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# August 16th 2011 BREAKFAST BRIEFING: LEED 2012 Now Accepting Your Comments

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# Welcome

Last November 8<sup>th</sup>, 2010 the first draft of LEED 2012 rating systems were released for public comment by USGBC member companies

The 1<sup>st</sup> public comment period closed for comment on Jan 19<sup>th</sup>, 2011

During the 1<sup>st</sup> comment period, which lasted over 2 month, close to 6000 comments and recommendations were made by USGBC membership for all BD&C, ID&C, EBO&M, ND and Homes Rating systems.

Today we will focus on the 2<sup>nd</sup> draft of LEED 2012 BD&C rating systems which began excepting membership comments on August 1<sup>st</sup>, 2011

The comment period for the 2<sup>nd</sup> draft closes September 14<sup>th</sup> 2011

It is expected that the new version of LEED 2012 will be released sometime in the fall of 2012.

# General

## **LEED BD&C 2009**

- 7 sustainable categories
- 49 credits and 9 prerequisites
- 100 points + 10 Bonus Points

## **LEED BD&C 2012**

- 10 sustainable categories
- 49 credits and 15 prerequisites.
- 100 points + 10 Bonus points



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# Sustainability Categories

2009 Categories

- Sustainable Sites
- Water Efficiency
- Energy and Atmosphere
- Materials and Resources
- Indoor Environmental Quality
- Innovation
- Regional Priority



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# Sustainability Categories

2009 Categories

2012 New Categories

- Integrative Process
- Location and Transportation
- Sustainable Sites
- Water Efficiency
- Energy and Atmosphere
- Materials and Resources
- Indoor Environmental Quality
- Performance
- Innovation
- Regional Priority



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# Moved and Renamed

## Sustainable Sites

SS C1 – Site Selection

SS C2 – Development Density and Community Connectivity

SS C4 – Alternative Transportation

- Public Transportation Access
- Alternative Transportation, Bicycle Storage and Changing Rooms
- Low Emitting Fuel/Efficient Vehicles
- Parking Capacity

## Energy and Atmosphere

EA P1 – Fundamental Commissioning

EA C3 – Enhanced Commissioning

EA C5 – Measurement and Verification

## Innovation & Design

ID C2 – LEED Accredited Professional

## Integrative Process

- LEED Accredited Professional

## Location and Transportation

- Enhanced Site Selection
- Development Density and Diverse Uses
- Quality Transit and Reduced VMT
- Bicycle Network, Storage, and Shower Rooms
- Reduced Parking Footprint
- Low Emitting and Fuel-Efficient Vehicles

## Performance

- Fundamental Commissioning and Verification
- Enhanced Commissioning
- Reconcile Projected and Actual Energy Performance



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# What's New In 2012?

## Prerequisites

- Landscape Water Use Reduction
- Appliance and Process Water Use Reduction
- Construction and Demolition Management
- Construction IAQ Management Plan During Construction
- Water Metering
- Energy Metering

## Credits

- Appliance and Process Water Use Reduction
- Cooling Tower Makeup Water
- Non-Structural Materials Transparency
- Avoidance of Chemicals of Concern in Materials
- Acoustic Performance
- Water Metering
- Energy Metering



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# What's Out in 2012?

## Deleted

- MR C7 Certified Wood
- EQ C7.2 Thermal Comfort Verification
- EQ 9 Mold Prevention (schools)

## Merged

- Environmentally Preferable Products
  - Material Reuse
  - Recycled Content
  - Regional Materials
  - Rapidly renewable Materials
- Enhanced Indoor Air Quality Strategies
  - Outdoor Air Delivery Monitoring
  - Increased Ventilation
  - Indoor Chemical and Pollutant Source Control



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# General

## NEW

- New “Integrated Process” category
- New “Location and Transportation” category
  - collects location-related credits from LEED-NC with others from LEED for Neighborhood Developments
- New “Performance” category
  - includes the commissioning credits (moved from Energy and Atmosphere) along with a handful of new measurement and reporting prerequisites and credits.



