

**IN Credit 1.0: Integrative Process- NEW*****Minimal Effort***

Beginning in pre-design and continuing throughout the design phases, identify and use opportunities to achieve synergies across disciplines and building systems including Energy Related systems and Water Related Systems. Use the analyses to inform the owner's project requirements (OPR), basis of design (BOD), design documents, and construction documents.

*(Charrette requirement adjusted from 8 hours to 4 hours; Encourages early analysis of energy and water systems).*

**Location and Transportation****LT Credit 101: LEED for Neighborhood Development Location-NEW*****Minimal Effort***

To avoid development on inappropriate sites. To reduce vehicles distance traveled. To enhance livability and improve human health by encouraging daily physical activity.

Locate the project in within the boundary of a development certified under LEED for Neighborhood Development (Stage 2 or Stage 3 under the Pilot or 2009 rating systems, Certified Plan or Certified Project under the LEED v4 rating system).

**LT Credit 102: Sensitive Land Protection*****Minimal Effort***

To avoid the development of environmentally sensitive lands and reduce the environmental impact from the location of a building on a site.

*(Renamed from "Site Selection"; Options for projects to earn credits)*

**LT Credit 103: High Priority Site*****Minimal Effort***

To encourage project location in areas with development constraints and promote the health of the surrounding area. Historic District, Priority designation, or Brownfield Remediation.

*(Renamed from Brownfield Remediation)*

**LT Credit 104: Surrounding Density and Diverse uses*****Minimal Effort***

To conserve land and protect farmland and wildlife habitat by encouraging development in areas with existing infrastructure. To promote walkability, and transportation efficiency and reduce vehicle distance traveled. To improve public health by encouraging daily physical activity.

*(renamed from “ Development Density and Community Connectivity”; Multiple thresholds to reward different density levels and diverse uses)*

**LT Credit 107: Access to Quality Transit**

***Minimal Effort***

To encourage development in locations shown to have multimodal transportation choices or otherwise reduced motor vehicle use, thereby reducing greenhouse gas emissions, air pollution, and other environmental and public health harms associated with motor vehicle use.

Locate any functional entry of the project within a ¼-mile (400-meter) walking distance of existing or planned bus, streetcar, or rideshare stops, or within a ½-mile (800-meter) walking distance of existing or planned bus rapid transit stops, light or heavy rail stations, commuter rail stations or ferry terminals. *(Renamed from “Alternative Transportation- Public Transportation Access”; Multiple Threshold levels; Metric Radius changed to walk distance)*

**LT Credit 108: Bicycle Facilities**

***Significant Effort***

To promote bicycling and transportation efficiency and reduce vehicle distance traveled. To improve public health by encouraging utilitarian and recreational physical activity.

Design or locate the project such that a functional entry and/or bicycle storage is within a 200-yard (180-meter) walking distance or bicycling distance from a bicycle network that connects to at least one of the following:

- at least 10 diverse uses (see Appendix 1);
- a school or employment center, if the project total floor area is 50% or more residential;  
or
- a bus rapid transit stop, light or heavy rail station, commuter rail station, or ferry terminal.

*(Renamed from “Alternative Transportation- Bicycle Storage and Changing Rooms”; added requirement to be located at a bicycle-accessible site or network)*

**LT Credit 110: Reduced Parking Footprint**

***Minimal Effort***

To minimize the environmental harms associated with parking facilities, including automobile dependence, land consumption, and rainwater runoff. Do not exceed the minimum local code requirements for parking capacity. Do not count parking spaces for fleet and inventory vehicles unless these vehicles are regularly used by employees for commuting as well as business purposes.

*(Renamed from “Alternative Transportation- Parking Capacity”; Parking levels listed in ITE Transportation Planning Handbook)*

**LT Credit 111: Green Vehicles*****Minimal Effort***

To reduce pollution by promoting alternatives to conventionally fueled automobiles.

