Your Webinar will begin shortly.

Welcome
ESC Educational Webinar
Green Performance Contracting

For today's webinar support, contact
Tony Philips at 601-602-4604

If you have any questions or need additional information about today's webinar, please email Rhonda Courtney at rc@energyservicescolaition.org

To learn more about the Energy Services Coalition or to become a member go to www.energyservicescoalition.org

Green Performance Contracting

Using a Paid-from-Savings Project Approach to Earn a LEED Certification

Rob Van Der Like, CEM, LEED® AP, CSDP
Associate, Cadmus Group

Webinar support, contact Tony Philips at 601-602-4604

The Energy Services Coalition presents a national education forum through the use of webinars to enhance the learning and awareness of performance contracting.

Go to www.energyservicescoalition.org

to view previous webinars:

- **Optimizing Economic Stimulus Dollars through Energy Savings Performance Contracting**

- **Biggest Bang for the Buck - Leveraging Funds**

Webinar support, contact Tony Philips at 601-0602-4604

Robert N. Van Der Like

CEM, LEED® AP, CSDP

Associate

The Cadmus Group, Inc.

- Currently completing a Paid-from-Savings Guide project for USGBC (to be published by GreenBuild 2009)
- Project manager for several LEED-EB: O&M projects
- Former energy manager for a large school district which used performance contracting
- Past ESC Member of the Board

In one sense …

all performance contracting is “green.”

- **Reduces energy use – cost and resource depletion**
- **Reduces greenhouse gas emissions**

What is “Green” PC?

What is “Green” PC?

Definition: *Meets a Standard*

1. Designed to achieve a level of energy and water performance that will meet the minimum required performance levels specified in the LEED rating system.
2. Designed to include other green performance measures where allowable and economically feasible.
3. Is not intended to be a guarantee of LEED certification.

Green PC

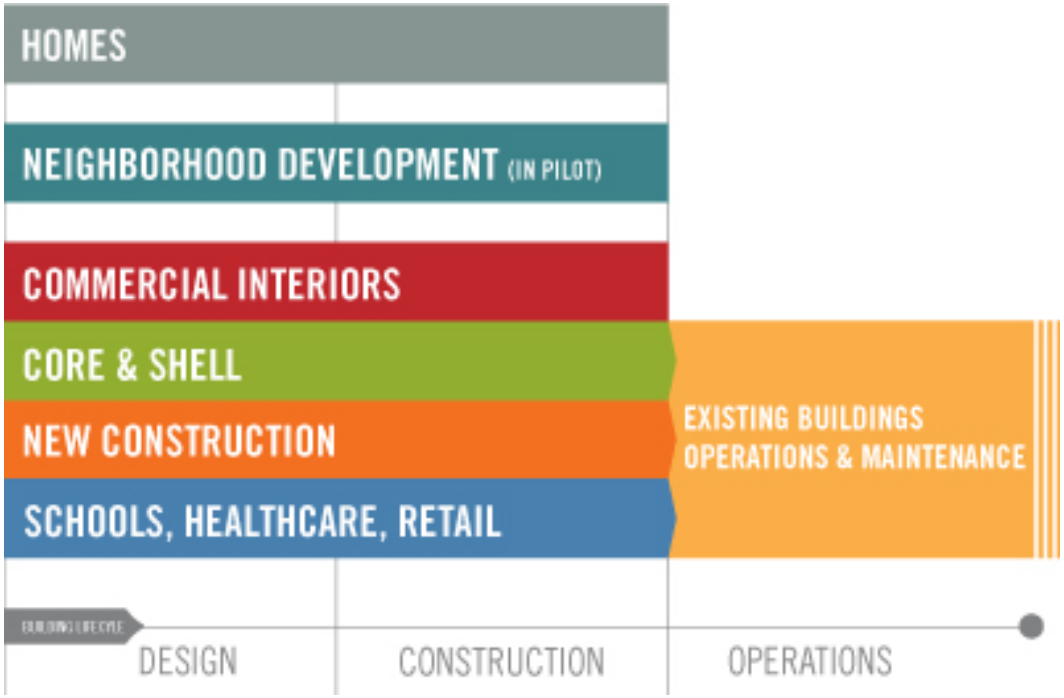
Presentation Outline

- Overview of LEED for Existing Buildings: Operations & Maintenance Rating System
- Possible Project Scenarios
- Project Economics and Feasibility
- USGBC Resources