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# Integrated Process

## NEW

- The entire **Integrated Process** category is new.
- Applies to
  - New construction
  - Core & Shell
  - Schools
  - Retail
  - Data Centers
  - Warehouse & Distribution Centers
  - Hospitality
  - Healthcare



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# Integrated Process

## NEW

- Credit 1: Discovery: Analysis to Support Integrative Process
- Credit 2: Implementing Synergies

## SAME

- Credit 3: LEED Accredited Professional  
(moved from Innovation and Design)



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# Integrated Process

## Integrated Process Requirements

### IPc1: **Discovery: Iterative Analysis during Conceptual Design (1 point):**

- Using an integrative process, analyze:
  - Energy Load Reduction
    - Massing and orientation;
    - Solar gain on facades, and roof;
    - Insulation
    - Glazing characteristics
    - Window-to wall ratio (aperture percentage)
    - Lighting power density
    - Operational parameters
    - Thermal comfort ranges
  - Water Systems (Balance Analysis)
  - Site Assessment
    - Consider criteria outlined in SSc1 Site Assessment



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# Integrated Process

## Integrated Process Requirements

### **IPc2: Implementing Synergies (1 credit)**

- Demonstrate that an integrative team process was used to analyze system synergies.
- Provide a comparison of at least two designs. Comparison must include cost savings and performance analysis. Indicate design selected and rationale
- Commit to the establishment and use of ongoing feedback mechanisms. Provide documentation of methods.



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# Integrated Process

## **Integrated Process Requirements**

- IPc3 LEED Accredited Professional (1 credit)**
- One (1) principal participant shall be LEED Accredited



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# Location and Transportation

- LTp1 Fundamental Site Selection
- LTc1 Enhanced Site Selection
- LTc2 Development Density & Diversity
- LTc3 Quality Transit & Reduced Vehicle Miles Traveled (VMT)
- LTc4 Bicycle Network, Storage and Shower Rooms
- LTc5 Walkable Project Site
- LTc6 Reduced Parking Footprint
- LTc7 LEED for Neighborhood Development Location
- LTc8 Low Emitting Fuel Efficient Vehicles (Schools, Warehouses)



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# Location and Transportation

**SAME** (as SSc1)

## **LTP1 Fundamental Site Selection: Sensitive Land Protection**

- Case 1: Locate project on previously developed land.
- Case 2: Avoid
  - Farmland
  - Flood Plain
  - Land identified as habitat for endangered species
  - Within 50' of wetlands
  - Within 100' of water body
  - Parkland



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# Location and Transportation

## NEW

**Intention:** To motivate project location to areas with difficult development constraints.

### **LTc1 Enhanced Site Selection (1 point)**

- Locate the project in at least one of the following:
  - an infill location in a *historic district*;
  - a brownfield (as defined by a local, state, or federal government agency);
  - a site listed by the EPA National Priorities List



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# Location and Transportation

## **SAME** (Mostly)

### **LTc2 Development Density and Diverse Uses** (1-8 points)

Intent doesn't change under the new draft, but the way you get there (via documentation requirements) does. For example:

- Density is measured in du/acre or F.A.R. (2-5 pts)
- “diverse uses” replace “basic services.” (1-2 pts)
- Instead of being required to use “previously developed” sites, projects would have to be in “infill” locations—a significant change.
- Locate in a “dense and accessible location”. (1 pt)



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# Location and Transportation

## DIFFERENT

### **LTc3 Quality Transit and Reduced Vehicle Miles Traveled (VMT)\* (1-4 points)**

- Replaces Sustainable Sites (SSc4) credit for public transportation access.
- Public transit systems have to meet minimum daily frequencies to qualify.
- A new “metropolitan planning organization” option would offer credit for project in areas with low vehicle-miles-traveled (VMT).



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# Location and Transportation

## DIFFERENT

LTc4 Bicycle Network , Storage and Shower Rooms\* (1 point)

– Must be within 200 yards of an existing bicycle network.

AND

- Provide storage for bicycles serving 5% of FTEs
- Shower calculation is simplified
- Residential requirement is for 30% of FTEs



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# Location and Transportation

## NEW

**Intent:** promote walking, biking, and other non-motorized transportation that results in reduced vehicle miles traveled (VMT), increased public health, and enhanced community participation.

