

WORKING DRAFT FOR LIMITED DISTRIBUTION ONLY



for
Existing Buildings

The LEED Green Building Rating System™
for Improving Building Performance
through Upgrades and Operations

Version 2.0

Unballoted Draft for Pilot Program

**Leadership in Energy
and Environmental Design**



January 2002

U.S. GREEN BUILDING COUNCIL

Introduction

LEED for Existing Buildings is a set of *performance standards* for the sustainable operation of existing buildings. It includes building operations and upgrades of systems and/or processes in existing buildings where these upgrades do not significantly change the interior or exterior surfaces of the building.

LEED for Existing Buildings (LEED EB) addresses: whole-building cleaning/maintenance issues including chemicals, ongoing IAQ, energy efficiency performance, water efficiency performance, recycling programs and supporting facilities, exterior maintenance programs, and systems upgrades to improve building energy, water, IAQ, and lighting performance to green performance standards.

The LEED EB rating system is designed in the style of the LEED Green Building Rating System, Version 2.0 for new construction and major renovations. LEED EB, together with other applications of LEED products, is intended to provide seamless entry into the LEED certification process. Owners, tenants, designers and building teams come to the USGBC for LEED certification. Depending upon the type of building project or situational needs, LEED administrators will direct them to the right application of LEED green building rating standards.

LEED EB covers the operation of all existing building, both those new to LEED certification and buildings previously certified under LEED 2.0. LEED EB provides the opportunity for owners and operators of all existing buildings to capture the promise for sustainable operations and reduced environmental impact of buildings over their entire life cycle.

The USGBC is conducting a pilot for LEED EB in 2002. For information about the pilot or how to participate in it, please contact LEED EB Committee Co-Chair Michael Army by email (LEED-EB@usgbc.org) or by telephone at 608-280-0255. For additional information about the USGBC and other LEED rating system products please visit the USGBC web site at: www.usgbc.org or call the USGBC at 202-828-7422.

Here is an overview of the LEED customer selection for choosing the right rating system for a given building project:

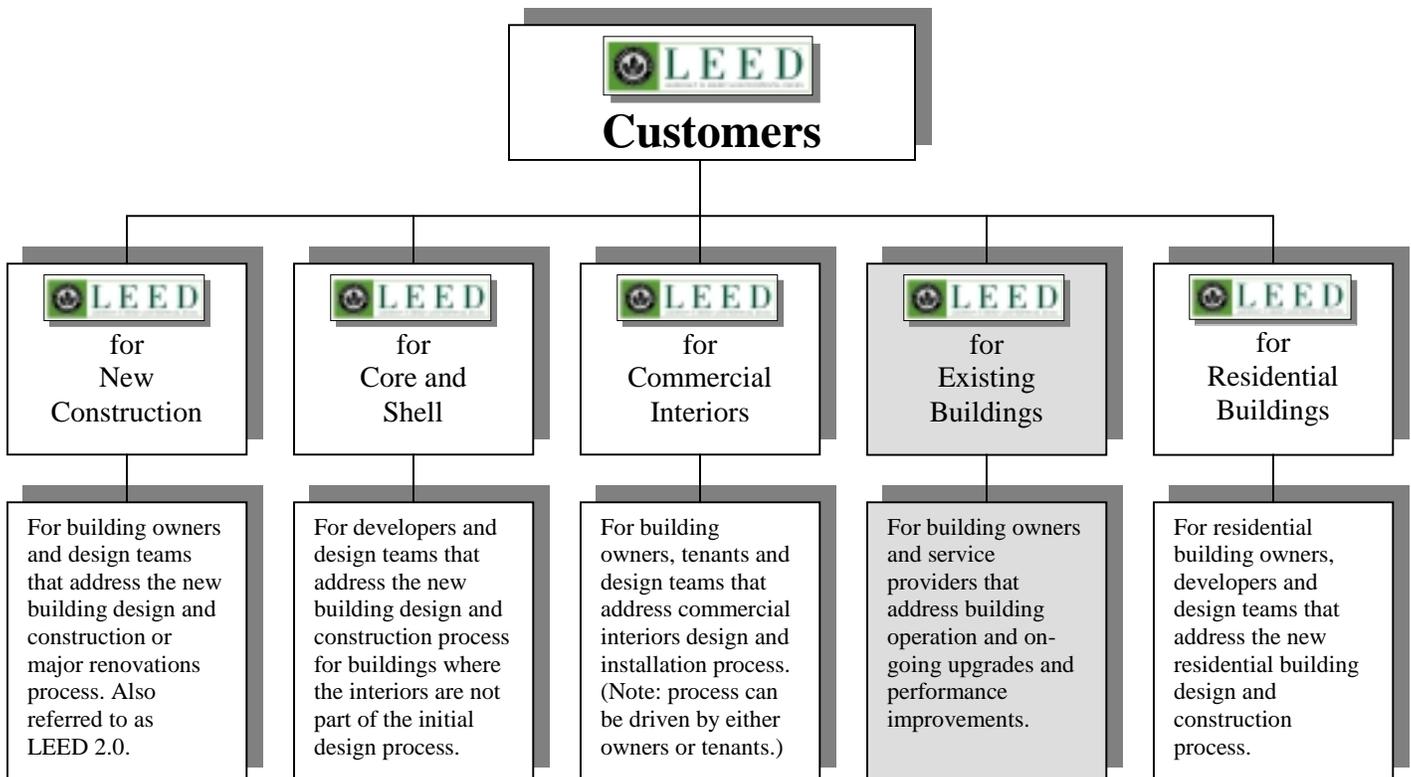


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NOTE: Throughout this pilot version of the LEED EB rating system mention is made to the LEED EB Reference Guide. This work in progress exists in unpublished form at the beginning of the Pilot program (early 2002). The Reference Guide will be greatly enhanced by the pilot participants, as well as the advisory and technical groups closely associated with the development of LEED for Existing Buildings over the course of the coming year.

Overview of LEED for Existing Buildings

LEED for Existing Buildings is a performance standard for greening the operation of existing buildings on an ongoing basis. LEED EB was developed on the basis of LEED 2.0, which addresses design and construction of new construction and major renovation projects.

LEED EB provides an important opportunity for building owners to lead the way in reducing the environmental impact of buildings. LEED EB addresses both existing buildings designed or retrofitted for green operations and new buildings that have earned LEED 2.0 certification.

The goal of LEED EB is to help building owners operate their buildings in a sustainable way, year after year, over the long term. To achieve this goal LEED EB will provide certification and re-certification of building operation to recognize building owner's ongoing achievements. This includes both owners that have buildings certified under LEED 2.0 and those using LEED for the first time.

A facility seeking LEED EB certification must be tracked for one year and record in the documentation requirements 12 months of data showing that the building operation meets the LEED criteria for prerequisites and relevant credits. The only exception to this requirement is that in the initial certification under LEED EB the applicant may show that the most recent 3 months meet the standards. All subsequent applications for re-certification under LEED EB must include a full year of operating data.