Overview of LEED for Existing Buildings: Operations & Maintenance

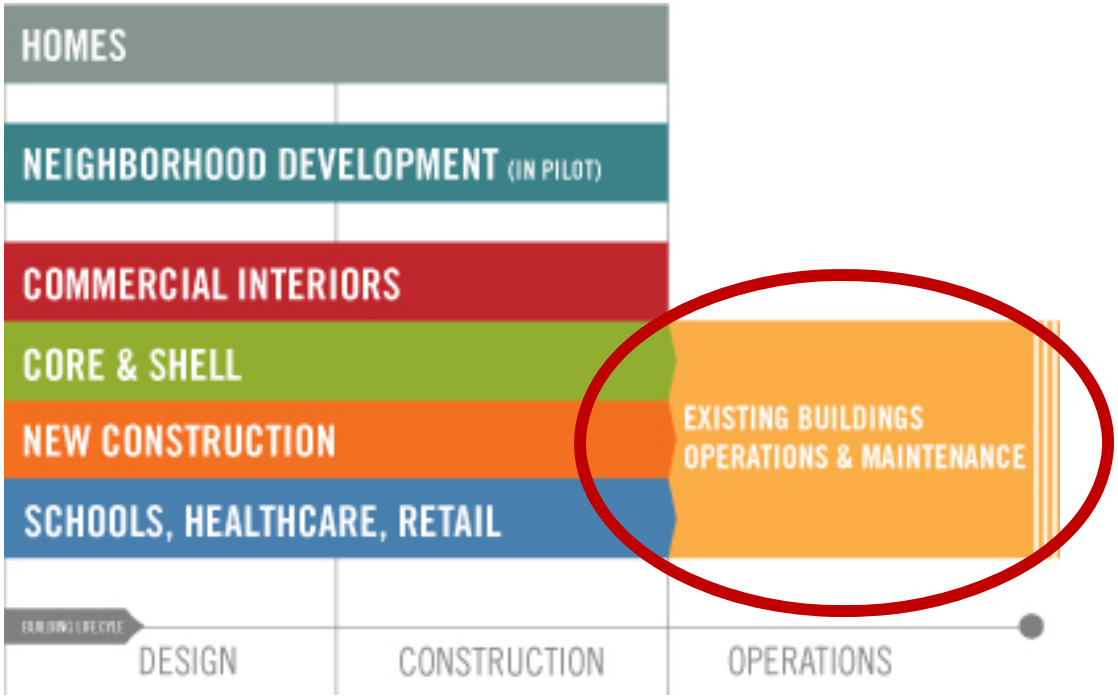
A Way to Define Green

LEED Rating Systems



A Way to Define Green

LEED Rating Systems



A Way to Define Green

Download a free PDF copy of the rating system at the USGBC web site.

LEED > LEED Rating Systems

LEED-EB: O&M

9 Prerequisites

49 Credits

- Sustainable Sites
- Water Efficiency
- Energy & Atmosphere
- Materials & Resources
- Indoor Environmental Quality

LEED-EB: O&M

Three types of green performance measures

- **Building performance measures**
- **O&M Best Practices**
- **Sustainable Policies**

Some credits contain one, two, or all of these types of measures.

LEED-EB: O&M & PC

Credits relating to PC

- ***Essential*** to PC
  (utility cost savings measures)
- ***Potential*** for PC
  (similar discipline or trade)
- Can be added with a ***minor financial impact*** (not typical of a PC project)

LEED-EB: O&M

Prerequisites

Prerequisites

- Minimum Indoor Plumbing Efficiency
- Energy Efficiency Best Management Practices
- Minimum Energy Efficiency Performance
- Fundamental Refrigerant Management
- Sustainable Purchasing Policy
- Solid Waste Management Policy
- Minimum Indoor Air Quality Performance
- Environmental Tobacco Smoke (ETS) Control
- Green Cleaning Policy

Prerequisites

Impact of PC on LEED-EB: O&M

- Minimum Indoor Plumbing Efficiency
- Energy Efficiency Best Management Practices
- Minimum Energy Efficiency Performance
- Fundamental Refrigerant Management
- Sustainable Purchasing Policy
- Solid Waste Management Policy
- Minimum Indoor Air Quality Performance
- Environmental Tobacco Smoke (ETS) Control
- Green Cleaning Policy