### **LTc5 Walkable Project Site\*** (1 point)

Do all of the Following:

- Principal entry on the “front” façade faces a public space.
- Minimum building height-to-street width ratio of 1:1.5.
- Continuous sidewalks or equivalent.
- Maximum 20% of street frontage may be garage or service bay openings.
- Blank walls may not exceed 50’ or 40% of the length of the walls
- At grade crossings may not exceed 10% of the length of the sidewalk.
- Provide street trees every 40’



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# Location and Transportation

## DIFFERENT

### LTc6 Reduced Parking Footprint\* (1-2 points)

credit replaces SSc4 “Parking Capacity” credit.

- The requirement not to exceed local zoning requirements remains, but that’s not all.
- Projects would **also** have to reduce capacity over a “base ratio” given in the Institute of Transportation Engineers’ *Parking Planning Handbook*. The requirements are **tougher for transit-served projects**.



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# Location and Transportation

## NEW

### **LTc7 LEED for Neighborhood Development Location (3-17 points)**

- Locate project in a Stage 2 Pre-certified LEED-ND project or a Stage 3 LEED-ND certified Neighborhood Development.



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# Location and Transportation

## DIFFERENT

### LTc8 Low-Emitting and Fuel-Efficient Vehicles (1 point for Schools, Warehouses)

- School bus fleet meet emission standard of
  - .5 grams NOx / brake horsepower hour
  - .01 grams particulate matter / brake horsepower hour
  - AND develop plan for 100% of all other (non-bus) vehicles owned or leased by the school to be LEFEVs
- Warehouse, Distribution Centers
  - Provide 1 low emitting fuel efficient yard jockey fueled by natural gas, electricity or other alternative fuel
  - OR provide electrical connection for 50% of all dock doors.



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# Sustainable Sites

## **SAME** (Mostly)

**SSp1 Construction Activity Pollution Prevention.**

**SSp2 Environmental Site Assessment** (Schools, Health Care)

**SSc2 Brownfield Redevelopment** (2 points)

- projects would not only develop a contaminated site, they would also have to clean it up. While this would not likely represent a change for projects pursuing this credit, it is an important clarification.



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# Sustainable Sites

## NEW

### **SSc1 Site Assessment\*** (1 point)

Complete and document a site survey/assessment that includes:

- **Topography:** slope stability risks.
- **Hydrology:** 100-year floodplain, delineated wetlands, lakes, streams, shorelines, rain/storm water, collection/reuse opportunities, TR-557 initial water storage capacity of the site.
- **Climate:** Solar exposure and seasonal sun angles, prevailing winds, monthly precipitation and temperature ranges.
- **Vegetation:** Primary vegetation types, greenfield area, significant tree mapping, threatened or endangered species, unique habitat, invasive plants.
- **Soils:** NRCS soils delineation, USDA prime farmland, healthy soils, previous development, disturbed soils.
- **Human Use:** Views, adjacent transportation infrastructure, existing recycle/reuse potential construction materials.



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# Sustainable Sites

## DIFFERENT

### SSc3 Site Development - Protect or Restore Habitat (1-2 points)

- restrictive site disturbance parameters included in previous rating systems are eliminated.
- Replacing them is a requirement to protect 40% of greenfield portions of the site from development,
- Requirement to restore 30% of previously developed portions with native vegetation, and a requirement to **restore the soils of all disturbed or compacted areas.**
- OR, provide financial support of \$1/SF for 20% of the total site area to support:
  - Land Management
  - Water Shed Management
  - Public Urban Greenspace



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# Sustainable Sites

## DIFFERENT

### **SSc4 Site Development - Open Space (1 point)**

- The draft takes what had been three cases (based on zoning) and rolls them into one.
- Projects must provide outdoor space equal to 30% of the total site area, including building footprint—stricter than LEED 2009’s comparable Case 3.
- A minimum of 25% of the outdoor space must have ground *or* overhead vegetation.



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# Sustainable Sites

## DIFFERENT

### SSc5 Rainwater Management\* (1-3 points)

- The two storm water credits from LEED 2009 have been rolled into one credit.
- Requirements cite the principles of Low Impact Development (LID).
- Requires management of run-off for the 95<sup>th</sup> and 98<sup>th</sup> percentile of local rainfall events.

Describing the object of this credit as “rainwater”—a resource—instead of “storm water”—a management problem—is a subtle but important reorientation.



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# Sustainable Sites

**SAME** (Mostly)

## **SSc6 Heat Island Reduction** (1-2 points)

- Combines roof and non-roof measures into one credit with requirements that are roughly the same as in LEED 2009.