LEED 2.0 certification lasts for 5 years. However, building owners will apply for re-certification in the 6th year using LEED EB. Re-certification for existing buildings will occur on an annual basis. In the first year all of the policy statements and documentation, along with performance data, will be submitted. In subsequent years streamlined reporting will require only reporting that which is changed in any policy statement and electronic reporting of any performance data.

Summary of Prerequisites and Credits for LEED EB

<u>Sustainable Sites</u>	<u>(Total Points Available: 16)</u>	<u>Prerequisites & Points</u>
Prerequisite 1: Erosion and Sedimentation Control		Prereq.
Credit 1: Site Selection		1
Credit 2: Urban Redevelopment		2
Credit 3: Brownfield Redevelopment [Not Applicable to LEED EB]		NA
Credit 4: Environmentally Preferable Transportation		1-4
Credit 5: Reduced Site Disturbance		1-2
Credit 6: Stormwater Management		1-2
Credit 7: Reduced Heat Island Effect		1-2
Credit 8: Light Pollution Reduction		1
Credit 9: Green Site and Building Exterior Management		1-2
<u>Water Efficiency</u>	<u>(Total Points Available: 5)</u>	
Prerequisite 1: Minimum Water Efficiency		Prereq.
Prerequisite 2: Discharge Water Compliance		Prereq.
Credit 1: Water Efficient Landscaping		1-2
Credit 2: Innovative Wastewater Technologies		1
Credit 3: Water Use Reduction		1-2
<u>Energy and Atmosphere</u>	<u>(Total Points Available: 22)</u>	
Prerequisite 1: Comprehensive Building Commissioning/Retro Commissioning		Prereq.
Prerequisite 2: Minimum Energy Performance		Prereq.
Prerequisite 3: Ozone Protection		Prereq.
Credit 1: Optimize Energy Performance		2-10
Credit 2: Renewable Energy		1-3
Credit 3: Continuous Commissioning and Maintenance		1-3
Credit 4: Additional Ozone Protection		1
Credit 5: Measurement and Verification		1-4
Credit 6: Green Power		1
<u>Materials and Resources</u>	<u>(Total Points Available: 10)</u>	
Prerequisite: Waste Management		Prereq.
Credit 1: Continued Existing Building Use		1
Credit 2: Construction Waste Management		1
Credit 3: Resource Reuse		1
Credit 4: Recycled Content		1
Credit 5: Local/Regional Materials		1
Credit 6: Rapidly Renewable Materials		1
Credit 7: Certified Wood		1
Credit 8: Occupant Recycling		1-3
<u>Indoor Environmental Quality</u>	<u>(Total Points Available: 18)</u>	
Prerequisite 1: Minimum IAQ Performance		Prereq.
Prerequisite 2: Environmental Tobacco Smoke (ETS) Control		Prereq.
Prerequisite 3: Asbestos Removal or Encapsulation		Prereq.
Credit 1: Carbon Dioxide (CO ₂) Monitoring		1
Credit 2: Increase Ventilation Effectiveness		1
Credit 3: Construction IAQ Management Plan		1
Credit 4: Low-Emitting Materials [Not Applicable to LEED EB]		NA
Credit 5: Green Housekeeping		1-7
Credit 6: Controllability of Systems		1-2
Credit 7: Thermal Comfort		1-2
Credit 8: Daylighting and Views		1-3
Credit 9: Contemporary IAQ Practice		1
<u>Innovation and Accredited Professional Points</u>	<u>(Total Additional Points Available: 5)</u>	
Credit 1: Innovations in Operations and Upgrades		1-4
Credit 2: LEED Existing Building Accredited Professional		1
TOTAL POINTS AVAILABLE FOR THE PILOT		76

Sustainable Sites

With a Side-by-Side Comparison of LEED for Existing Buildings to LEED 2.0

LEED 2.0 Prerequisites and Credits	LEED for Existing Buildings Prerequisites and Credits	Relation to 2.0†	Pts (16)
Prerequisite 1 Erosion and Sedimentation Control Control erosion to reduce negative impacts on water and air quality.	Prerequisite 1: Erosion and Sedimentation Control	**	Prereq.
<u>Credit 1</u> 1 pt. Site Selection Avoid development of inappropriate sites and reduce the environmental impact from the location of a building on a site.	Credit 1: Site Selection	**	1
<u>Credit 2</u> 1 pt. Urban Redevelopment Channel development to urban areas with existing infrastructure, protecting greenfields and preserving habitat & natural resources.	Credit 2: Urban Redevelopment	**	2
<u>Credit 3</u> 1 pts. Brownfield Redevelopment Rehabilitate sites where development is complicated by real or perceived contamination, reducing pressure on undeveloped land.	Credit 3: Not Applicable		
<u>Credit 4</u> 1-4 pts. Alternative Transportation Reduce pollution and land development impacts from automobile use.	Credit 4: Environmentally Preferable Transportation	**	1-4
<u>Credit 5</u> 1-2 pts. Reduced Site Disturbance Conserve existing natural areas and restore damaged areas to provide habitat and promote biodiversity.	Credit 5: Reduced Site Disturbance	**	1-2
<u>Credit 6</u> 1-2 pts. Stormwater Management Limit disruption of natural water flows by minimizing storm water runoff, increasing on-site infiltration and reducing contaminants.	Credit 6: Stormwater Management	**	1-2
<u>Credit 7</u> 1-2 pts. Design to Reduce Heat Islands Reduce heat islands (thermal gradient differences between developed and underdeveloped areas) to minimize impact on microclimate and habitats.	Credit 7: Reduce Heat Islands	*	1-2
<u>Credit 8</u> 1 pt. Light Pollution Reduction Eliminate light trespass from the building site, improve night sky access, and reduce development impact on nocturnal environments.	Credit 8: Light Pollution Reduction	**	1
	Credit 9: Green Site and Building Exterior Management	****	1-2

† Relation to 2.0 (Indicates any variations between LEED 2.0 and LEED EB)

* Copied directly from LEED 2.0

** Language change only - adapting to operations perspective rather than construction perspective

*** Credit modified to adapt substance to operations and upgrade perspective

**** Original to LEED EB

Sustainable Sites

Prerequisite 1: Erosion and Sedimentation Control

INTENT:

Control erosion to reduce negative impacts on water and air quality.

REQUIREMENT:

- Develop and implement as policy a site sedimentation and erosion plan that conforms to best management practices in the EPA's Storm Water Management for Construction Activities, EPA Document No. EPA-833-R-92-001, Chapter 3, OR local Erosion and Sedimentation Control standards and codes, whichever is more stringent. The plan shall meet the following objective:

Prevent loss of soil by stormwater runoff and/or wind erosion during any landscaping or building improvements that disturb the site.

TECHNOLOGIES/STRATEGIES:

The EPA standard lists numerous measures such as silt fencing, sediment traps, construction phasing, stabilizing of steep slopes, maintaining vegetated ground cover and providing ground cover that will meet this credit.