Prerequisites

Impact of PC on LEED-EB: O&M

Minimum Indoor Plumbing Efficiency

- Streamlined path for buildings constructed or completely renovated in 1993 or later.
- Must meet a baseline comparison
  - 120% of UPC 2006 fixtures (buildings 1993 or later)
  - 160% of UPC 2006 fixtures (buildings older than 1993)

Prerequisites

Impact of PC on LEED-EB: O&M

Energy Efficiency Best Management Practices

- Systems documentation (Systems Narrative, Sequence of Operation)
- PM plan and schedule
- Building Operating Plan
- ASHRAE Level I Energy Audit

Prerequisites

Impact of PC on LEED-EB: O&M

Minimum Energy Efficiency Performance

- ENERGY STAR rating of at least 69 (on a scale of 1 to 100 – for ratable spaces)
- 19% better than average (for non-ratable space types) using ENERGY STAR Portfolio Manager and USGBC Optional Calculators

Prerequisites

Impact of PC on LEED-EB: O&M

Fundamental Refrigerant Management

- Streamlined path for no CFC-based refrigerants
- Phase-out Plan (system replacement or refrigerant conversion) for equipment using CFC-based refrigerants or an economic analysis showing not economically feasible (> 10 year simple payback)

Prerequisites

Impact of PC on LEED-EB: O&M

Minimum Indoor Air Quality Performance

- Meet ASHRAE 62.1 – 2007 requirements for space type
- Minimum 10 CFM per person

LEED-EB: O&M

Credits

LEED-EB: O&M

9 Prerequisites

49 Credits

- Sustainable Sites
- Water Efficiency
- **Energy & Atmosphere**
- Materials & Resources
- Indoor Environmental Quality

Energy & Atmosphere

EA c1 – Optimize Energy Efficiency Performance
EA c2.1 – Existing Building commissioning – Investigation and Analysis
EA c2.2 – Existing Building commissioning – Implementation
EA c2.3 – Existing Building commissioning – Ongoing Commissioning
EA c3.1 – Performance Measurement – Building Automation System
EA c3.2 – Performance Measurement – System Level Metering
EA c4 – On-site and Off-site Renewable Energy
EA c5 – Enhanced Refrigerant Management
EA c6 – Emissions Reduction Reporting

LEED-EB: O&M

9 Prerequisites

49 Credits

- Sustainable Sites
- **Water Efficiency**
- Energy & Atmosphere
- Materials & Resources
- Indoor Environmental Quality

Water Efficiency

WE c1 – Water Performance Measurement
WE c2 – Additional Indoor Plumbing Fixture and Fitting Efficiency
WE c3 – Water Efficient Landscaping
WE c4 – Cooling Tower Water Management

LEED-EB: O&M

9 Prerequisites

49 Credits

- Sustainable Sites
- Water Efficiency
- Energy & Atmosphere
- Materials & Resources
- **Indoor Environmental Quality**

Indoor Environmental Quality

EQ c1.2 – IAQ Best Management Practices: Outdoor Air Delivery Monitoring
EQ c1.3 – IAQ Best Management Practices: Increased Ventilation
EQ c1.4 – IAQ Best Management Practices: Reduce Particulates in Air Distribution
EQ c1.5 – IAQ Best Management Practices: IAQ Management for Facility Alterations
EQ c2.2 – Controllability of Systems – Lighting
EQ c2.3 – Occupant Comfort: Thermal Comfort Monitoring
EQ c2.4 – Daylight and Views

Possible Project Scenarios

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How to get it all done!

- Owner leads the way
- PC project leads the way
- Turn-key project

Possible Project Scenarios

How to get it all done!

- **Owner leads the way**
- PC project leads the way
- Turn-key project

Owner Leads the Way

Demonstrated commitment to sustainability –
developing and adopting policies

- **Sustainable Purchasing**
- **Recycling**
- **Green cleaning**

Owner Leads the Way

Demonstrated commitment to sustainability – *implementing best practices*

- **Building exterior and hardscape management plan**
- **Integrated pest management plan**
- **Erosion control plan**
- **Landscape management plan**
- **Alternative transportation (survey)**
- **Occupant comfort (survey)**
- **IAQ management plan for facility alterations**
- **Green cleaning practices**

Owner Leads the Way

Demonstrated commitment to sustainability –

But needs facility performance improvements from the PC project to meet LEED-EB: O&M requirements.