Designate 5% of all parking spaces used by the project as preferred parking for green vehicles. Clearly identify and enforce for sole use by green vehicles. Distribute preferred parking spaces proportionally among various parking sections (e.g. between short-term and long-term spaces).

Green vehicles must achieve a minimum green score of 45 on the American Council for an Energy Efficient Economy (ACEEE) annual vehicle rating guide (or local equivalent for projects outside the U.S.).

A discounted parking rate of at least 20% for green vehicles is an acceptable substitute for preferred parking spaces. The discounted rate must be publicly posted at the entrance of the parking area and permanently available to every qualifying vehicle.

In addition to preferred parking for green vehicles, meet one of the following two options for alternative-fuel fueling stations:

**Option 1. Electric vehicle charging**

Install electrical vehicle supply equipment (EVSE) in 2% of all parking spaces used by the project. Clearly identify and reserve these spaces for the sole use by plug-in electric vehicles. . Parking spaces that include EVSE must be provided separate from and in addition to preferred parking spaces for green vehicles.

**Option 2. Liquid, gas, or battery facilities**

Install liquid or gas alternative fuel fueling facilities or a battery switching station capable of refueling a number of vehicles per day equal to at least 2% of all parking spaces.

*(Renamed from “ Alternative Transportation-Low-Emitting and fuel efficient vehicles”; 5% reserved for green vehicles; 2% of spaces have refueling stations- electric, liquid, gas, battery facilities)*

**Sustainable Sites****SS 101: Construction activity pollution prevention*****Minimal Effort***

To reduce pollution from construction activities by controlling soil erosion, waterway sedimentation, and airborne dust. ( Updated the EPA Construction General Permit version to 2010)

**SS 104: Site Assessment –NEW*****Minimal Effort***

To assess site conditions before design to evaluate sustainable options and inform related decisions about site design.

Complete and document a site survey or assessment<sup>1</sup> that includes the following information:

- *Topography.* Contour mapping, unique topographic features, slope stability risks.
- *Hydrology.* Flood hazard areas, delineated wetlands, lakes, streams, shorelines, rainwater collection and reuse opportunities, TR-55 initial water storage capacity of the site (or local equivalent for projects outside the U.S.).
- *Climate.* Solar exposure, heat island effect potential, 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 plant species.
- *Soils.* Natural Resources Conservation Service soils delineation, U.S. Department of Agriculture prime farmland, healthy soils, previous development, disturbed soils (local equivalent standards may be used for projects outside the U.S.).
- *Human use.* Views, adjacent transportation infrastructure, adjacent properties, construction materials with existing recycle or reuse potential.
- *Human health effects.* Proximity of vulnerable populations, adjacent physical activity opportunities, proximity to major sources of air pollution.

The survey or assessment should demonstrate the relationships between the site features and topics listed above and how these features influenced the project design; give the reasons for not addressing any of those topics. (*Encourage early analysis to inform design*)

**SS 105: Site Development- Protect or Restore Habitat**

***Minimal Effort***

To conserve existing natural areas and restore damaged areas to provide habitat and promote biodiversity. Preserve and protect from all development and construction activity 40% of the greenfield area on the site (if such areas exist).

*(Replaced setback requirements with preservation standards; added option for financial support of off-site preservation)*

**SS 107: Open Space**

***Significant Effort***

To create exterior open space that encourages interaction with the environment, social interaction, passive recreation, and physical activities. Provide outdoor space greater than or equal to 30% of the total site area (including building footprint). A minimum of 25% of that outdoor space must be vegetated (turf grass does not count as vegetation) or have overhead vegetated canopy.

The outdoor space must be physically accessible and be one or more of the following:

- a pedestrian-oriented paving or turf area with physical site elements that accommodate outdoor social activities;
- a recreation-oriented paving or turf area with physical site elements that encourage physical activity;
- a garden space with a diversity of vegetation types and species that provide opportunities for year-round visual interest;
- a garden space dedicated to community gardens or urban food production;
- preserved or created habitat that meets the criteria of SS Credit Site Development—Protect or Restore Habitat and also includes elements of human interaction.