DOCUMENTATION REQUIREMENTS:

- Erosion and Sedimentation Control
 - Provide a copy of the site and erosion control policy that specifies inclusion of these erosion and sediment control requirements in contract documents for any construction projects for the building.
 - For any construction projects carried out at the building over the last year:
 - Declare whether the project follows local erosion and sedimentation control standards or the referenced EPA standards and provide a brief listing of the measures implemented. If local standards and codes are followed, describe how they meet or exceed the EPA best management practices.
 - Provide the erosion control plan (or drawings and specifications) with the sediment and erosion control measures highlighted.

Credit 1: Site Selection

INTENT:

Avoid development of inappropriate sites and reduce the environmental impact from location of a building on a site.

REQUIREMENT:

- Continue to occupy an existing building. (1 point)

TECHNOLOGIES/STRATEGIES:

Continue to occupy an existing building

DOCUMENTATION REQUIREMENTS:

- Site Selection
 - Provide a signed written statement that your organization continues to occupy the existing building for which certification is being requested.

Credit 2: Urban Redevelopment

INTENT:

Channel development to urban areas with existing infrastructure, protecting greenfields, preserving habitat and natural resources.

REQUIREMENT:

- ❑ Continue to occupy a building located within an area with a density of at least 60,000 square feet of building floor space per acre (2-story downtown development). (2 points)

TECHNOLOGIES/STRATEGIES:

Continue to occupy a building located within an area with a density of at least 60,000 square feet of building floor space per acre (2-story downtown development).

DOCUMENTATION REQUIREMENTS:

- ❑ Urban Redevelopment
 - Provide a signed written statement that the existing building for which certification is being requested is located within an area with a density of at least 60,000 square feet of building floor space per acre (2-story downtown development).

Credit 3: Brownfield Redevelopment (Not Applicable to LEED EB)

Credit 4: Environmentally Preferable Transportation

INTENT:

Reduce pollution and land development impacts from automobile use.

REQUIREMENTS:

- ❑ Provide/maintain a building-occupant conveyance program (shuttle-link) for buildings that are more than ¼ mile from commuter rail or subway and ½ mile from established bus routes, or demonstrate the existence of at least two bus routes less than ¼ mile from the building site. (1 point)
- ❑ Provide/maintain suitable means for securely housing bicycles, with convenient changing/shower facilities for use by cyclists, for 5% or more of the adult building occupants that work in the building daily. (1 point)
- ❑ Provide/maintain alternative-fuel refueling station(s) for 3% of the total vehicle parking capacity of the site, or provide preferred parking programs for hybrid or alternative fuel vehicles for at least 10% of the total vehicle parking capacity. (1 point)
- ❑ Provide preferred parking and implement/document programs and policy for carpools or vanpools capable of serving 5% of the building occupants, and, add no new parking, or implement/maintain an occupant telecommuting program reducing the commuting frequency by 70% for 10% or more of the building occupants. (1 point)

TECHNOLOGIES/STRATEGIES:

Add bike and shower facilities, preferred parking to existing parking. Engage public transportation link service provider.

DOCUMENTATION REQUIREMENTS:

- ❑ Alternative Transportation, Public Transportation Access
 - Provide an area drawing highlighting the building location, the fixed rail stations and bus lines and indicate the distances between them. Include a scale bar for distance measurement, AND
 - Provide records and results of quarterly contacts with transit link service providers to determine if service continues to be provided within specified distances from building.
- ❑ Alternative Transportation, Bicycle Friendly
 - Provide site drawings and documents highlighting bicycle securing apparatus and changing/shower facilities. Include calculations demonstrating that these facilities have the capacity to accommodate 5% or more of building occupants.
 - Provide records and results of quarterly inspections to determine if the initially identified number of bicycle securing apparatus and changing/shower facilities continue to be available and of month checks of the number to building occupants to determine if these facilities continue to have the capacity to accommodate 5% or more of building occupants.
- ❑ Alternative Transportation, Alternative Fuel Refueling Stations
 - Provide site drawings and documents highlighting alternative-fuel refueling stations. Include information on venting if applicable of provide site drawings, documents and policy documents

- highlighting sections demonstrating that preferred parking is provided for hybrid or alternative fuel vehicles.
- Provide calculations demonstrating that these facilities have the capacity to accommodate 3% (for refueling stations) or 10% (for hybrid or alternative fuel vehicle parking) or more of the total vehicle parking capacity.
- Provide records and results of quarterly inspections to determine if the initial alternate-fuel refueling/alternative vehicle capacity continues to be available and of month checks of the total vehicle parking capacity to determine if these refueling facilities continue to have the capacity to accommodate 3% or 10% or more of the total vehicle parking capacity.
- Alternative Transportation, Parking Reductions
 - Provide a description, parking plan, and company literature describing carpool and vanpool programs designed to serve 5% of the building occupants, AND
 - Provide annual summary and the supporting daily reports on carpool and vanpool usage documenting that these programs serve 5% of the building occupants on an annual average basis, OR
 - Provide a description of telecommuting program designed to reduce the commuting frequency to 70% for 10% or more of the building occupants, AND
 - Provide annual summary and the supporting daily reports on telecommuting participation documenting that this program is reducing the commuting frequency to 70% for 10% or more of the building occupants on an annual average basis.

Credit 5: Reduced Site Disturbance

INTENT:

Conserve existing natural areas and restore damaged areas to provide habitat and promote biodiversity.

REQUIREMENT:

- Restore/maintain vegetated ground cover to a minimum of 50% of the open site, or undertake a Phase 1 site remediation program of a brownfield on the site, or create/maintain green space covering 25% of the horizontal roof of the building. (1 point)
- Restore/maintain a minimum of 25% of the open site area by planting native or adapted vegetation, OR undertake a Phase 1 site remediation program of a brownfield on the site, or create/maintain green space covering 50% of the horizontal roof of the building. (1 point)

TECHNOLOGIES/STRATEGIES:

Activities may include removing excessive paved areas and replacing them with landscaped areas, or replacing excessive turf-grass area with natural landscape features. Work with local horticultural extension services or native plant societies to select and maintain indigenous plant species for site restoration and landscaping. Coordinate with activities, technologies and strategies under Green Groundskeeping.

DOCUMENTATION REQUIREMENTS:

- Vegetated Ground Cover
 - Provide highlighted site drawings with area calculations demonstrating that 50% open areas are vegetated or that green space covers 25% of the horizontal roof of the building.
 - Provide records and results of quarterly inspections to determine if 50% open areas remain vegetated or that green space covers 25% of the horizontal roof of the building..
- Native or Adapted Vegetation
 - Provide highlighted site drawings with area calculations demonstrating that 25% open areas are vegetated with planting native or adapted vegetation or that green space covers 50% of the horizontal roof of the building.
 - Provide records and results of quarterly inspections to determine if that 25% open areas are vegetated with planting native or adapted vegetation or that green space covers 50% of the horizontal roof of the building.

Credit 6: Stormwater Management

INTENT:

Limit disruption of natural water flows by minimizing stormwater runoff, increasing on-site infiltration and reducing contaminants.