Possible Project Scenarios

How to get it all done!

- Owner leads the way
- **PC project leads the way**
- Turn-key project

PC Project Leads the Way

Owner uses PC project to inaugurate sustainability program.

- **Facility performance improvements come first and help the facility meet LEED requirements.**
- **Owner-led LEED credit accomplishments may come well after PC project completion.**

Possible Project Scenarios

How to get it all done!

- Owner leads the way
- PC project leads the way
- **Turn-key project**

Turn-key Project

Owner wants a LEED-EB: O&M certification for the project building in conjunction with the PC project.

- **Facility management team works closely with the ESCO team to understand project roles and responsibilities.**
- **PC project milestones are coordinated with LEED certification milestones.**

Project Process

- Education & training
- LEED Certification Assessment
- Audit and Project Development Plan
- Energy Services Agreement
- Post equipment installation services

LEED Certification Assessment

- Focus on prerequisites
- Use of Building Information Modeling (BIM) in pre-project phase
- Use of building energy modeling during audit phase
- Can be accomplished by owner or ESCO

Project Economics and Feasibility

Economics & Feasibility

- Whole project perspective
- Project measures bundling
- How many non-utility savings measures can be added?
- Supplemental funding and financing
- Internally funded measures

Project Economics

Project Measure	1 Cost to Implement (Operating Budget)	2 Cost to Implement (Capital Budget)	3 Added Annual Costs (Operating Budget)	4 Annual Savings (Operating Budget)
1. Develop Environmental Preferable Purchasing (EPP) Policy and Training (MRp1)	**$2,500**		**$900**	**$0**
2. Develop Erosion Control, and Landscape Management Plan & Training (SSc3)	**$2,000**			**$0**
3. Modification of Landscape Features to Include Native Plants (SSc5)	**$5,300**			**$400**
4. Install Faucet Aerators and New Dual Flush Toilet Valves (WEc2)		**$22,000**		**$2,190**
5. Conduct ASHRAE Level II Audit (EAc2.1)	**$6,800**			**$0**
6. Install Energy Efficiency Improvement Measures (EAp2, EAc1, EAc2.2): a. Upgrade Old Controls with new BAS b. Install VFDs in 17 AHUs c. Lighting System Retrofit d. Occupancy-based Lighting and HVAC controls e. Chiller Plant Primary/Secondary Loop Modifications to Correct Low Delta T f. Program BAS to Temperature Guidelines		**$496,339**		**$68,875**

Project Economics

Project Measure	1 Cost to Implement (Operating Budget)	2 Cost to Implement (Capital Budget)	3 Added Annual Costs (Operating Budget)	4 Annual Savings (Operating Budget)
7. Conduct Waste Stream Audit and Complete Report (MRc6)	**$4,500**			**$0**
8. Establish Recycling Program, Purchase Bins, and Record Keeping Process (MRc7.2-7.2)	**$5,700**		**$1,200**	**$1,680**
9. Conduct IAQ Audit and Complete Report (EQc1.1)	**$6,500**			**$0**
10. Test and Balance All O/A Intakes and Exhaust Systems and Report (EQp1)	**$8,500**			**$0**
Project Totals:	**$41,800**	**$518,339**	**$2,100**	**$73,145**
Total Project ROI:	**12.7%**			
Simple Payback:	**7.9 years**			

Total project cost: **$560,139**

Total project ROI: **12.7%**

Total net savings: **$71,045**

Simple Payback: **7.9 years**

Project Economics

Key Points

- Utility savings measures shown in Capital Budget (to be funded, partially funded, or financed)
- Other measures shown in Operating Budget (could be rolled into financing package)
- Some measures incur an increase in annual operating costs
- However, bundled as a whole the overall project economics is attractive

USGBC Resources

USGBC Resources

- LEED-EB: O&M Rating System
- Green Operations & Maintenance Reference Guide
- LEED Training Workshops
- The Paid-from-Savings Guide to Green Buildings (To be published soon)

Green PC

Summary

- Overview of LEED for Existing Buildings: Operations & Maintenance
- Possible Project Scenarios
- Project Economics and Feasibility
- USGBC Resources

Thank you for participating!

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Have a safe and fun Labor Day weekend.