



LEED-EB: O&M (v3)
June 9
SLUG Meeting

Kelly Kirkland, LEED AP O+M
 Yvonne Kraus, LEED AP
O'Brien & Company



About Us

- o Oldest green building consulting firm in WA
- o Service areas:
 - o Green building consulting
 - o Programs, planning and policy development
 - o Sustainable Development Training Institute
- o Our role



Burning Questions

- o Your burning LEED-EB: O&M Question

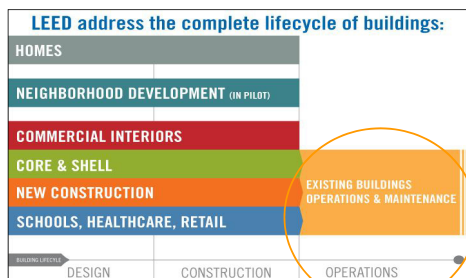


**Brief Overview of
 LEED for Existing Buildings:
 Operations & Maintenance**

“EB: O&M”



LEED Family of Rating Systems



EB: O&M is New!

- o The “LEED-EB” **pilot** was launched in 2002 and focused on remodels. Included some operations and maintenance credits. Updated in 2004.
- o **LEED-EB: Operations & Maintenance** was released in September 2008
 - o 5 certified projects in Seattle (all versions of EB)
 - o 22 registered projects in Seattle
- o **LEED-EB: O&M 2009** released less than 6 months later, minor changes



LEED 2009

- Updated rating systems for NC, CI, CS, EB: O&M, and Schools
- New **100 point system** with 10 bonus points
- New **regional credit** bonus points
- **Regular update cycle**
- New LEED AP O+M credential



Categories and Credits

Category	Prereq.	Credits	Points
Sustainable Sites	0	8	26
Water Efficiency	1	4	14
Energy & Atmosphere	3	6	33
Materials & Resources	2	9	12
Indoor Environmental Quality	3	3	15
Innovation in Operations / Regional Priority Credits	0	3	10
TOTAL 9 prerequisites – 33 credits – 110 points			



Eligibility

- Compliance with environmental laws
- Been operating for 12 months
- 12 months of energy use data (electricity, gas, oil, etc.)
- Typical physical occupancy during performance period



WE P1: Minimum Indoor Plumbing Fixture and Fitting Efficiency

- Based on the date of installation of your water fixtures, meet LEED-EB baseline.
- Fixtures should be 120-160% more efficient.



EA P1: Energy Efficiency Best Management Practices

- Document the Sequence of Operations of the building.
- Develop a Building Operating Plan, Systems Narrative, and Preventative Maintenance Plan.
- Conduct an ASHRAE Level 1 Energy Audit.



EA P2: Minimum Energy Efficiency Performance

- Earn a minimum score of 69 in Energy Star Portfolio Manager.

Other compliance pathways are available, but are more difficult.



EA P3: Refrigerant Management, Ozone Protection

- Do not use CFC-based refrigerants in HVAC&R base building systems (unless it is not economically feasible)

OR

- Demonstrate that a phase-out plan is in place



MR P1: Sustainable Purchasing Policy

- Develop a policy that addresses, at a minimum, the requirements of MR C1, Sustainable Purchasing of Ongoing Consumables.
- Include purchasing for at least one other MR purchasing credit (durable goods, facility alterations/additions, reduced mercury in lamps).



MR P2: Solid Waste Management Policy

- Develop a solid waste management policy addressing the waste streams of
 - ongoing consumables,
 - durable goods,
 - facility alterations and additions and
 - recycling of all mercury-containing lamps.



EQ P1: Outdoor Air Introduction and Exhaust Systems

- Modify or maintain air intakes, supply fan air, and/or ventilation distribution systems to supply at air ventilation rate which meets ASHRAE 62.1-2007

OR

- At least 10 cubic feet per minute (cfm) of outdoor air per person.



EQ P2: Environmental Tobacco Smoke (ETS) Control

- Prohibit smoking in the building and designate smoking areas at least 25 feet from building entries

OR

- Designate smoking rooms in the building and design to effectively contain, capture, and remove ETS from the building.




