



Introduction to LEED-M[®] (LEED[®] for Monuments)

USGBC / LEED Steering Committee
April 1, 2010



History of US Green Building Council

“committed to a prosperous and sustainable future, through cost-efficient and energy-saving green buildings”

- founded 1993
- 78 local affiliate organizations
- 18,500 member companies
- develops LEED® standards





LEED® Rating System

Leadership in Energy and Environmental Design

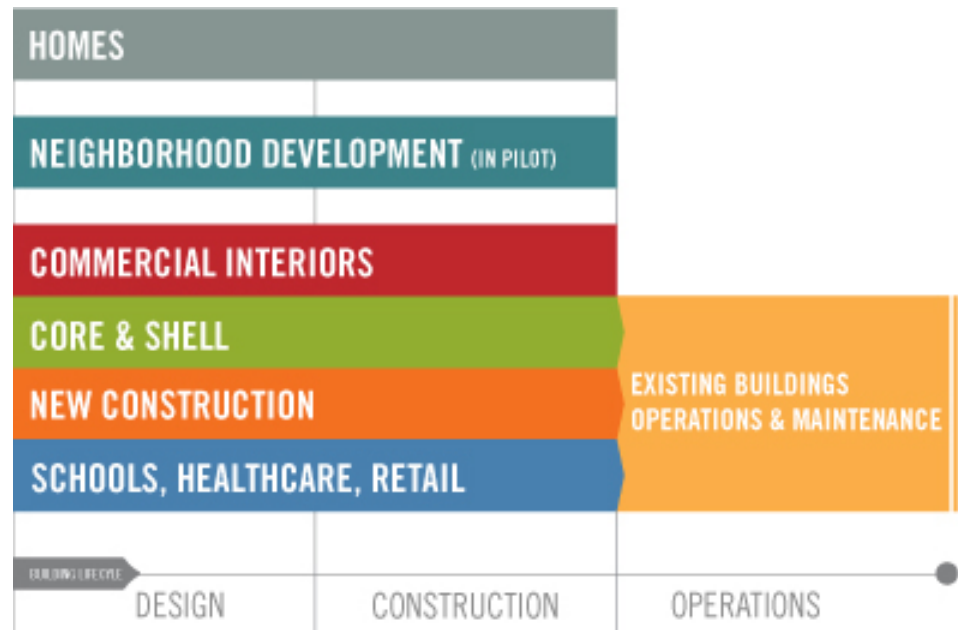
“a suite of standards for the environmentally sustainable design, construction and operation of buildings and neighborhoods”

- tremendous growth since 1998
- 20 sub-committees
- 140,000 LEED® professionals
- 14,000+ LEED® certified projects





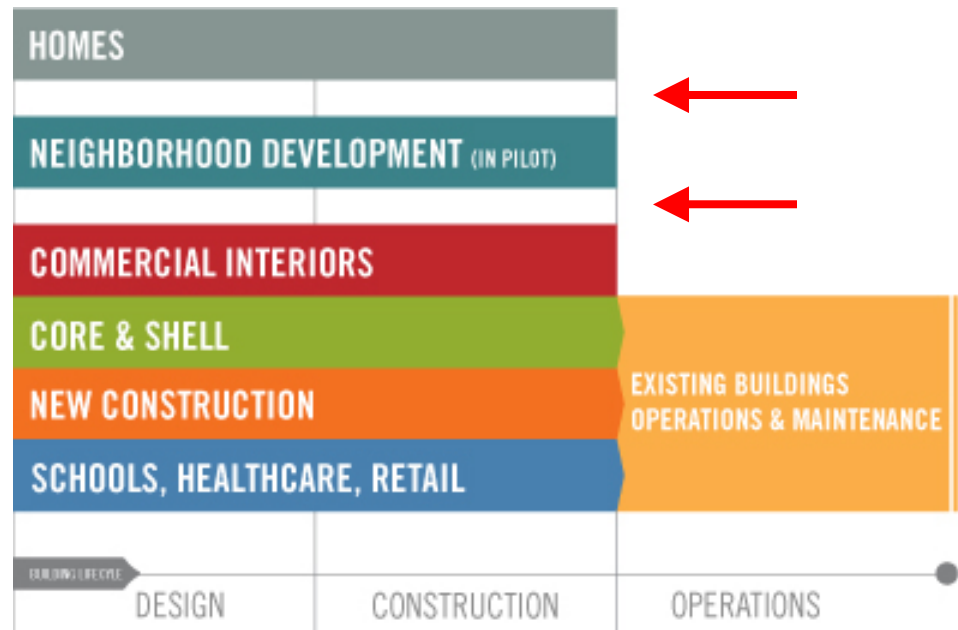
LEED® System is Comprehensive...



