



Are These Familiar??

“Green” Sustainable
 Energy Carbon Emissions
 Greenhouse Gases Climate Change
 Water Shortages Increasing Utility Costs
 Smart Growth
 LEED® Energy Star®
 Health & Productivity
 Liability
 Return on Investment

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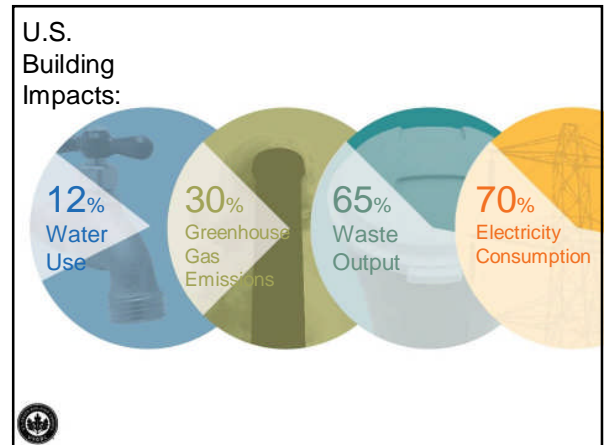
The 3 P's of Sustainability

People – Social Issues

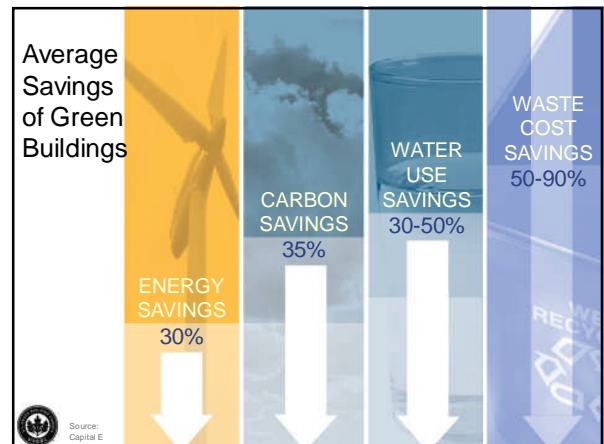
Profit – Economic Issues

Planet – Environmental Issues

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- Why Green Buildings?**
- Meet Needs of Today
 - Reduce Operating Costs
 - Save Energy
 - Enhance Building Marketability
 - Improve Occupant Health and Comfort
 - Increase Occupant Productivity
 - Maximize ROI
 - Reduce Potential Liability
 - Don't Compromise Ability of Future Generations to Meet Their Needs
 - Environmental Responsibility
 - Optimize Resource Efficiency
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Improved Bottom Line.



What Does “Green” Mean to O & M?

- Use LEED-EB Guidelines
 - Sustainable Sites
 - Building Exterior & Hardscape Management Plan
 - Integrated Pest Management, Erosion Control, Landscape Management Plan
 - Stormwater Management
 - Heat Island Reduction: Nonroof
 - Heat Island Reduction: Roof
 - Light Pollution Reduction

What Does “Green” Mean to O & M?

- Use LEED-EB Guidelines
 - Water Efficiency
 - Water-Efficient Landscaping
 - Cooling Tower Water Management
 - Water Performance Management
 - Indoor Plumbing Fixture and Fitting Efficiency

What Does “Green” Mean to O & M?

- Use LEED-EB Guidelines
 - Energy and Atmosphere
 - Optimize Energy Efficiency Performance
 - “An inefficient HVAC system operated well can use less energy than an efficient system run poorly”
 - Newman
 - Commission, Re-Commission and Retro-Commission
 - Measure Performance
 - Renewable Energy – On-site, Off-site
 - Refrigerant Management

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What Does “Green” Mean to O & M?