REQUIREMENT:

- ❑ Implement/maintain a stormwater management plan that results in reducing/maintaining the rate and quantity of stormwater runoff from existing conditions by 25%. (1 point)
- ❑ Implementing/maintaining stormwater treatment systems designed to remove 80% of the average annual post development total suspended solids (TSS), and 40% of the average annual post development total phosphate (TP), by implementing Best Management Practices (BMPs) outlined in EPA's Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters (EPA 840-B-92-002 1/93). (1 point)

TECHNOLOGIES/STRATEGIES:

Significantly reduce impervious surfaces, maximize on-site stormwater infiltration, and retain pervious and vegetated areas. Capture rainwater from impervious areas of the building for groundwater recharge or reuse within building. Use green/vegetated roofs. Utilize biologically based and innovative stormwater management features for pollutant load reduction such as constructed wetlands, stormwater filtering systems, bioswales, bio-retention basins and vegetated filterstrips.

DOCUMENTATION REQUIREMENTS:

- ❑ 25% Stormwater Runoff Reduction:
 - Provide a narrative description and calculations showing a stormwater management plan has been implemented that reduces the rate and quantity of stormwater runoff from previously existing conditions by 25%.
 - Provide records and results of quarterly inspections to determine if the features that reduce the rate and quantity of stormwater runoff from previously existing conditions by 25% are being maintained.
- ❑ Stormwater Treatment
 - Provide plans, drawings and calculations showing that a stormwater treatment plan has been implemented that removes 80% of the average annual post development total suspended solids (TSS), and 40% of the average annual post development total phosphorous (TP), by implementing Best Management Practices (BMPs) outlined in EPA's Guidance Specifying Management Measures for Sources of Nonpoint Pollution in Coastal Waters (EPA 840-B-92-002 1/93).
 - Provide records and results of quarterly inspections to determine if the features that remove 80% of the average annual post development total suspended solids (TSS) and 40% of the average annual post development total phosphorous (TP) are being maintained.

Credit 7: Reduce Heat Islands

INTENT:

Reduce heat islands (thermal gradient differences between developed and undeveloped areas) to minimize impact on microclimate and human and wildlife habitat.

REQUIREMENT:

- ❑ Provide/maintain (within 5 years) shade on at least 30% of non-roof impervious surface on the site, including parking lots, walkways, plazas, etc., or use/maintain light-colored/high-albedo materials (reflectance of at least 0.3) for 30% of the site's non-roof impervious surfaces, OR place/maintain a minimum of 50% of parking space underground, OR use/maintain open-grid pavement system (net impervious area of LESS than 50%) for a minimum of 50% of the parking lot area. (1 point)
- ❑ Use/maintain ENERGY STAR® roof compliant, high-reflectance, AND high emissivity roofing (initial reflectance of at least .65 and three-year-aged reflectance of at least .5 when tested in accordance with ASTM E408) for a minimum of 75% of the roof surface; OR install/maintain a "green" (vegetated) roof for at least 50% of the roof area. (1 point)

TECHNOLOGIES/STRATEGIES:

Employ strategies, materials, and landscaping techniques that reduce heat absorption of exterior materials. Note albedo/reflectance requirements in the drawings and specifications. Provide shade (calculated on June 21, noon solar time) using native or climate tolerant trees and large shrubs, vegetated trellises, or other exterior structures supporting vegetation. Substitute vegetated surfaces for hard surfaces. Explore elimination of blacktop and the use of new coatings and integral colorants for asphalt to achieve light colored surfaces. Use photovoltaic cells for the shading. Also consider water features to mitigate heating.

DOCUMENTATION REQUIREMENTS:

- Landscape & Exterior Design to Reduce Heat Islands, Non-Roof surfaces
 - Provide site plan highlighting all non-roof impervious surfaces and portions of these surfaces that will be shaded within five years. Include calculations demonstrating that a minimum of 30% of non-roof impervious surfaces areas will be shaded within five years, OR
 - Provide third party (that will be defined in the LEED EB Reference Guide) documentation and photographs for high-albedo materials applied to non-roof impervious surfaces highlighting the reflectance of the installed materials, AND
 - Provide a site plan and calculations demonstrating that these materials exist on 30% of non-roof impervious surfaces.
 - Provide a parking plan demonstrating that a minimum of 50% of site parking spaces are located underground, OR
 - Provide third party documentation and photographs for a pervious paving system with a minimum perviousness of 50%. Include calculations demonstrating that this paving system covers a minimum of 50% of the total parking area, AND
 - Provide records and results of quarterly inspections to determine if these features are being maintained.
- Landscape & Exterior Design to Reduce Heat Islands, Roof Surfaces
 - Provide third party documentation and photographs highlighting roofing materials that are Energy Star labeled, with a minimum Initial reflectance of 0.65, and a minimum three year-aged reflectance of 0.5 and a minimum emissivity of 0.9. Include area calculations demonstrating that the roofing material covers a minimum of 75% of the total roof area, AND
 - Provide records and results of quarterly inspections to determine if these features are being maintained, OR
 - Provide photographs highlighting a green vegetated roof system. Include area calculations demonstrating that the roof system covering a minimum or 50% of the total roof area, AND
 - Provide records and results of quarterly inspections to determine if these features are being maintained.

Credit 8: Light Pollution Reduction

INTENT:

Eliminate light trespass from the building site, improve night sky access, and reduce development impact on nocturnal environments.

REQUIREMENT:

- Reconfigure/maintain exterior lighting to not exceed Illuminating Engineering Society of North America (IESNA) foot-candle level requirements as stated in the Recommended Practice Manual: Lighting for Exterior Environments, OR maintain existing lighting at or below nighttime ambient levels 15 feet from the building exterior, AND design/maintain exterior lighting such that zero direct-beam illumination leaves the building site. (1 point)

TECHNOLOGIES/STRATEGIES:

Consult IESNA Recommended Practice Manual: Lighting for Exterior Environments for Commission International de l'Eclairage (CIE) zone and pre- and post-curfew hour descriptions and associated ambient lighting level requirements. Ambient lighting for pre-curfew hours for CIE zones range between .01 foot-candles for areas with dark landscapes such as parks, rural, and residential areas, and 1.5 foot-candles for areas with high ambient brightness such as urban areas

with high levels of nighttime activity. Design site lighting and select lighting styles and technologies to have a minimal impact off-site and minimal contribution to sky glow. Minimize lighting of architectural and landscape features.

DOCUMENTATION REQUIREMENTS:

- Light Pollution Reduction
 - Provide a brief exterior lighting system narrative describing the lighting objectives and the measures taken to meet the ambient lighting and direct-beam illumination requirements, AND
 - Provide exterior lighting level measurements that record ambient levels 15 feet from the building with the building lights off, and the ambient levels 15 feet from the building with the building lights on, AND
 - Provide records and results of quarterly inspections to determine if these features are being maintained.

Credit 9: Green Site and Building Exterior Management

INTENT:

Encourage grounds/site/building exterior management practices that have the lowest environmental impact possible and preserve ecological integrity, enhance diversity and protect wildlife while supporting building performance and integration into surrounding landscapes.