...but there are still gaps



LEED® System is Comprehensive...



...but there are still gaps



New Program, LEED-M[®]

- ratings for historical monuments
- existing building stock represents 99.99% of buildings on the planet
- complements 2030 “stretch” goal of 1,618,034 LEED[®]-certified projects

LEED-M committee. Ed Johnstone, second from right, is wearing a hat to hide his receding hairline. You're fooling no one, Ed.





New LEED[®] Certification: **Bronze**

| LEED [®] | LEED-M [®] |
|-------------------|---------------------|
| Platinum | Bronze |
| Gold | |
| Silver | |
| Certified | |

- simplified checklist:
 - no “alternative transportation” category (no cars)
 - no “energy performance” category (no central heating)
 - extra points for “durable building”
 - extra points for stormwater management (malaria)



LEED® and LEED-M® Checklists

| LEED Project Checklist | | Project Name |
|--|---|---------------|
| | | City, Country |
| Sustainable Sites 14 Points | | |
| Prereq 1 | Erosion & Sedimentation Control | Required |
| Cred 1 | Site Selection | 1 |
| Cred 2 | Development Density | 1 |
| Cred 3 | Redevelopment of Contaminated Site | 1 |
| Cred 4.1 | Alternative Transportation, Public Transportation Access | 1 |
| Cred 4.2 | Alternative Transportation, Bicycle Storage & Changing Rooms | 1 |
| Cred 4.3 | Alternative Transportation, Alternative Fuel Vehicles | 1 |
| Cred 4.4 | Alternative Transportation, Parking Capacity | 1 |
| Cred 5.1 | Reduced Site Disturbance, Protect or Restore Open Space | 1 |
| Cred 5.2 | Reduced Site Disturbance, Development Footprint | 1 |
| Cred 6.1 | Stormwater Management, Rate and Quantity | 1 |
| Cred 6.2 | Stormwater Management, Treatment | 1 |
| Cred 7.1 | Heat Island Effect, Non-Roof | 1 |
| Cred 7.2 | Heat Island Effect, Roof | 1 |
| Cred 8 | Light Pollution Reduction | 1 |
| Water Efficiency 5 Points | | |
| Cred 1.1 | Water Efficient Landscaping, Reduce by 50% | 1 |
| Cred 1.2 | Water Efficient Landscaping, No Potable Use or No Irrigation | 1 |
| Cred 2 | Innovative Wastewater Technologies | 1 |
| Cred 3.1 | Water Use Reduction, 20% Reduction | 1 |
| Cred 3.2 | Water Use Reduction, 30% Reduction | 1 |
| Energy & Atmosphere 17 Points | | |
| Prereq 1 | Fundamental Building Systems Commissioning | Required |
| Prereq 2 | Minimum Energy Performance | Required |
| Prereq 3 | CFC Reduction in HVAC/R Equipment | Required |
| Cred 1 | Optimize Energy Performance | 1 to 10 |
| Cred 2.1 | Renewable Energy, 0% | 1 |
| Cred 2.2 | Renewable Energy, 10% | 1 |
| Cred 2.3 | Renewable Energy, 20% | 1 |
| Cred 3 | Best Practice Commissioning | 1 |
| Cred 4 | Ozone Protection | 1 |
| Cred 5 | Measurement & Verification | 1 |
| Cred 6 | Green Power | 1 |
| Materials & Resources 14 Points | | |
| Prereq 1 | Storage & Collection of Recyclables | Required |
| Cred 1.1 | Building Reuse: Maintain 75% of Existing Walls, Floors, and Roof | 1 |
| Cred 1.2 | Building Reuse: Maintain 95% of Existing Walls, Floors, and Roof | 1 |
| Cred 1.3 | Building Reuse: Maintain 100% of Existing Walls, Floors, and Roof | 1 |
| Cred 8 | Durable Building | 1 |
| Indoor Environmental Quality 15 Points | | |
| Prereq 1 | Minimum IAQ Performance | Required |
| Prereq 2 | Environmental Tobacco Smoke (ETS) Control | Required |
| Cred 1 | Carbon Dioxide (CO ₂) Monitoring | 1 |
| Cred 2 | Ventilation Effectiveness | 1 |
| Cred 3.1 | Construction IAQ Management Plan: During Construction | 1 |
| Cred 3.2 | Construction IAQ Management Plan: Testing Before Occupancy | 1 |
| Cred 4.1 | Low-Emitting Materials: Adhesives & Sealants | 1 |
| Cred 4.2 | Low-Emitting Materials: Paints and Coating | 1 |
| Cred 4.3 | Low-Emitting Materials: Carpet | 1 |
| Cred 4.4 | Low-Emitting Materials: Composite Wood and Laminate Adhesives | 1 |
| Cred 5 | Indoor Chemical & Pollutant Source Control | 1 |
| Cred 6.1 | Controllability of Systems: Perimeter Spaces | 1 |
| Cred 6.2 | Controllability of Systems: Non-Perimeter Spaces | 1 |
| Cred 7.1 | Thermal Comfort: Compliance | 1 |
| Cred 7.2 | Thermal Comfort: Monitoring | 1 |
| Cred 8.1 | Daylight & Views: Daylight 75% of Spaces | 1 |
| Cred 8.2 | Daylight & Views: Views 90% of Spaces | 1 |
| Innovation & Design Process 5 Points | | |
| Cred 1.1 | Innovation in Design | 1 |
| Cred 1.2 | Innovation in Design | 1 |
| Cred 1.3 | Innovation in Design | 1 |
| Cred 1.4 | Innovation in Design | 1 |
| Cred 2 | LEED® Accredited Professional | 1 |
| Project Totals (pre-certification estimates) 70 Points | | |
| Certified 26-32 points Silver 33-38 points Gold 39-51 points Platinum 52-70 points | | |