- Use LEED-EB Guidelines
 - Materials & Resources
 - Reduce quantity of waste while improving building environment through responsible procurement choices
 - Choose materials brought into building with reductions in environmental impacts in mind
 - Manage materials leaving the building as waste to minimize landfilling or incineration

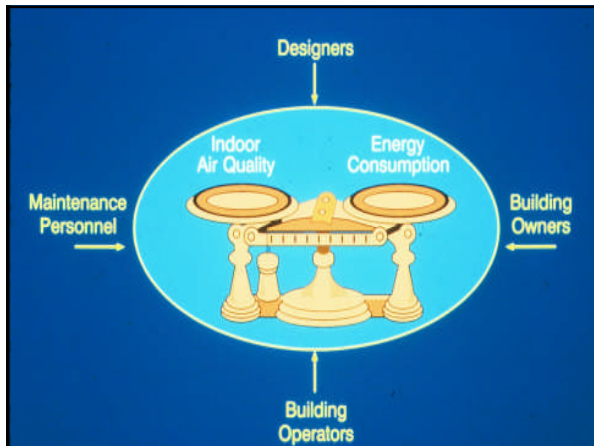
“An inefficient HVAC system operated well can use less energy than an efficient system run poorly”
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What Does “Green” Mean to O & M?

- Use LEED-EB Guidelines
 - Indoor Environmental Quality
 - IAQ Management Program
 - Outdoor Air Delivery Monitoring
 - Increased Ventilation
 - Reduction of Particulates to Interior Space
 - Occupant Controlled Lighting and Temperature
 - Daylight & Views
 - Green Cleaning & Pest Management
 - Custodial Staff Training
 - Tenant Education
 - Green Purchasing

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EPAAct 2005

Q: What is this? Energy Policy Act of 2005

A: The dream of every building owner & facility manager

A tax *deduction* (*not a credit*) for energy efficiency:

Up to \$1.80/sq ft

- \$0.60 for HVAC
- \$0.60 for Lighting
- \$0.60 for Building Envelope

Expires 12/31/2013

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Other Benefits

- Tax Abatements
 - Federal, State, Municipal
- Banks – More apt to lend
 - Higher Loan-to-value ratio
- Insurers – Better policies
- Marketability
 - Not always location, location, location
 - Now “How Green”

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References & Resources (1)

www.ashrae.org

www.usgbc.org

www.wgbc.org (World Green Building Council)

www.aia.org/cote (AIA Committee on the Environment)

www.eren.doe.gov

www.sustainable.doe.gov

www.energystar.gov

www.nrel.gov (Renewable Energy)

www.rmi.org (Rocky Mountain Institute)

www.cecer.army.mil

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References & Resources (cont.)

www.peci.org (Portland Energy Council – O & M Techniques)

www.greenseal.org

www.greenguard.org

www.fpl.fs.fed.us/ahrc/mold/mold-methods.html (Forest Products Lab)

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- Trainer, ASHRAE Energy Standard 90.1
- Member, ASHRAE Tech. Committee on Energy Recovery
- Member, ASHRAE 2008 Energy Position Committee
- Member, BOMA Energy & Environment Committee
- Judge, BOMA TOBY Awards (The Ofc. Bldg. of the Year)
- Chair, Affiliate Council; Member, Construction & Design Committee – Engineering Society of Detroit (ESD)
- Co-Chair, Public Policy Committee – USGBC-DRC
- Past Board Member - USGBC & ASHRAE - Detroit Chapters
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For Further Information

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"We Do Not Inherit the Earth from Our Ancestors –
We Borrow It from Our Children" – Native American Proverb

Build Green – Everyone Profits! - usgbc

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Recycling & Waste Management

Guido Dinverno – Dinverno Group

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Liberty Property Trust

*Extraordinary Work
Environments*

Marla Thalheimer, LEED AP
Sustainability Manager

Liberty and LEED

Enhancing People's Lives Through Extraordinary Work Environments

- Nation's 2nd largest publicly traded office & industrial real estate company
- 22 markets in the U.S. & U.K.
- More than 770 office & industrial properties totaling over 77 million square feet
- More than 7 million square feet of high-performance space developed
- More than \$1.2 billion invested in LEED development projects
- Comprehensive green property management