REQUIREMENT:

- Establish/maintain site and building exterior to reduce impacts on local environments. (1 point)
- Establish/maintain low impact site and building exterior chemical/fertilizer/pest management program in summer and low-impact snow removal chemicals and dumping snow at an approved site in the winter. (“Low-impact” will be defined in the LEED EB Reference Guide.) (1 point)

TECHNOLOGIES/STRATEGIES:

Provide plants that are wildlife food. Provide water sources for wildlife drinking/bathing. Refer to LEED EB Reference Guide for low impact chemical/fertilizer/pest management program in summer and low-impact snow removal technical references/web sites/printed media recommendations.

DOCUMENTATION REQUIREMENTS:

- Site and Building Exterior Management to Reduce Impact on Local Environments
 - Provide management plan for establishing/maintaining site and building exterior to reduce/manage impact of existing building on local environments, AND
 - Provide quarterly records documenting that this management plan is being implemented on an ongoing basis.
- Low Impact Site and Building Exterior Chemical/Fertilizer/Pest Management Program
 - Provide management plan for establishing/maintaining a low impact site and building exterior chemical/fertilizer/pest management/snow removal program, AND
 - Provide quarterly records documenting that this management plan is being implemented on an ongoing basis.

Water Use and Water Efficiency

With a Side-by-Side Comparison of LEED for Existing Buildings to LEED 2.0

LEED 2.0 Prerequisites and Credits	LEED for Existing Buildings Prerequisites and Credits	Relation to 2.0†	Pts (5)
	Prerequisite 1: Minimum Water Efficiency	****	Prereq.
	Prerequisite 2: Discharge Water Compliance	****	Prereq.
<u>Credit 1</u> 1-2 Pts. Water Efficient Landscaping Limit or eliminate the use of potable water for landscape irrigation.	Credit 1: Water Efficient Landscaping	**	1-2
<u>Credit 2</u> 1 Pt. Innovative Wastewater Technology Reduce generation of wastewater and potable water demand, while increasing local aquifer recharge.	Credit 2: Innovative Wastewater Technology	**	1
<u>Credit 3</u> 1-2 Pts. Water Use Reduction Maximize water efficiency within buildings to reduce the burden on municipal water supply and waste-water systems.	Credit 3: Water Use Reduction	**	1-2

† Relation to 2.0 (Indicates any variations between LEED 2.0 and LEED EB)

- * Copied directly from LEED 2.0
- ** Language change only - adapting to operations perspective rather than construction perspective
- *** Credit modified to adapt substance to operations and upgrade perspective
- **** Original to LEED EB

Water Use and Water Efficiency

Prerequisite 1: Minimum Water Efficiency

INTENT:

Maximize water efficiency within buildings to reduce the burden on municipal water supply and wastewater systems.

REQUIREMENT:

- Reduce/maintain water usage to a water use baseline that would result from outfitting 90% of the total building fixture count with plumbing fixtures that meet the Energy Policy Act of 1992 fixture performance requirements.

TECHNOLOGIES/STRATEGIES:

Develop a water-use baseline including all water consuming fixtures, equipment, and seasonal conditions according to methodology guidance outlined in the LEED EB Reference Guide. Install, where possible, water conserving plumbing fixtures that meet or exceed Energy Policy Act of 1992 fixture requirements in combination with ultra high efficiency or dry fixture and control technologies. Specify high water efficiency equipment (dishwashers, laundry, cooling towers, etc.). Use alternatives to potable water for sewage transport water. Use recycled or stormwater or municipal gray water if available for HVAC/process make-up water. A calculation guide will be available in the LEED EB Reference Guide that will help determine interior and exterior water use per occupant and per square foot.

DOCUMENTATION REQUIREMENTS:

- Minimum Water Use Efficiency
 - Provide calculations showing that the existing building water use is equal to or less than a baseline use of 90% of the total building fixture count were outfitting with plumbing fixtures that meet the Energy Policy Act of 1992 fixture performance requirements.
 - Provide quarterly and annual water meter data for water use inside the building showing that the annual water use is equal to or less than the calculated baseline.
 - Provide calculations showing interior and exterior water use per occupant and per square foot.

Prerequisite 2: Discharge Water Compliance

INTENT:

Protect natural habitat, waterways and water supply from pollutants carried by building discharge water.

REQUIREMENT:

If regulated by the EPA NPDES Clean Water Act requirements, demonstrate NPDES permit compliance (if applicable) AND use oil separators, grease interceptors and other filtration for in-building generated discharges and dispose of properly (details will be available in the LEED EB Reference Guide).

TECNOLOGIES/STRATEGIES:

Refer to the LEED EB Reference Guide for excerpts of the EPA/NPDES requirements and links to technical information on the EPA requirements. Establish a discharge monitoring report (DMR) process to bring and keep NPDES permit into compliance.

DOCUMENTATION REQUIREMENTS:

- Discharge Water Compliance
 - If regulated by the EPA NPDES Clean Water Act requirements, provide documentation demonstrating ongoing NPDES permit compliance and ongoing discharge monitoring reporting (DMR) over the year being reported.

Credit 1: Water Efficient Landscaping

INTENT:

Limit or eliminate the use of potable water for landscape irrigation.

REQUIREMENT:

- ❑ Install/use/maintain high efficiency irrigation technology, OR use/maintain system for capturing rain or recycled site water to reduce potable water consumption for irrigation by 50% over existing means. (1 point)
- ❑ Install/use/maintain system that uses only captured rain or recycled site water for an additional 50% reduction (100% total reduction) of potable water for site irrigation needs, OR remove/maintain absence of permanent landscape irrigation system. (1 point)

NOTE: In urban settings, where there is no lawn, credits can be earned by reducing (50%) or eliminating (100%) the use of potable water for watering any roof/courtyard garden space or outdoor planters.

TECHNOLOGIES/STRATEGIES:

Develop a landscaping water-use baseline based on existing irrigation system operating specification and according to the methodology outlined in the LEED Reference Guide. Specify water-efficient, native or adapted, climate tolerant plantings. High efficiency irrigation technologies include micro irrigation, moisture sensors, or weather data based controllers. Feed irrigation systems with captured rainwater, gray water (site or municipal), or on-site treated wastewater.

DOCUMENTATION REQUIREMENTS:

- ❑ Water Efficient Landscaping, 50% Reduction
 - Provide documentation and photographs for high efficiency irrigation equipment. Include calculations demonstrating that potable water consumption for irrigation/watering is reduced by 50% compared to conventional technology, AND
 - Provide quarterly and annual water meter data for water use for irrigation showing that the annual water use is less than the calculated baseline of a 50% reduction, OR
 - Provide schematic drawings showing equipment locations and a narrative describing the captured rain system or recycled site water system with the capacity of the system highlighted. Include calculations demonstrating that potable water consumption for irrigation/watering is reduced by 50%, AND
 - Provide quarterly and annual water meter data for water use for irrigation/watering showing that the annual water use is less than the calculated baseline of a 50% reduction.
- ❑ Water Efficient Landscaping, Potable Free System
 - Provide schematic drawings showing equipment locations and a narrative describing the captured rain system or recycled site water system with the capacity of the system highlighted. Include calculations demonstrating that potable water used for irrigation/watering is reduced by 100%, AND
 - Provide quarterly and annual water meter data for water use for irrigation/watering showing that the annual water use does not exceed the calculated baseline of a 100% reduction, OR
 - Provide a design narrative description of the landscape design and describe why a permanent landscape irrigation system is not required, AND
 - Provide quarterly and annual water meter data for water use for irrigation showing that the annual water use does not exceed the calculated baseline of a 100% reduction.