Option 1

$(\text{Area of Nonroof Measures} / 0.5) + (\text{Area of High-reflectance Roof} / 0.75) + (\text{Area of Vegetated Roof} / 0.5) \geq \text{Total Site Hardscape Area} + \text{Total Roof Area}$

Option 2

Place **75%** of parking spaces under cover.



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# Sustainable Sites

**SAME** (Mostly)

## **SSc7 Light Pollution Reduction\*** (1 point)

- credit doesn't appear to have been changed, but the requirements have been completely overhauled. USGBC appears to be trying to maintain the rigor of the current credit requirements while attempting a new calculation method, one that is simpler and requires calculations for fewer locations



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# Sustainable Sites

## **SAME** (Mostly)

- SSc8**     **Site Master Plan**                    (Schools)
- SSc9**     **Joint Use of Facilities**                (Schools)
- SSc10**    **Tenant Design & Construction Guidelines** (Core & Shell)



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# Water Efficiency

## LEED 2009

10 Possible Points

Pre-Req. 20% Reduction

Irrigation 50-100% (2-4)

Waste Water 50% (2)

Water Reduction 30-40% (2-4)

## LEED 2012

12 Possible Points

Pre-Req. 30% Irrigation

Pre-Req. 20% Reduction

Pre-Req. Appliance

Irrigation Reduction 60% (2)

Water Reduction 30-50% (2-4)

Waste Water 50-95% (1-2)

Cooling Tower Cycles (1-2)

Appliance Reduction (1)



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# Water Efficiency

**NEW**

## Prerequisite 1

Landscape Water Use Reduction

All types

- Minimum 1,000 Sq. Ft. of exterior vegetative surface
- Includes vegetative roofs
- Applies to all irrigation, regardless of source

Option 1

- No permanent Irrigation (2 year establishment period)

Option 2

- 30% below baseline (EPA WaterSense LWR v LWA)



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# Water Efficiency

**SAME**

## Prerequisite 2

Minimum Fixture and Fitting Water Use Reduction

All types

- Same baseline as LEED 2009
- 20% Reduction from baseline
- Water Closets, Urinals, Faucets (public/ private lavatory, kitchen)



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# Water Efficiency

## SAME

### \*Prerequisite 3

Appliance and Process Water Use Reduction

All types

Appliances

- Energy Star (Residential clothes and dish washers, ice makers)
- CEE Tier 3A (Commercial)

Processes

- No once through/ single pass cooling
- Controlled hot water/ cold water mixing
- No Venturi type flow through vacuum generators or aspirators



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# Water Efficiency

## DIFFERENT

### Credit 1

Additional Landscape Water Use Reduction (1-2 points)

All types

- Minimum 1,000 Sq. Ft. of exterior vegetative surface
- Includes vegetative roofs

Option 1

- No permanent Irrigation (2 year establishment period)

Option 2

- 60% below baseline (EPA WaterSense LWR v LWA)



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# Water Efficiency

## DIFFERENT

### Credit 2

Additional Fixture and Fitting Water Use Reduction (2-4 points)

All types

-Calculated from baseline (See Pre-Req)

-30% - 2 Points

-40% - 3 Points

-50% - 4 Points



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# Water Efficiency

## DIFFERENT

### Credit 3

#### Sustainable Wastewater Management (1-2 Points)

##### All types

##### Option 1

- Reduce wastewater from toilets and urinals

  - 50% - 1 Point

  - 95% - 2 Points

##### Option 2

- Reuse on site

  - Implement reuse - 1 Point

  - 90% reuse – 2 Points

##### Option 3

- Resource recovery

  - Nutrients (nitrogen and/ or phosphorous) – 1 Point

  - Organic Carbon Loading – 2 Points



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# Water Efficiency

**NEW**

## Credit 4

### Cooling Tower Makeup Water (1-2 Points)

All types

Conserve water used for makeup, control microbes, corrosion, scale

- Analyze at minimum (calcium, alkalinity, silica, chloride, conductivity)
- Limit cycles to avoid exceeding maximum values
- Install filtration, control blowdown, report potable water used, microbe levels, blowdown, and corrosion
- Install drift eliminators, .2% for counterflow, .5% for cross flow