*(Renamed from “Site Development- Maximize Open Space”; Qualification that open space must be beneficial use to occupants or community; Clarified turf grass and vegetated roof requirements)*

**SS 108: Rainwater Management**

**Mandatory**

To reduce runoff volume and improve water quality by replicating the natural hydrology and water balance of the site, based on historical conditions and undeveloped ecosystems in the region.

**Option 1. Percentile of rainfall events**

Option 2. Natural land cover conditions

*(Combined “Stormwater Design- Quality Control and Quantity Control”; Site specific criteria for more frequent, low-intensity events)*

**SS 110: Heat Island Reduction**

**Significant Effort**

To minimize effects on microclimates and human and wildlife habitats by reducing heat islands.

*(Combined “Heat Island Effect- Nonroof and Roof”; Updated SRI requirements; changed paving materials metric to Solar Reflectance[SR]; Included 3-year aged SRI and SR values; Weighted SRI average calculation methodology; Increased threshold for parking spaces under cover)*

**SS 112: Light Pollution Reduction**

**Not Pursued/ Minimal Effort**

To increase night sky access, improve nighttime visibility, and reduce the consequences of development for wildlife and people.

*(Removed the interior lighting requirements which are addressed in EA prerequisite; Included BUG rating methodology to meet exterior lighting requirements; added lighting zone 0; included exterior signage requirements)*

## **Water Efficiency**

### **WE 101: Outdoor Water Use Reduction-NEW**

***Minimal Effort***

Reduce outdoor water use through one of the following options. Nonvegetated surfaces, such as permeable or impermeable pavement, should be excluded from landscape area calculations. Athletic fields and playgrounds (if vegetated) and food gardens may be included or excluded at the project team's discretion.

*(Requires a reduction in landscape water use by 30% using EPA WaterSense water Budget Tool or no Irrigation)*

### **WE 102/902: Indoor Water Use Reduction**

***Significant Effort***

For the fixtures and fittings listed in Table 1, as applicable to the project scope, reduce aggregate water consumption by 20% from the baseline. Base calculations on the volumes and flow rates shown in Table 1.

All newly installed toilets, urinals, private lavatory faucets, and showerheads that are eligible for labeling must be WaterSense labeled (or a local equivalent for projects outside the U.S.).

*(Renamed from "Water Use Reduction"; WaterSense Label required for certain fixtures and fittings; appliance and process water uses addressed; Basic cooling tower requirements from ASHRAE 189 added)*

### **WE 104: Building-level water metering-NEW**

**Mandatory**

To support water management and identify opportunities for additional water savings by tracking water consumption.

Install permanent water meters that measure the total potable water use for the building and associated grounds. Meter data must be compiled into monthly and annual summaries; meter readings can be manual or automated.

Commit to sharing with USGBC the resulting whole-project water usage data for a five-year period beginning on the date the project accepts LEED certification or typical occupancy, whichever comes first.

This commitment must carry forward for five years or until the building changes ownership or lessee.

*(Requires each project to be capable of measuring whole building water use)*

**WE 110: Cooling tower water use-NEW**

**Minimal Effort**

To conserve water used for cooling tower makeup while controlling microbes, corrosion, and scale in the condenser water system.

*(Encourages projects to analyze water source and maximize water cycles)*

**WE 112: Water Metering-NEW**

**Minimal Effort**

To support water management and identify opportunities for additional water savings by tracking water consumption.

*(Rewards projects for sub-metering at least 2 water end uses)*

**Energy and Atmosphere**

**EA 101: Fundamental Commissioning and Verification**

**Mandatory**

To support the design, construction, and eventual operation of a project that meets the owner's project requirements for energy, water, indoor environmental quality, and durability.