Credit 2: Innovative Wastewater Technologies

INTENT:

Reduce generation of wastewater and potable water demand.

REQUIREMENT:

- ❑ Reduce/maintain the reduced use of municipally provided potable water for building sewage conveyance by 50% or more over existing conditions, OR treat 100% of wastewater on site to tertiary standards. (1 point)

TECHNOLOGIES/STRATEGIES:

Develop a wastewater baseline according to the methodology outlined in the LEED EB Reference Guide Implement decentralized on-site wastewater treatment and reuse systems. Decrease the use of potable water for sewage conveyance by utilizing gray and/or black water systems. Non-potable reuse opportunities include toilet flushing, landscape irrigation, etc. Provide advanced wastewater treatment after use by employing innovative, ecological, on-site technologies including constructed wetlands, a mechanical re-circulating sand filter or aerobic treatment systems. Utilize systems that recirculate and reuse water to reduce water use.

DOCUMENTATION REQUIREMENTS:

- ❑ Innovative Wastewater Technologies
 - Provide a narrative description of measures implemented to reduce potable water sewage conveyance. Include calculations demonstrating that potable water sewage conveyance volumes are reduced by 50% over baseline conditions, AND
 - Provide quarterly and annual water meter data showing that 50% reduction is being achieved on an annual average basis,
OR
 - Provide schematic drawings showing equipment locations and a narrative description demonstrating that 100% of building wastewater volumes is directed to an on-site wastewater treatment system that provides treatment to tertiary levels. Include a letter from the local health department documenting compliance with local code, AND
 - Provide quarterly and annual water meter data showing 100% of building wastewater volumes is directed to an on-site wastewater treatment system that provides treatment to tertiary levels.

Credit 3: Water Use Reduction

INTENT:

Maximize water efficiency within buildings to reduce the burden on municipal water supply and wastewater systems.

REQUIREMENT:

- ❑ Implement/maintain strategies and systems that in aggregate cause a 10% reduction from baseline established in Prerequisite 1 calculated for the existing building (not including irrigation) after meeting Energy Policy Act of 1992 fixture performance requirements. (1 point)
- ❑ Exceed/maintain the potable water use reduction by an additional 10% reduction from baseline established in Prerequisite 1 (20% total efficiency increase). (1 point)

TECHNOLOGIES/STRATEGIES:

Develop a water-use baseline including all water consuming fixtures, equipment, and seasonal conditions according to methodology guidance outlined in the LEED EB Reference Guide. Specify water conserving plumbing fixtures that exceed Energy Policy Act of 1992 fixture requirements in combination with ultra high efficiency or dry fixture and control technologies. Specify high water efficiency equipment (dishwashers, laundry, cooling towers, etc.). Use alternatives to potable water for sewage transport water. Use recycled or stormwater or municipal gray water where available for HVAC/process make up water.

DOCUMENTATION REQUIREMENTS:

- ❑ Water Use Reduction, 10% Reduction
 - Provide calculations showing that the existing building water use is equal to or less than a baseline use if 90% of the total building fixture count were outfitting with plumbing fixtures that meet the Energy Policy Act of 1992 fixture performance requirements, AND
 - Provide a water budget calculations demonstrating that occupancy based potable water consumption is reduced by 10% from baseline conditions, AND
 - Provide quarterly and annual water meter data for water use inside the building showing that the annual water use is reduced by 10% from the calculated baseline.
- ❑ Water Use Reduction, 20% Reduction
 - Provide calculations showing that the existing building water use is equal to or less than a baseline use if 90% of the total building fixture count were outfitting with plumbing fixtures that meet the Energy Policy Act of 1992 fixture performance requirements, AND
 - Provide water budget calculations demonstrating that occupancy based potable water consumption is reduced by 20% from baseline conditions, AND
 - Provide quarterly and annual water meter data for water use inside the building showing that the annual water use is reduced by 20% from the calculated baseline.

Energy and Atmosphere

With a Side-by-Side Comparison of LEED for Existing Buildings to LEED 2.0

LEED 2.0 Prerequisites and Credits	LEED for Existing Buildings Prerequisites and Credits	Relation to 2.0†	Pts (22)
<u>Prerequisite 1</u> Fundamental Building Systems Commissioning Verify and ensure that fundamental building elements & systems are designed, installed and calibrated to operate as intended.	Prerequisite 1: Comprehensive Building Commissioning/ Retro Commissioning	**	Prereq.
<u>Prerequisite 2</u> Minimum Energy Performance Establish the minimum level of energy efficiency for the base building systems.	Prerequisite 2: Minimum Energy Performance	***	Prereq.
<u>Prerequisite 3</u> CFC Reduction in HVAC&R Equipment Reduce ozone depletion.	Prerequisite 3: Ozone Protection	**	Prereq.
<u>Credit 1</u> 2-10 pts. Optimize Energy Performance Achieve increasing levels of energy performance above the prerequisite standard to reduce environmental impact of excessive energy use.	Credit 1: Optimize Energy Performance	***	2-10
<u>Credit 2</u> 1-3 pts. Renewable Energy Encourage and recognize increasing levels of self-supply through renewable technologies to reduce environmental impact of fossil fuel energy use.	Credit 2: Renewable Energy	**	1-3
<u>Credit 3</u> 1 pt. Additional Commissioning Verify & ensure that the entire building is designed, constructed and calibrated to operate as intended.	Credit 3: Continuous Commissioning and Maintenance	***	1-3
<u>Credit 4</u> 1 pt. Elimination of HCFCs & Halons Reduce ozone depletion & support early compliance with the Montreal Protocol.	Credit 4: Additional Ozone Protection	***	1
<u>Credit 5</u> 1 pt. Measurement & Verification Provide for the ongoing accountability & optimization of building energy & water consumption over time.	Credit 5: Measurement & Verification	***	1-4
<u>Credit 6</u> 1 pt. Green Power Encourage the development & use of grid-source, renewable energy technologies on a net zero population base.	Credit 6: Green Power	*	1

† Relation to 2.0 (Indicates any variations between LEED 2.0 and LEED EB)

* Copied directly from LEED 2.0

** Language change only - adapting to operations perspective rather than construction perspective

*** Credit modified to adapt substance to operations and upgrade perspective

**** Original to LEED EB

Energy and Atmosphere

Prerequisite 1: Comprehensive Building Commissioning/Retro Commissioning

INTENT:

Verify and ensure that fundamental building elements and systems are installed, calibrated, and operating as intended so they can deliver functional and efficient performance.