Liberty and LEED

Liberty has over 7 million square feet of LEED projects throughout the United States:

- 1 Platinum certified
- 4 Gold certified
- 7 Silver certified
- 3 Certified
- 20 LEED registered (Under construction or completed and awaiting certification)



Pictured: Comcast Center,
Philadelphia
Nation's Tallest LEED Registered
Building

Sustainable Property Management

Education

- Monthly Green Calls
- Created the Green Guide – a reference tool to help us develop, market and operate our buildings sustainably

Implementation

- Green Cleaning
- Use of Low or No Volatile Organic Compound (VOC) paints
- Enhanced Recycling programs

We developed a system to track our results so that we could market our results and engage our Tenants

2008 – Q2 Property Management Waste Reduction Achievements

The sum of the greenhouse gas emissions reduced is **13,636 Metric Tons** of Carbon Dioxide Equivalent, which is equal to the CO2 emissions from one of the following:



Removing **2,497** passenger cars from the road for one year



1,547,787 gallons of gasoline consumed



31,712 barrels of oil consumed

Calculations from EPA WARM (Waste Reduction Model) and Greenhouse Gas Equivalencies Calculators

Liberty Accepts the Challenge

Commitment to improve energy efficiency a minimum of 30% by 2012



Sustainable Success

EDUCATION IS THE KEY!

Property Management Team

Vendors

Tenants

Team Education

- Monthly educational calls
 - Conducted by our LEED Consultants
 - Each month covered one specific topic
- Green Guide database
 - Place to house what we learned
 - Reference tool for all employees
- Implementation Checklist
 - Tool to streamline process for PM's
 - Included letter templates, flyer templates, labels, order forms, specs, etc.
- PM Green Teams
 - Important for them to have input and be involved in process



Vendor Education

- Low/No VOC Paints
 - It's on the spec, but what are they really using?
- Green Cleaning
 - Doesn't a bathroom have to smell like disinfectant to be clean??
- Recycling Program
 - Are the separate desk containers being combined into one giant bin?
- Training for janitorial teams
 - How are they training their new employees?
 - Make sure requirements are clear and specific in spec
 - Cooperation is mandatory

Tenant Education – Green Cleaning

- Cleaning products can contribute to indoor air quality problems as VOCs evaporate and are circulated through the building's ventilation system
 - Can cause eye and skin irritation, poisoning, respiratory problems
- Cleaner, safer, healthier buildings boost occupant health and productivity
- Ideas
 - Tenant letters and emails that introduce program
 - Follow up discussion
 - Tenant educational meetings
 - Microfiber cloth give-aways



Tenant Education - Recycling

- Has to be convenient
 - Bins located in each workspace and common areas
 - Make sure they understand what goes where
 - Single stream vs. separation
- Ideas
 - Regular communication
 - Clearly labeled bins
 - English – Spanish
 - Share “fun” facts
 - The energy savings from recycling one glass bottle is enough to power a computer for 25 minutes
 - Share their actual recycling facts with them
 - CO2 emissions from 4,994 gallons of gasoline consumed



Tenant Education – Energy Reduction

- Energy Saving Measures
 - Turning off computers at night
 - Turn off lights
 - Timers on vending machines
 - Purchasing Energy Star equipment and appliances
- Ideas
 - Benchmark and track energy usage
 - Energy Star Portfolio Manager
 - Show tenant potential \$ savings
 - Set a goal and publicly measure progress
 - Energy Star?
 - “Kill-a-Watt” Challenge
 - Engage local energy company for ideas
 - Monthly tips/newsletters



For More Information

EPA Waste Reduction Calculators:

- http://epa.gov/climatechange/wycd/waste/calculators/Warm_Form.html
- <http://www.epa.gov/cleanenergy/energy-resources/calculator.html>

Energy Star Portfolio Manager:

1. www.energystar.gov
2. “Explore Buildings and Plants”
3. Getting Started for “Commercial Real Estate”

Thank you