EQ P3: Green Cleaning Policy

- Develop a Green Cleaning Policy which addresses a number of credits in the green cleaning category:
 - Purchase of sustainable cleaning equipment and products
 - Standard operating procedures addressing methods for cleaning different building surfaces



Sample Credits



Sustainable Sites

- Building Exterior and Hardscape Management Plan



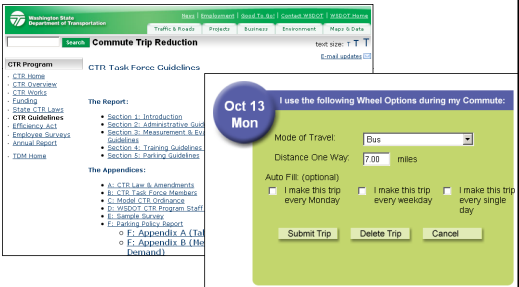


Sustainable Sites

- Integrated Pest Management and Erosion Control




Sustainable Sites

- Alternative Commuting

Water Efficiency

- Additional Fixture Efficiency






Water Efficiency

- Water Efficient Landscaping




Energy & Atmosphere


- Existing Building Commissioning

Energy & Atmosphere

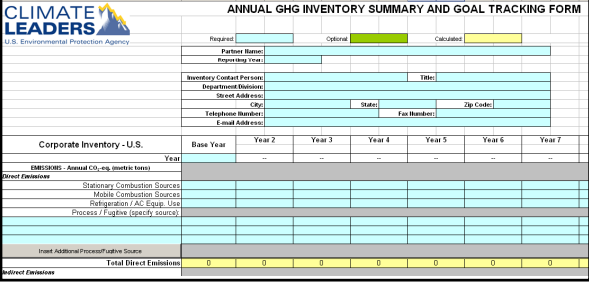
- Renewable Energy





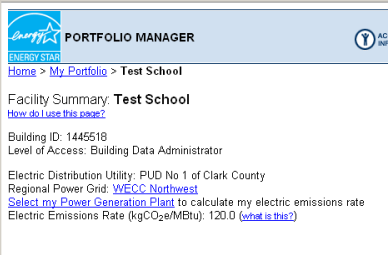
Energy & Atmosphere

- Emissions Reduction Reporting

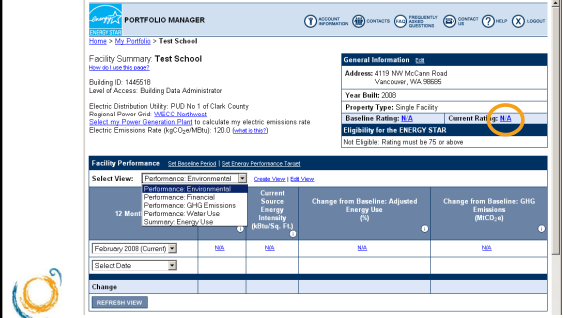


Energy & Atmosphere

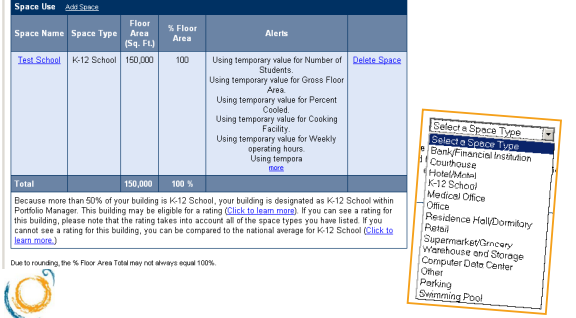
- Optimize Energy Efficiency Performance



ENERGY STAR Portfolio Manager



ENERGY STAR Portfolio Manager



Space Name	Space Type	Floor Area (Sq. Ft.)	% Floor Area	Alerts
Test School	K-12 School	150,000	100	Using temporary value for Number of Students Using temporary value for Gross Floor Area Using temporary value for Percent Cooled Using temporary value for Cooking Facility Using temporary value for Weekly operating hours Using temporary value for...
Total		150,000	100 %	

Because more than 50% of your building is K-12 School, your building is designated as K-12 School within Portfolio Manager. This building may be eligible for a rating. [Click to learn more.](#) If you can see a rating for this building, please note that the rating takes into account all of the space types you have listed. If you cannot see a rating for this building, you can be compared to the national average for K-12 School. [Click to learn more.](#)

Due to rounding, the % Floor Area Total may not always equal 100%.

