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Consulting Engineers

LEED: EBOM -
POTENTIAL BUSINESS OPPORTUNITIES
AND
CHALLENGES

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Duncan Rowe, EIT, LEED® AP

Vancouver . Nanaimo . Victoria . Edmonton . Calgary . Toronto

INNOVATIVE THINKING.

PRACTICAL RESULTS.



Topics:

- What is LEED?
- What is LEED: EBOM?
- How can LEED: EBOM change the current business climate?
- Exemplar buildings



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LEED

- LEED = Leadership in Energy and Environmental Design
- 3rd party certification program: point based
- Five categories: SS, WE, AE, MR and IEQ
- Separate Canadian version
- LEED: EBOM is scheduled for a June 2009 release



LEED: EBOM

- EBOM = Existing Buildings: Operations and Maintenance
- LEED EBOM is designed to encompass the operations phase of a building - including limited major repairs
- LEED EBOM is different from LEED NC
- A large portion of EBOM is focused on the building operations



Where do we fit in EBOM?

Sustainable Sites	9 Possible Points
Credit 1: LEED Certified Design and Construction	1
Credit 2: Building Exterior and Hardscape Management Plan	1
Credit 3: Integrated Pest Management, Erosion Control, and Landscape Management Plan	1
Credit 4.1 - 4.4: Alternative Commuting Transportation	1
Credit 5: Reduced Site Disturbance: Protect or Restore Open Space	1
Credit 6: Stormwater Management	1
Credit 7.1: Heat Island Reduction: Nonroof	1
Credit 7.2: Heat Island Reduction: Roof	1
Credit 8: Light Pollution Reduction	1
Water Efficiency	4 - 10 Possible Points
Prerequisite 1: Minimum Indoor Plumbing Fixture and Fitting Efficiency	Required
Credit 1.1 and 1.2: Water Performance Measurement	1 - 2
Credit 2.1 - 2.3: Additional Indoor Plumbing Fixture and Fitting Efficiency	1 - 3
Credit 3.1 - 3.3: Water Efficient Landscaping	1 - 3
Credit 4.1 - 4.2: Cooling Tower Water Management	1 - 2
Energy & Atmosphere	13 - 30 Possible Points
Prerequisite 1: Energy Efficiency Best Management Practices: Planning, Documentation and Opportunity Assessment	Required
Prerequisite 2: Minimum Energy Efficiency Performance	Required
Prerequisite 3: Refrigerant Management: Ozone Protection	Required
Credit 1: Optimize Energy Efficiency Performance	2-15, 2 point mandatory
Credit 2.1: Existing Building Commissioning: Investigation and Analysis	2
Credit 2.2: Existing Building Commissioning: Implementation	2
Credit 2.3: Existing Building Commissioning: Ongoing Commissioning	2
Credit 3.1: Performance Measurement: Building Automation System	1
Credit 3.2 and 3.3: Performance Measurement: System-Level Metering	1 - 2
Credit 4.1 - 4.4: On-Site and Off-Site Renewable Energy	1 - 4
Credit 5: Refrigerant Management	1
Credit 6: Emissions Reduction Reporting	1
Materials & Resources	9 - 14 Possible Point
Prerequisite 1: Sustainable Purchasing Policy	Required
Prerequisite 2: Solid Waste Management Policy	Required
Credit 1.1 - 1.3: Sustainable Purchasing: Ongoing Consumables	1 - 3
Credit 2.1 and 2.2: Sustainable Purchasing: Durable Goods	1 - 2

Credit 3: Sustainable Purchasing: Facility Alterations & Additions	1
Credit 4: Sustainable Purchasing: Reduced Mercury in Lamps	1 - 2
Credit 5: Sustainable Purchasing: Food	1
Credit 6: Solid Waste Management: Waste Stream Audit	1
Credit 7.1 and 7.2: Solid Waste Management: Ongoing Consumables	1 - 2
Credit 8: Solid Waste Management: Durable Goods	1
Credit 9: Solid Waste Management: Facility Alterations & Additions	1
Indoor Environmental Quality	16 - 20 Possible Points
Prerequisite 1: Outdoor Air Introduction & Exhaust Systems	Required
Prerequisite 2: Environmental Tobacco Smoke (ETS) Control	Required
Prerequisite 3: Green Cleaning Policy	Required
Credit 1.1: IAQ Best Management Practices: IAQ Management Program	1
Credit 1.2: IAQ Best Management Practices: Outdoor Air Delivery Monitoring	1
Credit 1.3: IAQ Best Management Practices: Increased Ventilation	1
Credit 1.4: IAQ Best Management Practices: Reduce Particulates in Air Distribution	1
Credit 1.5: IAQ Best Management Practices: IAQ Management for Facility Alterations and Additions	1
Credit 2.1: Occupant Comfort: Occupant Survey	1
Credit 2.2: Occupant Comfort: Occupant-Controlled Lighting	1
Credit 2.3: Occupant Comfort: Thermal Comfort Monitoring	2
Credit 2.4 and 2.5: Occupant Comfort: Daylight and Views	1 - 2
Credit 3.1: Green Cleaning: High-Performance Cleaning Program	1
Credit 3.2 - 3.3: Green Cleaning: Custodial Effectiveness Assessment	1 - 2
Credit 3.4 - 3.6: Green Cleaning: Purchase of Sustainable Cleaning Products and Materials	1 - 3
Credit 3.7: Green Cleaning: Sustainable Cleaning Equipment	1
Credit 3.8: Green Cleaning: Entryway Systems	1
Credit 3.9: Green Cleaning: Indoor Integrated Pest Management	1
Innovation In Operations	4 - 7 Possible Points
Credit 1.1 - 1.4: Innovation in Operations	1 - 4
Credit 2: LEED® Accredited Professional	1
Credit 3: Documenting Sustainable Building Cost Impacts	2
Project Totals	85 possible base points plus 7 for IO
<input type="checkbox"/> Certified	34-42 points
<input type="checkbox"/> Silver	43-50 points
<input type="checkbox"/> Gold	51-67 points
<input type="checkbox"/> Platinum	68-92 points