*(Renamed from "Fundamental Commissioning of Building Energy Systems"; Modified intent to ensure project meets the owner's projects requirements related to energy, water, indoor environmental quality and durability; Added requirement for preparing an Operations and Maintenance Plan; Added requirement to engage a Commissioning Authority by the end of the design development phase; Clarified language for who can be the commissioning authority; Included requirements for a design review of the enclosure. )*

**EA 103: Minimum Energy Performance**

**Mandatory**

To reduce the environmental and economic harms of excessive energy use by achieving a minimum level of energy efficiency for the building and its systems.

*(Updated referenced standard to ASHRAE 90.1-2010. Added requirements for data centers. Added retail-specific process load requirements Updated Advanced Energy Design Guides prescriptive option to 50% AEDG for Office, Retail, Schools, and Healthcare. Updated Core Performance Guide prescriptive option to meeting core requirements plus six additional strategies.)*

**EA 106: Building-Level Energy Metering-NEW PREREQ**

**Significant Effort**

To support energy management and identify opportunities for additional energy savings by tracking building-level energy use.

*(Requires Each Project to be capable of measuring whole building energy use)*

**EA 108: Fundamental refrigerant management**

**Mandatory**

Do not use chlorofluorocarbon (CFC)-based refrigerants in new heating, ventilating, air-conditioning, and refrigeration (HVAC&R) systems.

**EA 110: Enhanced Commissioning**

**Mandatory**

To further support the design, construction, and eventual operation of a project that meets the owner's project requirements for energy, water, indoor environmental quality, and durability.

*(Added options for monitoring based commissioning and envelope commissioning; Added requirements to prepare the building operators for the intended operation of building systems; Clarified language for who can be the commissioning authority. )*

**EA Credit 1.0; (1.1-1.5): Optimize energy performance**

**Mandatory**

To achieve increasing levels of energy performance beyond the prerequisite standard to reduce environmental and economic harms associated with excessive energy use.

*(Updated referenced standard to ASHRAE 90.1-2010. Added requirements for data centers. Added retail-specific process load requirements; Updated Advanced Energy Design Guides prescriptive option to 50% AEDG for Office, Retail, Schools, and Healthcare; Updated Core Performance Guide prescriptive option to meeting core requirements plus six additional strategies.)*

**EA 118: Advanced Energy Metering-NEW**

**Significant Effort**

To support energy management and identify opportunities for additional energy savings by tracking building-level and system-level energy use.

*(Requires all energy end-uses that represent 10% or more of the total energy consumption of the building to be metered; Meters must be connected to the building automation system and*

*log data at appropriate intervals; Core and Shell projects required to address future tenant space)*

**EA 121: Demand Response-NEW**

***Minimal Effort***

To increase participation in demand response technologies and programs that make energy generation and distribution systems more efficient, increase grid reliability, and reduce greenhouse gas emissions.

*(Encourages projects to design and install systems necessary to participate in a demand response program. Also available to projects located in areas without demand response programs. Added requirement to include demand response processes in the commissioning scope.)*

**EA 123: Renewable Energy Production**

***Minimal Effort***

To reduce the environmental and economic harms associated with fossil fuel energy by increasing self-supply of renewable energy.

*(Credit title renamed from "On-Site Renewable Energy"; Added provision for community-scale renewable energy systems; Points adjusted significantly.)*

**EA 126: Enhanced Refrigerant Management**

**Mandatory**

To reduce ozone depletion and support early compliance with the Montreal Protocol while minimizing direct contributions to climate change.

*(Added retail-specific requirements)*

**EA 128: Green Power and carbon offsets**

**Mandatory**

To encourage the reduction of greenhouse gas emissions through the use of grid-source, renewable energy technologies and carbon mitigation projects.

*(Credit title renamed from "Green Power". Credit based on total building energy usage; Carbon offsets allowed for scope 1 or 2 emissions; Required contract length extended from 2 years to 5 years; Eligible resources must have come online after January 1, 2005)*

**Materials and Resources**

**MR 101: Storage and Collection of recyclables**

***Minimal Effort***

To reduce the waste that is generated by building occupants and hauled to and disposed of in landfills.

