LEED – Existing Buildings Operations & Maintenance

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Transforming the Built Environment
Introductions

• Who are we?
  – Deb Frank
    • VP of Sustainability at Missouri Botanical Garden
    • Owner – CBEC

  – Emily Andrews, LEED AP O+M
    • Executive Director for USGBC-MO Gateway Chapter
    • Volunteer Coordinator / IEQ Team - CBEC
What IS the LEED Community Project?

• Part of our effort to make every building a GREEN building.
• Provide healthier and more efficient building for a non-profit that supports our community!
• Provide LEED Project Experience
• Promote LEED EB:O&M as a practical tool for improving building performance and indoor environmental quality
Attendee Introductions

• Name
• Company or Affiliation?
• Why are you here?
• What aspect LEED Community Project are you interested in?
Getting Ready for LEED EB: O&M

- Introductions
- Welcome to LEED EB: O&M
- Overview of CBEC LEED Community Project
- How it all worked
- Resources
- Expectations for volunteers & non-profit
Welcome to LEED EB:O&M!

- Why LEED EB: O+M?
- How is it different from other LEED systems?
- Basics of LEED EB: O+M
The U.S. is home to more than sixty billion square feet of existing commercial buildings.

2.2 billion square feet currently LEED certified.
LEED EB:O&M continues to outpace LEED NC

In 2012 LEED EB:O&M accounted for 53% of total square footage certified in “top ten LEED states” compared to 32% under LEED NC.
Why LEED EB: O&M?

- Helps building owners and operators document and measure operations
- Maximize operational efficiency
- Minimize environmental impacts
Why LEED EB: O&M?

- Even in buildings designed efficiently, operations can degrade over time
Toto, we’re not in LEED NC land any more!

- Focus on operations and maintenance **NOT** design and construction
- Certification based on **actual performance** during 3 – 12 period
- Requires time investment of building operations staff
Benefits of LEED EBOM

- Documentation of in-house intellectual capital.
- Driver for setting and measuring performance.
- Increases communication and collaboration.
- Establishes strategies for managing whole-building operations.
Policies and Plans

• Erosion & Sedimentation Policy
• Low-impact Site & Green Bldg Exterior Mgt Plan
• Integrated Pest Management Plan
• Storm Water Management Policy
• Building Operating and Maintenance Plan
• Sustainable Purchasing Policy
• Solid Waste Management Policy
• Indoor Air Quality Management Plan
• Green Cleaning Policy
Minimum Project Requirements

- Federal, state and local environmental law/regulation compliance
- Full Occupancy for at least 12 continuous months
- Applies to whole buildings

Transforming the Built Environment
Overview of CBEC
LEED Community Project

• Starts with Missouri Botanical Garden’s Commitment to sustainability
• Commerce Bank Center for Science Education (aka CBEC) – already an efficient building
• 4th LEED certified project and 2nd LEED EB certification for the Garden
• Funding from Wells Fargo Green Team Grant Program
Overview of CBEC
LEED Community Project

• Timeline & Process
  – Kick Off – October 2011
  – Submitted for prelim. review – July 20, 2012
  – Submitted for final review – October 25, 2012
  – LEED Silver Certification – December 14, 2012
Overview of CBEC
LEED Community Project

YAY TEAM!

Transforming the Built Environment
How does it all fit together?

Evaluate: Building, Site, LEED Credits

“Readying:” Policy and Program Development

Performance Period

Document, Review and Certification

Don’t forget to CELEBRATE!

Transforming the Built Environment
Evaluate: Building, Site LEED Credits

- Does project comply with Minimum Project Requirements?
- Thorough review of Reference Guide, Credit Templates, etc.
Evaluate: Building, Site, LEED Credits

- Start w baseline assessment
- Volunteers choose credits
- Set up LEED Online
- Assign Roles
CBEC LESSONS LEARNED:

- *Importance of internal staff involvement*
- *Communication between volunteers & staff*
- *Education of building owner throughout project so results are on-going*
Readying: Policy and Program Development

- Can building meet LEED EB:O&M prerequisites?
- Is building an eligible ENERGY STAR type?

CBEC LESSON LEARNED:
Place a greater emphasis on completing pre-requisites early in the project (certainly well before entering performance period)

Transforming the Built Environment
Start with the end in mind – let this inform your “work plan” for each credit

- What are the time and cost investments?
- Do we need “subject matter experts”?

**CBEC LESSON LEARNED:**

*Clarify expertise needed for each credit early on – ask for help if you need it!*
Start with the end in mind – What’s required for each credit?

TIP: Refer to the project’s Green Cleaning Policy from IEQ Prerequisite 3, as that establishes the policies, goals, and practices that lead to achieving IEQ Credit 3.1.

- Performance period start:
- Performance period end:

A high-performance cleaning program, supported by a green cleaning policy as required by IEQ Prerequisite 3, was in effect for the project building and associated grounds over the performance period.