REQUIREMENT:

- Carry out a comprehensive building commissioning/retro-commissioning including the following procedures:
 - Develop a comprehensive building operation plan based on original specifications or design calculations or a comprehensive audit (details to be stated in the LEED EB Reference Guide) including the: heating system, cooling system, humidity control system, lighting system, safety systems and the building automation controls.
 - Prepare a retro-commissioning plan for carrying out the testing of all building systems to verify that they are working according to the specifications of the building operation plan.
 - Implement the retro-commissioning plan documenting all the results.
 - Repair or upgrade all systems components that are found to not be working according to the specifications of the building operation plan.
 - Re-test all building components that required repairs or upgrades to verify that they are working according to the specifications of the building operation plan.
 - Each time the occupancy of the building changes and each time the building is modified, repeat steps 1 – 5 for the areas of the building affected by the modifications. If change in occupancy leads to significant changes to the interior/exterior surfaces of the building, LEED 2.0 for new construction and major renovations or LEED for Commercial Interiors will be used. If change in occupants does not lead to significant changes to interior/exterior surfaces, LEED EB will be used.

TECHNOLOGIES/STRATEGIES:

Once drafted, refer to the LEED for EB Reference Guide for detailed descriptions of required elements and references to additional commissioning guides. A definition of what constitutes a building operations plan will also be included.

DOCUMENTATION REQUIREMENTS:

- Prerequisite Comprehensive Building Commissioning/Retro Commissioning
 - Provide a copy of the comprehensive building operation plan for how all building systems should operate including the: heating system, cooling system, humidity control system, lighting system, safety systems and the building automation controls.
 - Provide a copy of the comprehensive retro-commissioning plan for carrying out the testing of all building systems to verify that they are working according to the specifications of the building operation plan.
 - Provide a copy of the report on the results of the comprehensive retro-commissioning plan documenting all the results, including:
 - A list of all systems components that were found to not be working according to the specifications of the building operation plan.
 - How these were repaired or upgraded.
 - Results of re-test for all building components that required repairs or upgrades to verify that they are working according to the specifications of the building operation plan.
 - Provide a copy of ongoing functional and efficient performance goals that have been established to support achievement of annual functional performance and efficiency objectives. Provide a signed letter of certification by the commissioning authority confirming that the commissioning plan has been successfully executed and the functional and efficient performance goals of the building has been established.

Prerequisite 2: Minimum Energy Performance

INTENT:

Establish the minimum level of energy efficiency for the base building and systems.

REQUIREMENT:

- Demonstrate building energy efficiency and performance as required by the EPA ENERGY STAR label benchmarking tool score of 60 for buildings, OR demonstrate energy consumption levels consistent with those calculated using the ASHRAE/IESNA 90.1-1999 system/component method, or the local energy code (whichever is more stringent).

TECHNOLOGIES/STRATEGIES:

Analyze actual energy and building performance using the Energy Star Label benchmarking tool. If an ENERGY STAR label for the building type is not yet available, use the ASHRAE method. ASHRAE/IESNA 90.1-1999 provides guidance for establishing building base case development and analysis. Refer to the LEED EB Reference Guide for information on the EPA benchmarking tool and a wide variety of energy efficiency strategy resources.

DOCUMENTATION REQUIREMENTS:

- Minimum Energy Performance
 - Provide calculations and benchmarking tool output showing the building energy efficiency and performance achieved an EPA ENERGY STAR Label Building benchmarking tool score of 60, AND
 - Provide a summary of the annual bills for each type of energy used by the building including the annual cost and annual amount of each type of energy used and provide copies of the actual bills, OR
 - Provide calculations showing the building energy efficiency and performance meets ASHRAE/IESNA 90.1-1999, OR the local energy code, which ever is the more stringent, AND
 - Provide a summary of the annual bills for each type of energy used by the building including the annual cost and annual amount of each type of energy used and provide copies of the actual bills.

Prerequisite 3: Ozone Protection

INTENT:

Reduce ozone depletion.

REQUIREMENT:

- Zero use of CFC-based refrigerants in HVAC&R base building systems unless a third-party (as defined in the LEED EB Reference Guide) audit shows that system replacement or conversion is not economically feasible. If CFC-based refrigerants are maintained in the building, reduce annual leakage to 10% or less using USEPA Clean Air Act, Title VI, Rule 608 procedures governing refrigerant management and reporting.

TECHNOLOGIES/STRATEGIES:

Set up loss minimization procedures and systems to meet annual loss minimization standards and reporting requirements. The USEPA program, "Building Air Conditioning and Climate Protection" is developing standards and support for this type of analysis.

DOCUMENTATION REQUIREMENTS:

- Prerequisite Ozone Protection
 - Provide documentation that HVAC&R base building systems do not use CFCs, OR provide results of third-party audit demonstrating that replacement is not economically feasible.

Provide documentation showing compliance with EPA Clean Air Act, Title VI, Rule 608 governing refrigerant management and reporting.

Credit 1: Optimize Energy Performance

INTENT:

Achieve increasing levels of energy performance above the prerequisite standard to reduce use of non-renewable fuels and to reduce the environmental impacts associated with excessive energy use.

REQUIREMENT:

Reduce/maintain energy usage to a level to achieve/maintain an EPA ENERGY STAR Label for Buildings using the ENERGY STAR Label benchmarking tool, OR below the energy cost budget for regulated energy components described in the requirements of ASHRAE/IESNA Standard 90.1-1999 as demonstrated by a whole building simulation using the Energy Cost Budget Method described in Section 11, of ASHRAE 90.1-1999.

<u>ASHRAE Scale</u>	LEED Points.	<u>Energy Star Label Scale</u>
<input type="checkbox"/> 10%	2	70 Score
<input type="checkbox"/> 20%	4	75 Score
<input type="checkbox"/> 30%	6	85 Score
<input type="checkbox"/> 40%	8	90 Score
<input type="checkbox"/> 50%	10	95 Score

Regulated energy components include HVAC systems, building envelope, service hot water systems, lighting and other regulated systems as defined by ASHRAE.

TECHNOLOGIES/STRATEGIES:

Refer to the LEED EB Reference Guide for information on the EPA benchmarking tool and a wide variety of energy efficiency strategy resources.

Analyze actual energy and building performance using the Energy Star Label benchmarking tool. If an ENERGY STAR label for the building type is not yet available, use the ASHRAE method. ASHRAE/IESNA 90.1-1999 provides guidance for establishing building base case development and analysis.

Unit of measure for performance shall be annual energy cost expressed in dollars. Annual energy costs shall be determined using rates for purchased energy, such as electricity, gas, oil, propane, steam, and chilled water and approved by the adopting authority, OR using the default purchased energy costs set forth in the Reference Guide. Refer to the LEED for Existing Building Reference Guide for a wide variety of energy efficiency resources and retrofit strategies including conservation measures, electromechanical energy efficiency technologies, passive heating and cooling strategies, and daylight and energy harvesting.

