
San Francisco, CA
owner

Commercial office
43,254 sq ft

LEED Gold

30% energy savings

30% water savings

65% waste diverted from landfill
Case Study
Fossil Ridge High School

Poudre School District
Fort Collins, CO
owner

K-12 Education
289,100 sq ft

LEED Silver

59% energy savings

69% waste diverted from landfill
50% reduction

CO$_2$
Energy & optimization
In 2007, we’re offering another incentive that can provide an immediate measure of energy and carbon reductions:

- certified CORE AND SHELL
- certified NEW CONSTRUCTION

FREE EB REGISTRATION