LEED®: 70-point system

| LEED Project Checklist | | Project Name |
|--|--|---------------|
| | | City, Country |
| Sustainable Sites 5 Points | | |
| Cred 1 | Site Selection | 1 |
| Cred 5.1 | Reduced Site Disturbance, Protect or Restore Open Space | 1 |
| Cred 6.1 | Stormwater Management, No Stagnant Pools for Mosquitos | 3 |
| Water Efficiency 5 Points | | |
| Cred 1.2 | Water Efficient Landscaping, No Potable Use or No Irrigation | 2 |
| Cred 2 | Running Water | 3 |
| Materials & Resources 20 Points | | |
| Cred 7.1 | Thermal Comfort: Habitable | 2 |
| Cred 8.1 | Daylight & Views: Daylight in some spaces | 2 |
| Innovation & Design Process 4 Points | | |
| Cred 1.1 | Innovation in Design | 4 |
| Project Totals (pre-certification estimates) 42 Points | | |
| Bronze 21-42 points | | |

LEED-M®: 13 points



First LEED-M[®] Bronze Certifications

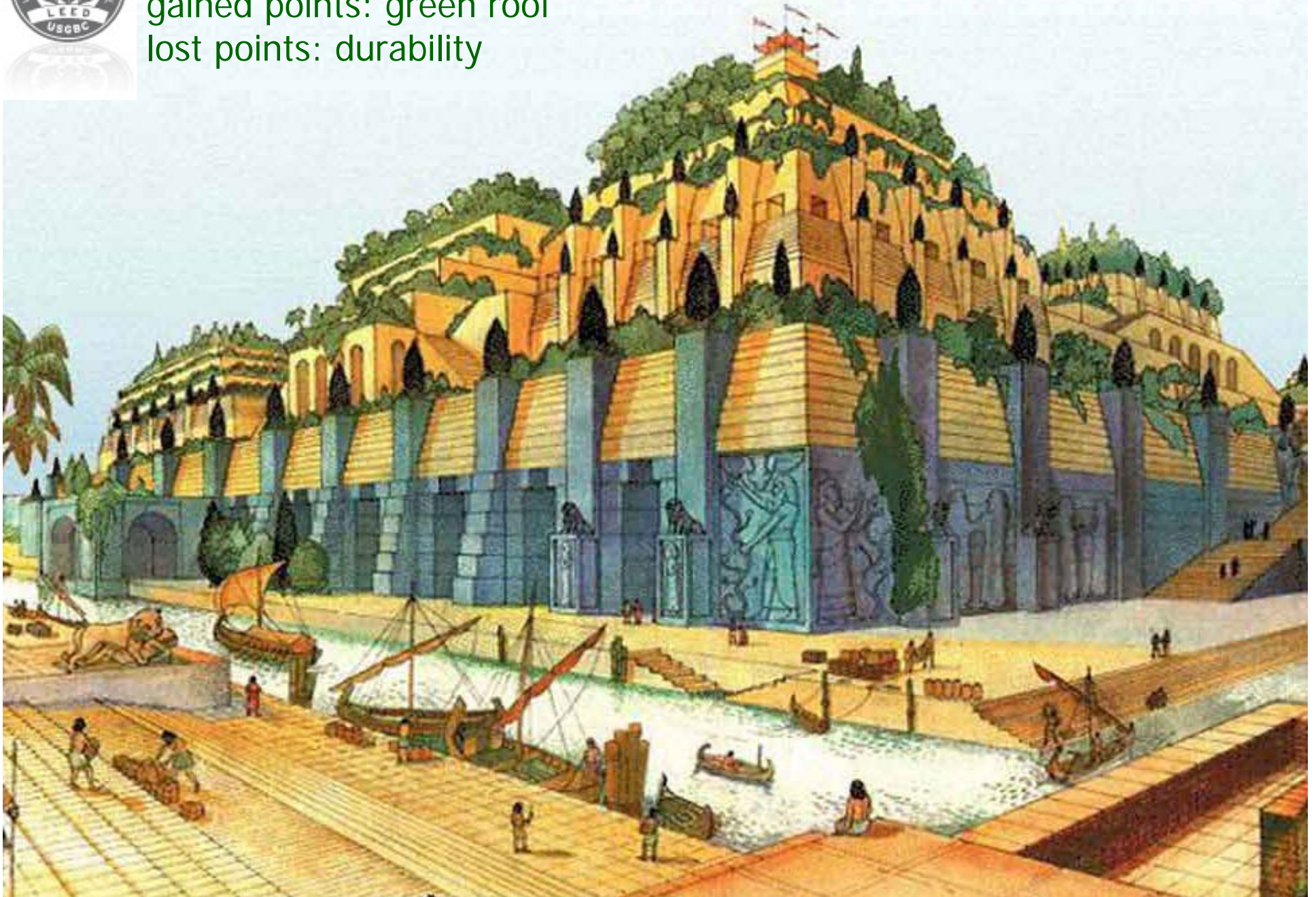
The following are the first monuments to achieve LEED-M[®] Bronze Certification



Hanging Gardens of Babylon

gained points: green roof
lost points: durability

LEED-M[®] Bronze





Angkor Wat

gained points: innovative design integrates jungle
lost points: trees block daylight



LEED-M® Bronze



Pyramids

gained points: unparalleled insulation
lost points: ventilation could be better

LEED-M[®] Bronze





Great Wall of China

LEED-M[®] Bronze

gained points: good daylighting / excellent views

lost points: poor site selection (no urban centres nearby)





Macchu Picchu

gained points: local materials, good stormwater drainage
lost points: thermal comfort (gets cold)





Taj Mahal

gained points: heat-reflective white roof
lost points: mainly built with imported materials

LEED-M® Bronze





Colosseum

gained points: ventilation, durability
lost points: noticeable lack of roof



LEED-M® Bronze