*(Added requirement to address batteries, mercury containing lamps, or electronic waste; Added retail requirement to identify top 4 waste streams to provide recycling collection and storage)*

**MR 103: Construction and Demolition waste management planning-NEW PREREQ *Mandatory***

To reduce construction and demolition waste disposed of in landfills and incineration facilities by recovering, reusing, and recycling materials.

*(Requires setting a project target for waste management; Require reporting waste diversion rates)*

**MR 108: Building life-cycle impact reduction**

***Minimal Effort***

To encourage adaptive reuse and optimize the environmental performance of products and materials.

*(Credit is a combination of “Building Reuse—Maintain Existing Walls, Floors, and Roof” and “Building Reuse—Maintain Interior Nonstructural Elements”; Added options for the reuse of historic and blighted buildings; Added option for a whole building life-cycle assessment of the project’s structure and enclosure)*

**MR 112: Building Product disclosure and optimization- Environmental Product declarations-NEW *Minimal Effort***

To encourage the use of products and materials for which life-cycle information is available and that have environmentally, economically, and socially preferable life-cycle impacts. To reward project teams for selecting products from manufacturers who have verified improved environmental life-cycle impacts.

*(Addresses transparency in environmental life-cycle impacts and selecting products with improved life-cycles; Structured into disclosure and optimization options; Rewards the use of products with Environmental Product Declarations; Rewards products that meet the local products criteria)*

**MR 114: Building Product disclosure and optimization- sourcing of raw materials-NEW *Mandatory***

To encourage the use of products and materials for which life cycle information is available and that have environmentally, economically, and socially preferable life cycle impacts. To reward project teams for selecting products verified to have been extracted or sourced in a responsible manner.

*(Addresses transparency in raw material sourcing and selecting materials that have been appropriately sourced; Restructured into disclosure and optimization sections; Rewards products from manufacturers that have provided information on land use practices, extraction locations, labor practices, etc; Rewards products that meet the local products criteria)*

**MR 115: Building Product disclosure and optimization- material ingredients-NEW**

***Mandatory***

To encourage the use of products and materials for which life-cycle information is available and that have environmentally, economically, and socially preferable life-cycle impacts. To reward project teams for selecting products for which the chemical ingredients in the product are inventoried using an accepted methodology and for selecting products verified to minimize the use and generation of harmful substances. To reward raw material manufacturers who produce products verified to have improved life-cycle impacts.

*(Addresses transparency in material ingredients and selecting products with optimized ingredients; Structured into disclosure and optimization options; Rewards the use of products with ingredient reporting in programs like Health Product Declaration, Cradle 2 Cradle, and others; Rewards products that meet the local products criteria; Third option for supply chain optimization)*

**Indoor Environmental Quality**

**EQ 101: Minimum IAQ performance**

**Mandatory**

To contribute to the comfort and well-being of building occupants by establishing minimum standards for indoor air quality (IAQ).

Meet the requirements for both ventilation and monitoring. ASHRAE Standard 62.1–2010

*(Added requirements for outside air delivery monitoring; Added requirements for residential projects addressing combustion appliances, CO monitors, and radon)*

**EQ 104: Environmental tobacco smoke control**

**Mandatory**

To prevent or minimize exposure of building occupants, indoor surfaces, and ventilation air distribution systems to environmental tobacco smoke.

*(Removed allowance for designated smoking areas inside the building for all projects but residential; Reduced the maximum allowable leakage rate for compartmentalized residential units. Prohibited smoking on the entire site for Schools projects)*

**EQ 110: Enhanced IAQ strategies**

**Mandatory**

To promote occupants' comfort, well-being, and productivity by improving indoor air quality.

Comply with the following requirements, as applicable.

Mechanically ventilated spaces:

1. entryway systems;
2. interior cross-contamination prevention; and
3. filtration.