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# Water Efficiency

**NEW**

## Credit 5

Additional Appliance and Process Water Use Reduction (1 Point)

All types

Meet minimum for all appliances in any one category

- Washing Machine (120,000 lbs/ year)
- Kitchen Equipment (100 meals per day)
- Lab and Medical Equip
- Vehicle washing (50 vehicles per day)
- Municipal Steam System



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# Energy and Atmosphere

## LEED 2009

35 Possible Points

Pre-Req. Commissioning

Pre-Req. Energy Performance

Pre-Req. Ref. Management

Energy Performance (1-19)

Renewable Energy (1-7)

Enhanced Commissioning (2)

Enhanced Ref. Management (1)

Measurement and Verification (3)

Green Power (2)

## LEED 2012

26 Possible Points

Pre-Req. Energy Performance

Pre-Req. Ref. Management

Energy Performance (1-18)

Demand Response (1-2)

Renewable Energy (1-3)

Enhance Ref Management (1)

Green Power (1-2)



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# Energy and Atmosphere

## DIFFERENT

### Prerequisite 1

Minimum Energy Performance

All types

Option 1

Whole Building Simulation (ASHRAE 90.1 2010)

-10% new construction

-7% for major renovations

**-6% for core and shell**

Option 2

Prescriptive Compliance Path: ASHRAE Advanced Energy Design Guide



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# Energy and Atmosphere

**SAME**

## Prerequisite 2

Fundamental Refrigerant Management

All types

- Zero use of CFC based refrigerants for new construction
- Comprehensive CFC phase out plan for existing structures



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# Energy and Atmosphere

## SAME

### Credit 1

Optimize Energy Performance (1-18 Points)

All types

#### Option 1

Whole Building Simulation

-Broken down between NC, Major Renovation, C&S, Healthcare

#### Option 2

Prescriptive Compliance Path: ASHRAE Advanced Energy Design Guide (1-6 Points)

-Building Envelope

-Glazing

-Interior Lighting

#### Option 3

Prescriptive Compliance Path: Advanced Buildings Core Performance (3-6)

-Less than 100,000

-Daylighting and Controls, lighting, plug load/ appliance efficiency

-HVAC systems



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# Energy and Atmosphere

## NEW

### \*Credit 2

Demand Response (1-2 Points)

All types

Have the ability to participate in Demand Response load shedding/ shifting programs. On-site generation does not count.

Option 1

Manual Demand Response (1 Point)

-1 year contract with intent on multi-year renewal

-10% of peak demand, or 20kW (whichever is more)

Option 2

Semi/ Fully Automated Demand Response (2 Points)

-5% of peak, or 10kW automated

-Must still be able to shed 10%

If no program exists, have infrastructure in place and develop a plan (1 Point)



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# Energy and Atmosphere

## DIFFERENT

### Credit 3

Renewable Energy Production (1-3 Points)

All types

Allows for “solar gardens” or shared systems.

-Can only count amount of energy “owned”

1-5% for C&S

3-10% for all others



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# Energy and Atmosphere

**SAME**

## Credit 4

Enhanced Refrigerant Management (1 Point)

All types

Do not use refrigerants, or use only naturally-occurring or synthetic that have ODP = 0 and GWP <50

ODP: Ozone Depletion Potential

GWP: Global Warming Potential



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# Energy and Atmosphere

## DIFFERENT

### Credit 5

Green Power and Carbon Offsets (1-2 Points)

All types

- Resources must have come online after Jan. 1 2005
- 5 year contract
- 50% - 100% 1 and 2 points respectively
- Must be Green-e-Energy certified
- Can use Baseline from EA Credit 1 or DOE Commercial Building Energy Consumption Survey.



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# Performance

New Category

7 Possible Points

Prerequisite: Water Metering

Prerequisite: Building Level Energy Metering (Amended From EA)

Prerequisite: Fundamental Commissioning (Moved From EA)

Credit 1: Enhanced Commissioning (Moved From EA)

Credit 2: Monitoring Based Commissioning (Amended From EA)

Credit 3: Advanced Water Metering

Credit 4: Advanced Energy Metering (Amended From EA)

Credit 5: Reconcile Projected and Actual Energy Performance (Moved From EA)



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# Performance

NEW

## \*Prerequisite 1

### Water Metering

All types

Permanently installed water meter that measures potable water use for building and irrigation

And

Submeters for the following

- Cooling tower with 100,000 gallons of make up water, annually
- Boiler with 100,000 gallons of annual use, or 500,000 BtuH
- Irrigation with 5,000 Sq.Ft. or more (green roofs), or 100,000 gallons of annual use.
- Reclaimed water
- Process water that consumes more than 1,000 gallons/ day

Also, must commit to sharing this data with USGBC for 5 years.