Upload a copy of the compliant high-performance cleaning program that covers the project building and associated grounds.
Start with the end in mind – What’s required?

IEQ CREDIT 2.1: OCCUPANT COMFORT - OCCUPANT SURVEY

This static sample form has been modified for offline access. All sections of the form are visible. Sample forms are for reference only.

Performance period start: ________________

Performance period end: ________________

Invalid Date range: The performance period must be between 80 and 731 days, and must end within 90 days of the overall project performance period given in the Project Information section.

☐ The project team conducted an occupant survey offered to all Regular Occupants of the project building.

The occupant survey began on: ________________

Number of survey respondents: ________________

Total number of regular occupants of the project building: ________________

Percentage of the project building’s Regular Occupants who responded to the survey: ________________%

Upload IEQc2.1-1. Provide the survey language that addresses thermal comfort, acoustics, indoor air quality, lighting levels, building cleanliness, and other occupant comfort issues.

The survey content and method meets the minimum requirements described in the Reference Guide, including the requirement for survey responses to reflect a representative sample of regular occupants.

Summarize the survey results and described any corrective actions taken to address any comfort issues identified through the
CBEC Lesson Learned:

*Understand from the outset what each credit requires & use a tracking tool!*

<table>
<thead>
<tr>
<th>MBG/CBEC LEED EBOM Certification</th>
<th>Plan</th>
<th>Policy</th>
<th>Program</th>
<th>Performance Period</th>
<th>Template</th>
<th>LEED Online</th>
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<tr>
<td>Points Attempted</td>
<td>Y/N/C</td>
<td>Y/N/C</td>
<td>Y/N/C</td>
<td>Y/N</td>
<td>Date Started</td>
<td>Date Completed</td>
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<td>Y</td>
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<td>Green Cleaning Policy</td>
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<td>2/1/12</td>
<td>Fac Mgr</td>
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<td>Indoor Air Quality Best Management-IAQ Management Program</td>
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<td>Indoor Air Quality Best Management-Increased Ventilation</td>
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<td>Y(Y1)</td>
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<tr>
<td>IAQ Management Plan-Facility Alterations and Additions</td>
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<tr>
<td>Controllability of Systems-Lighting</td>
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<td>Y (p3, MRP1)</td>
<td>Y (see 3.1)</td>
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<td>Green Cleaning-Indoor Integrated Pest Management</td>
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<td>Y</td>
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<td>2/1/12</td>
</tr>
</tbody>
</table>
Start with the end in mind: What policy & procedure exist? What needs to be developed?

CBEC LESSON LEARNED:
LEEDUser is an INDESPENSIBLE tool. Use it early and often!
By the time you reach the Performance Period, everything should be smooth sailing.

All the important work was completed during the last phase!
This is where the magic happens – IMPLEMENT & MEASURE!

Track the performance of your building against the policies and programs

**SSc4**: How many people used public transportation or alternative transportation? - 12 points!

**WEc1**: Water use of building and grounds – 1 point

**EAc1** – Energy used and renewable energy production – 13 points

Transforming the Built Environment
This is where the magic happens – IMPLEMENT & MEASURE!

Track the performance of your building against the policies and programs.

**MRc 6&7** – Tracked diversion of ongoing consumables against waste audit – 3 points

**IEQc3.3** – Tracked purchase of green cleaning products against green cleaning and purchasing policies
Remember - LEED EB:O&M is not a snapshot. Behavior during Performance Period meant to be sustained.

CBEC LESSON LEARNED:
Don’t use the performance period as a deadline!
Document, Review and Certification

- Just sit down and do it – don’t wait until you cannot find files and paperwork!
- Emphasize QA/QC of all details
- Confirm consistency in signatures and square footage across credits
Resources

- Rating Systems (free on USGBC.org)
- Reference Guide (Chapter has copies to loan)
- Volunteers from CBEC project
Resources

• Credit Templates
• LEEDuser / LEED EBOM Stress Test
• Building Materials (“as builds”, Monsanto and CBEC documentation)
Expectations: Building Owner

• Provide 1 years worth of utility data
• Provide any building operations manuals
• Provide any policies, guidance or practices
• Understand Minimum Project Requirements
• Be prepared to permanently implement new policies, guidelines, etc.
• Several internal staff will be key players
• Make yourself available to volunteers
Expectations: Volunteers

• It’s your job to get comfortable with LEED
• Regular meetings with full team or your credit team - and work in between meetings
• Track the time you spend on the project
• Ask for help if you need it
• Be respectful of building owner’s time in gathering information and documentation for project
Sneak Peak of Upcoming Sessions

• May 2 – Sustainable Sites & Water Efficiency
  – Hope Gribble, Kurt Thompson, Nick Bristow
• May 9 – Energy & Atmosphere
  – Gwenn Ivester & Deb Frank
• May 16 – Materials & Resources
  – Rene Dulle
• May 23 – Indoor Environmental Quality
  – Chris Laughman
Questions?
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