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Credits Likely to Affect Us

- SS Credit 5: Reduced Site Disturbance
- SS Credit 7.1/.2: Heat Island Reduction
- WE Credit 3.1: Water Efficient Landscaping
- EA Credit 1: Optimize Energy Efficiency Performance
- EA Credit 2: Existing Building Commissioning
- MR Credit 3: Sustainable Purchasing: Additions
- MR Credit 9: Solid Waste Management: Additions
- IO Credit 1: Innovation in Operations



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Projects = Credits

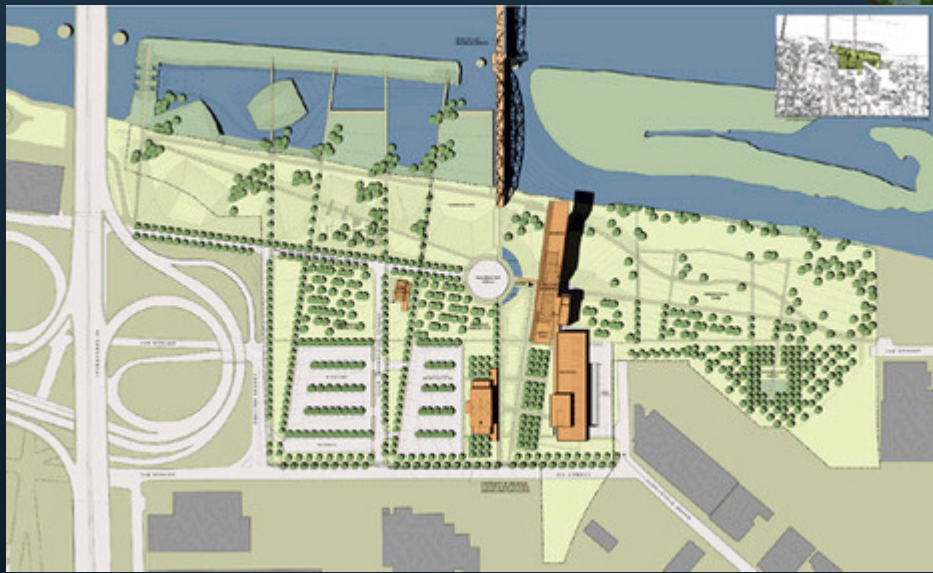
- Podium Deck rehabilitation / Parking area reclamation
 - SS Credit 5: Reduced Site Disturbance
- Re-cladding / Re-skinning
 - EA Credit 1: Optimize Energy Efficiency
- New products / new standards
 - MR Credit 3: Sustainable Purchasing: Additions



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Clinton Library

- Little Rock, Arkansas
- Built 2004 - Silver
- Nov. 2007 - Platinum



- Green cleaning
- Waste reduction
- Green roof

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Adobe HQ

- San Jose, Cal.
- First office tower with LEED EB Platinum (2006)



- Podium rehab
- Recommissioning systems
- Numerous mechanical upgrades



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Owens Corning HQ

- Toledo, Ohio
- LEED EB - Silver 2007 (constructed 1996)



- Site Reclaimed
- Daylight
- Ventilation



Canada LEED: EBOM Stats

- Projects are listed at usgbc.org
 - LEED EB V2.0
 - 4 Certified
 - 31 Registered
 - LEED: EBOM
 - None Certified
 - 13 Registered



Why Worry? Owner's Care

- 5 Billion sq. ft. of commercial building space is involved with some form of LEED
- 8-9% operating cost decrease
- 7.5% building value increases
- 6.6% ROI improvements
- 3.5% occupancy ratio increases
- 3% rent ratio increases

- Source Mc-Graw Hill Construction 2007,2008



Projected Numbers

	2006	2010
Projection U.S. Market	\$12 Billion (New) \$130 Billion (renovation)	\$30-60 Billion (New) \$240 Billion (renovation)
Commercial & Institutional	\$4 Billion	\$10-20 Billion
Residential	\$8 Billion	\$20-40 Billion

Source: McGraw-Hill Construction 2007



Summary

- LEED EBOM will be released June 2009
- It has requirements which will affect our business practices
- Those poised to respond quickly to the new requirements will see benefits
- Generally, the “work” does not change but the materials, paper work and intent supporting it do