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# Performance

## DIFFERENT

### Prerequisite 2

### Building Level Energy Metering

All types

Install energy resource meters, or utility owned meters capable of aggregating building level resource use.

Commit to sharing data with USGBC for 5 years.



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# Performance

## DIFFERENT

Prerequisite 3

Fundamental Commissioning and Verification

All types

ASHRAE Guideline 0-2005,

ASHRAE Guideline 1.1-2007 for HVAC&R

-OPR, BOD, Cx Plan, Construction Checklist, Test procedure, verification, issues and benefits.

NIBS Guideline 3-2006 for Exterior Enclosures

-**Building envelope**, mechanical, electrical, renewable energy, plumbing, DES

CxA must have experience with 2 other similar buildings

Must be involved through 10 months of occupancy

If less than 20,000 Sq.Ft., may be employee of design/ construction team.



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# Performance

## DIFFERENT

### Credit 1

### Enhanced Commissioning (3 Points)

All types

Review contractor Submittals

Incorporate systems manual requirements into construction docs

Include operator and occupant training requirements in construction docs

Verify seasonal testing

Review after 10 months of substantial completion

Develop on-going commissioning process program



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# Performance

**SAME**

## Credit 2

### Monitoring Based Commissioning (1 Point)

All types

Develop monitoring-based procedures and indentify points to measure performance of energy and water consumption

- Meters, points, systems, data
- Trends, duration, and frequency
- Create acceptable values, compare with actuals
- System Conflicts, sequencing, energy and water usage
- Create action plan
- Quarterly analysis for first year of occupancy



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# Performance

## Credit 3

### Advanced Water Metering (1 Point)

All types

Install water meter data management system with remote communication

- Report and store data for hourly, daily, monthly, and annual consumption
- Buildings with 100,000 gallons annually
- Tenant spaces that include sanitary or culinary facilities
- HVAC systems that consume 100,000 gallons annually
- Rainwater and water reuse systems
- Manmade/ recreation bodies of water with 500 Sq.Ft. or more of surface area
- Anything that consumes 100,000 gallons annually

Commit to sharing this data with USGBC for 5 years



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# Performance

**NEW**

\*Credit 4

## Advanced Energy Metering (1 Point)

All types

- Meters that record at 1 hour intervals
- LAN based Building Automation systems
- Store 36 months of data
- Remotely accessible, reporting hourly, daily, monthly, and annual usage
- Install for all base building energy sources
- Install for all components the represent 10% or more of total annual consumption
- Commit to sharing with USGBC for a 5 year period



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# Performance

**SAME**

\*Credit 5

Reconcile Projected and Actual Energy  
Performance (1 Point)

All types

Develop and implement a Measurement & Verification system based  
on projected use versus actual use.

-Must cover one year of occupancy



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# Materials and Resources

## LEED 2009

1 Prerequisite

7 Credits

(-1 Core and Shell)

13 Possible Points

(+1 for Retail)

## LEED 2012

2 Prerequisites  
(+1) Prerequisite for  
HealthCare

6 Credits

(+4 for Healthcare)

10 Possible Points

(+5 for Healthcare)



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# Materials and Resources

- PR 1 Storage and Collection of Recyclables Prerequisite
- PR 2 Construction and Demolition Debris Management Prerequisite
- PR 3 (PBT) Reduction (Healthcare) Prerequisite
  
- MR 1 Environmentally Preferable Structure and enclosure 3 points
- MR 2 Construction and Demolition Debris Management 2 points
- MR 3 Non-Structural Materials Transparency 2 points
- MR 4 Environmentally Preferable Non-Structural Products and Materials 1 point
- MR 5 Responsible Sourcing of Raw Materials 1 point
- MR 6 Avoidance of Chemicals of Concern in Building Materials 1 point