ENERGY STAR Portfolio Manager

ENERGY STAR PORTFOLIO MANAGER

ACCOUNT INFORMATION CONTACTS FREQUENTLY ASKED QUESTIONS CONTACT HELP LOGOUT

Home > My Portfolio > Test School > Edit Energy Use

Edit Energy Use: Sample Meter

Please enter the energy use for each meter entry below. Portfolio Manager requires that entries are for consecutive time periods; only one day of overlap or one day of gap can exist between meter entries to be eligible to generate an Energy Performance Rating.

If you are accounting for "sold" energy, indicate this by entering a negative energy use for the appropriate time period.

[Download Meter Data in Excel](#)

Meter Information [Edit](#)

Test Type: Electricity (kWh)
SpaceID: Entire Facility

Remove Entry	Start Date (MM/SS/YYYY)	End Date (MM/SS/YYYY)	Energy Use (kWh)	Cost, US Dollars (optional)	Last Updated
<input type="checkbox"/>	02/01/2008	02/29/2008	15095.00	\$200.00	05/30/2008 by KELLY@OBRIENANDCO.COM
<input type="checkbox"/>	01/01/2008	01/31/2008	15110.00	\$200.00	05/30/2008 by KELLY@OBRIENANDCO.COM
<input type="checkbox"/>	12/01/2007	12/31/2007	15025.00	\$200.00	05/30/2008 by KELLY@OBRIENANDCO.COM
<input type="checkbox"/>	11/01/2007	11/30/2007	14825.00	\$200.00	05/30/2008 by KELLY@OBRIENANDCO.COM

Materials & Resources

- o Sustainable Purchasing
 - o Ongoing Consumables and Durable Goods



Materials & Resources

- o Facility Alterations and Additions






Materials & Resources

- o Solid Waste Management



Becomes manufactured into something else






REUSE
Used somewhere or by someone else



Breaks down naturally

Indoor Environmental Quality

- o IAQ Management Program
 - o Indoor Air Quality Building Education and Assessment Model – I-BEAM

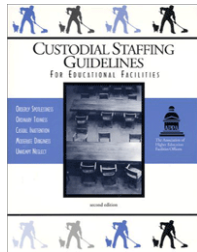
Indoor Environmental Quality

- o Occupant Comfort
 - o Survey
 - o Lighting
 - o Thermal
 - o Daylight & Views



Indoor Environmental Quality

- o Custodial Effectiveness



Innovation in Operations

- o Exemplary performance
- o LEED Accredited Professional
- o “Innovative” ideas
 - o Education plan
 - o ???



Example Credits: Regional Priority Credits

- o Latest from the USGBC web site:
 - o MRc5: Sustainable purchasing of food
 - o SSc5: 25% of site area in open space
 - o SSc6.1: Stormwater quantity control
 - o EAc1: Energy Star Score of 95+
 - o EAc4: Renewable energy (12% on-site, 100% off-site)



Important Highlights



EB: O&M Highlights

- o Applicable to commercial, institutional, and multi-family residential facility
 - o Offices
 - o Retail
 - o Service establishments
 - o Institutional
 - o Hotels
 - o Residential buildings of 4+ stories.



EB: O&M Highlights

- o Prerequisites are all within the control of the building owners and operators – but the actions of **building users** are critical to earning some points



EB: O&M Highlights

- o Useful **tool** for recognizing or developing sustainable operation practices
- o **Evaluates and recognizes performance** in accepted green operational categories
- o Provides an **opportunity for savings**



Key Considerations



Major Players

Have Substantial Responsibility for Prerequisites and Credits

- o Facility Manager
- o Building Engineer

Additional Participants

- o Owner
- o Tenants
- o Custodial staff
- o Groundskeeper
- o AEC Team (for renovations and additions)