Naturally ventilated spaces:

1. entryway systems; and
2. natural ventilation design calculations.

Mixed-mode systems:

1. entryway systems;
2. interior cross-contamination prevention;
3. filtration;
4. natural ventilation design calculations; and
5. mixed-mode design calculations.

*(Credit is a combination of “Outdoor Air Delivery Monitoring”, “Increased Ventilation”, and “Indoor Chemical and Pollutant Source Control” credits; Added additional options for mathematical modeling, additional sensors, and mixed mode systems.)*

**EQ 112: Low-emitting materials**

**Mandatory**

To reduce concentrations of chemical contaminants that can damage air quality, human health, productivity, and the environment.

*(Credit is a combination of the “Low-Emitting Materials” credits. Requirements based on VOC emissions rather than VOC content. Systems approach to emissions within a space. Added requirement for TVOC disclosure. Modified requirements for formaldehyde. )*

**EQ 113: Construction IAQ management plan**

**Mandatory**

To promote the well-being of construction workers and building occupants by minimizing indoor air quality problems associated with construction and renovation.

*(Credit title renamed from “Construction Indoor Air Quality Management Plan—During Construction”. No substantive changes)*

**EQ 114: IAQ assessment**

**Mandatory**

To establish better quality indoor air in the building after construction and during occupancy.

*(Credit title renamed from “Construction Indoor Air Quality Management Plan—Before Occupancy”; Added a maximum temperature limit for flush outs; Expanded the list of contaminants for which to test under Option 2; Clarified that furniture must be installed. )*

**EQ 115: Thermal Comfort**

**Mandatory**

To promote occupants’ productivity, comfort, and well-being by providing quality thermal comfort.

*(Credit title renamed from “Thermal Comfort—Design”; Updated reference standard to ASHRAE 55-2010; Credit removed from Core and Shell. )*

**EQ 117: Interior Lighting-NEW**

**Mandatory**

To promote occupants’ productivity, comfort, and well-being by providing high-quality lighting.

*(Incorporates controls requirements from “Controllability of Systems—Lighting” credit; Added an option that addresses lighting quality. )*

**EQ 121: Daylight**

**Significant Effort**

To connect building occupants with the outdoors, reinforce circadian rhythms, and reduce the use of electrical lighting by introducing daylight into the space.

*(Credit title renamed from “Daylight and Views—Daylight”; Removed prescriptive option; Added option for spatial daylight autonomy; Changed units from footcandles to lux; Added a timing requirement to measurement option)*

**EQ 123: Quality Views**

**Mandatory**

To give building occupants a connection to the natural outdoor environment by providing quality views.

*(Credit title renamed from “Daylight and Views—Views”; Added requirement for quality view, defined by the LEED 2009 exemplary performance criteria; Added provisions for interior atria.)*

**EQ 124: Acoustic Performance**

**Significant Effort**

To provide workspaces and classrooms that promote occupants’ well-being, productivity, and communications through effective acoustic design.

*(New credit except in Schools and Healthcare; Added requirements for room noise levels, speech privacy and sound isolation, reverberation time, and paging, masking, and sound reinforcement systems; Harmonized ANSI and ASHRAE standards)*

## **Innovation**

### **ID Credit 1.0: Innovation by design**

***Significant Effort***

To encourage projects to achieve exceptional or innovative performance.

Achieve significant, measurable environmental performance using a strategy not addressed in the LEED green building rating system.

Identify the following:

- the intent of the proposed innovation credit;
- proposed requirements for compliance;
- proposed submittals to demonstrate compliance; and
- the design approach or strategies used to meet the requirements.

### **ID Credit 2.0: LEED accredited professional**

***Mandatory***

To encourage the team integration required by a LEED project and to streamline the application and certification process .

## **Regional Priority**

### **RP Credit 1.0: Regional Priority**

***Minimal Effort***

To provide an incentive for the achievement of credits that address geographically specific environmental, social equity, and public health priorities.