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# Materials and Resources

## Prerequisites

- MR P1 – Storage and Collection of Recyclables
  - Added mercury containing lamps and batteries
  - Waste stream study required for Retail projects
- MR P2 – Construction and Demolition Debris
  - Outlines specific waste management policy, including target diversion thresholds
- MR P3 – PBT Reduction (Healthcare only)



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# Materials and Resources

## NEW

- MR C1 – Environmentally Preferable Structure and Enclosure (3 points)
  - Replaces and expands on the MR C1 Building Reuse
  - Four options to achieve points
    - Life cycle Assessment and Building Reuse (1-3 points)
      - Cases defined for New Construction, Existing Buildings, and Additions.
    - Structure and Enclosure Product Attributes at 50% of cost (1 point)
      - Recycled Content
      - Support the Local Economy
      - Bio Based Products
    - Historic Buildings (3 points)
    - Renovation of abandoned or blighted buildings (3 points)



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# Materials and Resources

## DIFFERENT

- MR C2 – Construction and Demolition Debris Management (2 points)
  - Credit now differentiates between New Construction only and projects with demolition
  - Point Thresholds for New Construction only remain the same. 50% and 75%.
  - For demolition projects, cap placed on “heavy materials” such as asphalt, concrete, masonry, steel 75% of total waste credited.
  - Point Thresholds for Demolition 65% and 85%.
  - Alternate Option: Reduction of Total Debris of no more than 2.5 lbs. of waste per square foot



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# Materials and Resources

## NEW

- MR C3 – Non-Structural Materials Transparency (2 points)
  - Products and materials contributing towards this credit must meet the requirements below and those of Indoor Environment Quality Credit: Low Emitting Interiors.
  - Products must meet one of the following 3 criteria:
    - **Manufacturer declared LCA** (contributing value = 0.5 x product cost)
    - **Third-party Certified Type III Environmental Product Declaration (EPD) based on Generic Product Family Product Category Rules** (contributing value = 1.0 x product cost)
    - **Third-party Certified Type III EPD based on Product or Brand Specific Product Category Rules** (contributing value = 2.0 x product cost)
  - Requires Life Cycle Analysis and Environmental Product Declarations from manufacturer
  - Points awarded at thresholds of 20% and 40%



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# Materials and Resources

## NEW (restructure of 2009 credits)

- MR C4 – Environmentally Preferable Non-Structural Products and Materials – Prescriptive Attributes (1 point)
  - Combines 2009 credits MR3, MR4, MR5 and MR6
    - Material Reuse,
    - Recycled Content,
    - Extended Producer Responsibility,
    - Support Local Economy,
    - Bio Based Materials
  - A minimum of 50%, based on cost, of the total non-structural building product and material must containing at least one attribute above
  - Materials meeting more than one attribute criteria will receive credit for each attribute met.
  - Products must meet the requirements of Low Emitting Interiors



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# Materials and Resources

## DIFFERENT

- MR C5 – Responsible Sourcing of Raw Materials – 1 point
  - Credit applies to Mined, Quarried, Extracted and Bio-Based materials
  - Manufacturers and Raw Material Providers must demonstrate both:
    - Responsible Sourcing of Raw Materials
    - Raw Material Sourcing Disclosures
  - Uses Life Cycle Analysis of building products by addressing land use issues surrounding extraction practices of raw materials
  - Emphasizes transparency of corporate practices through 3<sup>rd</sup> party reporting
  - Specific 3<sup>rd</sup> Party certifications are acceptable evidence of responsible corporate practices
  - Achievement of 10% by cost of materials needed to achieve point



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# Materials and Resources

## NEW

- MR C6 – Avoidance of Chemicals of Concern in Building Materials – 1 point
  - 20% of building products and materials, by cost, meet the Ingredient Reporting and Chemical Avoidance criteria below.
    - Ingredient Reporting
    - Chemical Avoidance



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# Materials and Resources

## Healthcare Only

- MR C7 – PBT Source Reduction - Mercury Lamps – 1 point
- MR C8 – PBT Source Reduction - Lead, Cadmium, and Copper – 1 point
- MR C9 – Furniture and Medical Furnishings – 1 point
- MR C10 – Resource Use: Design for Flexibility – 1 point



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# Indoor Environmental Quality