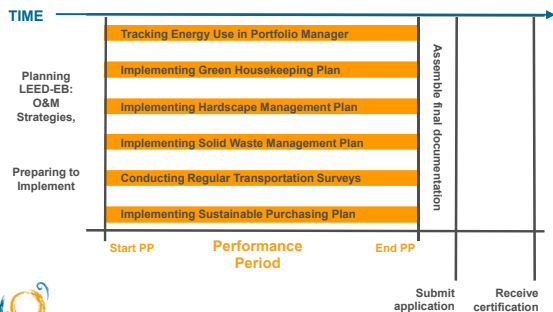


Individual Building Requirement

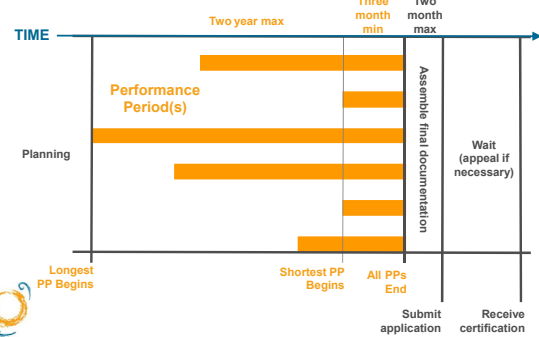
- o EB is designed to certify individually-metered **single buildings**
- o Why? Because **energy performance** can only be fine-tuned on an individual building basis



Certification Timeline - Ideal



Certification Timeline - Reality



Alterations and Additions

- o Maximum limit for renovations is 50% of floor space/occupants relocated
- o Maximum limit for additions is no more than 50% increase in floor area



Plans and Policies

Required:

- o Building Sequence of Operations (SOO for each system)
- o Building Operating Plan (occupancy schedule, system run-time schedule, design setpoints, etc.)
- o Building Systems Narrative (brief description of all mechanical and electrical equipment)
- o Preventative Maintenance Plan
- o Sustainable Purchasing Policy
- o Solid Waste Management Policy
- o No Smoking Policy*
**If not possible, other compliance pathways are available*
- o Green Cleaning Policy



Plans and Policies

For Credit:

- o Building Exterior Hardscape Management Plan
- o Sustainable Landscape Management Plan (including Integrated Pest Management and Erosion Control)
- o Cooling Tower Chemical Management Plan
- o Ongoing Commissioning Plan
- o Building Renovation Policy (Sustainable Facility Alterations & Additions)
- o IAQ Management Plan for Facility Alterations & Additions
- o High Performance Cleaning Program
- o Indoor Integrated Pest Management Plan



Timing with Remodel

1. Do remodel **during** the performance period.
 - o EB directly rewards **purchases** of sustainable building materials and **diversion** of construction waste
2. Do remodel **before** performance period.
 - o Make energy efficiency upgrades
 - o When performance period starts, building is already **energy efficient** and earns more energy-related points



Recertification

- o Recertification is available every 1-5 years
 - o The certification level can change each time based on number of points earned
 - o The “performance period” for every credit is the time period since the last certification
- o Planning for recertification up-front is important



Benefits



Certification Benefits

- Third party validation of achievement
- LEED certification **plaque** to mount on building



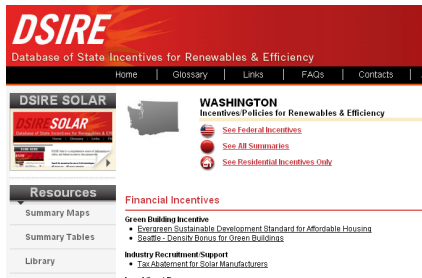
Certification Benefits

- Be recognized as a **regional leader**...
 - There are **zero** LEED-EB: O&M certified projects in Washington State!
- Or be on the trailing edge...
 - There are **45** registered projects



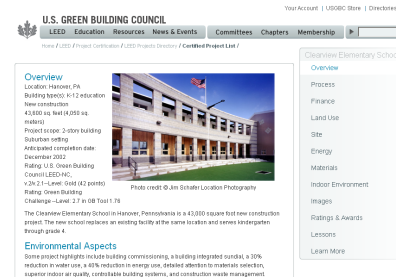
Certification Benefits

- Qualify for growing array of state and local incentives



Certification Benefits

- **Marketing exposure** through USGBC web site, case studies and media announcements



Key Questions to Ask

- How sustainably is the building being operated and maintained today?
- Are the right people involved in the conversation?
- What are the other major milestones that effect the certification and performance periods?



Thank You!

Kelly M. Kirkland, Project Associate
kelly@obrienandco.com

Yvonne Kraus, Project Manager
yvonne@obrienandco.com

O'Brien & Company
 206-621-8626