## LEED 2009

2 Prerequisite  
(+1 for Schools)

8 Credits  
(+2 for Schools)

15 Possible Points  
(+4 for Schools)  
(-3 for CS)

## LEED 2012

3 prerequisites  
(+1 for Schools)

8 Credits  
(-1 CS and Retail)

15 Possible Points  
(+1 for Healthcare)  
(-1 for CS and Retail)



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# Indoor Environmental Quality

- PR 1 Minimum Indoor Air Quality Performance Prerequisite
- PR 2 Environmental Tobacco Smoke Control Prerequisite
- PR 3 Construction Air Quality Management Plan Prerequisite
- PR 4 Minimum Acoustic Performance (Schools) Prerequisite
  
- IEQ 1 Enhanced Indoor Air Quality Strategies 2 points
- IEQ 2 Low-Emitting Interiors 3 points
- IEQ 3 Indoor Air Quality Assessment 2 points
- IEQ 4 Thermal Comfort 1 point
- IEQ 5 Interior Lighting 2 points
- IEQ 6 Daylight 3 points
- IEQ 7 Quality Views 1 point
- IEQ 8 Acoustic Performance 1 point



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# Indoor Environmental Quality

## Prerequisites

- EQ P1 – Minimum Indoor Air Quality Performance
  - Added requirements for OA monitoring
  - Clarified Naturally/Mechanically Ventilated Spaces
- EQ P2 – Environmental Tobacco Smoke (ETS) Control
  - Minor changes and clarifications



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# Indoor Environmental Quality

## Prerequisites

- EQ P3 – Construction IAQ Management Plan
  - During Construction
  - Eliminates 2009 Credit EQ 3.1
  - Clarifies filtration requirements
- EQ P4 Minimum Acoustical Performance (Schools only)



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# Indoor Environmental Quality

- EQ C1 – Enhanced Indoor Air Quality Strategies (2 points)
  - Combines requirements of 2009 EQ C1 OA delivery monitoring and 2009 EQ C2 Increase Ventilation
- EQ C2 – Low Emitting Interiors (3 points)
  - Replaces and combines 2009 EQ credits
    - EQ C4.1 – 4.6 Low Emitting Materials
    - Added testing and compliance language
    - Added TVOC disclosures in lieu of VOC criteria for, adhesives, sealants, paints and coatings and modified requirements for formaldehyde



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# Indoor Environmental Quality

- EQ C3 – Indoor Air Quality Assessment (2 points)
  - Renamed 2009 EQ C3.2 - IAQ Management Plan – Before occupancy
  - Eased requirements of building flush
  - Expanded list of contaminants in testing, in addition to testing after furniture



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# Indoor Environmental Quality

- EQ C4 – Thermal Comfort (1 point)
  - Combination of former credits EQ 6.2 Controllability of Systems - Thermal Comfort and EQ 7.1 Thermal Comfort – Design
  - Added compliance path for Warehouse and Distribution



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# Indoor Environmental Quality

- EQ C5 – Interior Lighting (2 points)
  - Rename of EQ 6.1 Controllability of Systems – Lighting and adds requirements for addressing lighting quality
  - Only 1 point available for Healthcare
- EQ C6 – Daylight (3 points)
  - Rename of 2009 EQ 8.1 Daylight and Views – daylight
  - Significant revisions to language with increased stringency for achievement
  - Simplified calculations needed and added timing requirements
  - Only 2 points available for Healthcare



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# Indoor Environmental Quality

- EQ C7 – Quality Views (1 point)
  - Rename of 2009 EQ 8.2 Daylight and Views – Views
  - New metrics to account for quality of views
  - Added provisions for interior atria
  - Added visual light transmittance requirement
  - Added compliance path for Warehouse and Distribution
  - Additional 2 point available for healthcare
- EQ C8 – Acoustic Performance (1 point)
  - Formally only a credit in 2009 Schools
  - New Credit for BD&C rating systems except CS and Retail
  - Added requirements for room noise levels, speech privacy, and sound isolation.
  - Additional 1 point available for Healthcare



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# Category Weighting

## LEED BD&C 2009

IP	0
LT	0
SS	26%
WE	10%
EA	35%
PR	0
MR	14%
EQ	15%

## LEED BD&C 2012

IP	3%
LT	16%
SS	12%
WE	11%
EA	26%
PR	7%
MR	10%
EQ	15%



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# Questions?

Thank You!



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