DOCUMENTATION REQUIREMENTS:

- Optimize Energy Performance
 - Provide calculations and benchmarking tool output showing what score the building's actual energy efficiency and performance for the last year achieves under the EPA ENERGY STAR Label Building benchmarking tool, AND
 - Provide a summary of the annual bills for each type of energy used by the building including the annual cost and annual amount of each type of energy used and provide copies of the actual bills. OR
 - Provide calculations showing what percentage the building's actual energy efficiency and performance for the last year is more efficient than the ASHRAE/IESNA 90.1-1999, AND
 - Provide a summary of the annual bills for each type of energy used by the building including the annual cost and annual amount of each type of energy used and provide copies of the actual bills.

Credit 2: Renewable Energy

INTENT:

Encourage and recognize increasing levels of self-supply through renewable technologies to reduce environmental impacts associated with fossil fuel energy use.

REQUIREMENT:

Supply/maintain a net fraction of the building's total energy use (as expressed as a fraction of annual energy cost) through the use of on-site renewable energy systems.

Percent of Total Energy Cost in Renewables	Pts.
<input type="checkbox"/> 5%	1
<input type="checkbox"/> 10%	2
<input type="checkbox"/> 15%	3

TECHNOLOGIES/STRATEGIES:

Employ the use of on-site non-polluting-source renewable technologies contributing to the total energy requirements of the project. Consider and use photovoltaic panels, high temperature solar and/or geothermal, wind, biomass, and bio-gas. Passive solar, solar hot water heating, ground-source heat pumps, and daylighting do not qualify for points under this credit. Credit for these strategies is given in Energy & Atmosphere Credit #: Optimizing Energy Performance.

DOCUMENTATION REQUIREMENTS:

- Renewable Energy
 - Provide system schematic diagrams and narrative highlighting on-site renewable energy systems installed in the building.
 - Provide metered energy output of onsite renewable energy system over the last year.
 - Provide calculations showing the percentage of the building's total energy requirements that were supplied by on-site renewable energy systems for the last year.

Credit 3: Continuous Building Commissioning and Maintenance

INTENT:

Ensure that the building systems are continuously commissioned and maintained appropriately so that they go on delivering target building performance goals over the long term.

REQUIREMENT:

- Establish/maintain continuous commissioning program that monitors indoor environmental parameters (CO₂, temperature, humidity) on a daily basis to ensure building systems are operating properly to meet standards for indoor environmental quality and optimal levels of energy efficiency as specified by manufacturers, service contractors. (1 point)
- Establish/maintain contracts or in-house resources in place for post warranty equipment maintenance. (1 point)
- Implement/maintain a comprehensive best practice and continuous preventative maintenance program. (1 point)

TECHNOLOGIES/STRATEGIES:

Refer to the LEED for Existing Building Reference Guide for additional information. Use PECCI, SMACNA and other comprehensive maintenance guidelines referred to in the LEED EB Reference Guide. Move from crisis to preventative maintenance operational model.

DOCUMENTATION REQUIREMENTS:

- Continuous Commissioning Program
 - Provide a description of the program that is in place to demonstrate ongoing verification that building systems continue to operate according to design or audit parameters.
 - Include a description of how the performance of these systems is monitored and how often.
 - Provide a description of how remedial action is implemented when performance varies from established parameters.
 - Provide a copy of the Environmental Parameters plan for system monitoring of indoor environmental parameters on a hourly interval basis to ensure building systems are operating at maximum performance to meet specified standards for indoor environmental quality and optimal levels of energy efficiency.
 - Provide a description of how this data is being used to maintain and improve building performance over time, and one day of actual out put of all data recorded.

- ❑ Contracts/Resources for Post Warranty Equipment Maintenance.
 - Provide copies of the contracts or in-house work orders for post warranty equipment maintenance.
- ❑ Comprehensive Best Practice and Continuous Preventative Maintenance Program.
 - Provide a copy of the comprehensive and best practice preventative maintenance program for the building and equipment list addressed by the program.
 - Provide a list of preventative and reactive maintenance actions complete in the last year.

Credit 4: Additional Ozone Protection

INTENT:

Reduce ozone depletion and support early compliance with the Montreal Protocol.

REQUIREMENT:

[NOTE: The following requirements reflect the standards in LEED 2.0 that are currently undergoing review by the USGBC Technical Scientific Advisory Committee (TSAC). As soon as TSAC completes its review – expected well before the end of the LEED EB pilot – the language here will be changed to reflect whatever conclusions the TSAC reaches in the overall environmental costs and benefits for using CFC/HCFC-based refrigerants.]

- ❑ Do not install any new equipment that uses CFC/HCFC -based refrigerants or Halons, and
- ❑ For equipment that already exists in the building, CFC/HCFC emissions must be reduced to less than 5% of the total charge on an annual basis as determined by USEPA Clean Air Act, Title VI, Rule 608 governing refrigerant management and reporting. (1 point)

TECHNOLOGIES/STRATEGIES:

Purchase modern building level equipment that does not contain ozone-depleting substances. Set up loss minimization procedures and systems to meet annual loss minimization standards and reporting requirements.

DOCUMENTATION REQUIREMENTS:

- ❑ Provide a written statement that you have not installed any new equipment that uses CFC/HCFC -based refrigerants or Halons, AND
- ❑ For existing equipment containing CFCs or HCFCs:
 - Provide documentation of CFCs and HCFC inventory in HVAC&R systems, any losses and any additions.
 - Provide calculation showing that the annual releases of each CFCs or HCFCs meet the release minimization standard of no more than 5% and comply with other aspects of EPA Clean Air Act, Title VI, Rule 608 governing refrigerant management and reporting.

Credit 5: Measurement and Verification

INTENT:

Demonstrate the ongoing accountability and optimization of building energy and water consumption performance over time and add incentives for additional energy reduction.

REQUIREMENT:

- ❑ Comply with the installed equipment requirements for continuous metering as stated in Option B: Methods by Technology of the U.S. DOE's International Performance Measurement and Verification Protocol (IPMVP) for the following:
 - First Grouping (1 point):
 - Lighting systems and controls
 - Building electric meters
 - Indoor water risers and outdoor irrigation systems
 - Second Grouping (1 point):
 - Chiller efficiency at variable loads (kW/ton)
 - Cooling load

- Air and water economizer and heat recovery cycle operation
 - Boiler efficiencies
- Third Grouping (1 point):
- Building specific process energy efficiency systems and equipment
 - Constant and variable motor loads
 - Variable frequency drives (VFD) operation
 - Air distribution static pressures and ventilation air volumes
- Identify building performance parameters that reduce energy use and track and record all types of resulting emission reductions. Report all emission reductions resulting from these energy efficiency operations using the Cleaner and Greenersm emission reduction reporting program and standards or other similar voluntary certification program and standards. Retire at least 10% of the emission reductions delivered by the energy efficiency through the Cleaner and Greenersm Environment program or other similar voluntary certification programs and ask suppliers to do the same. (1 point)

TECHNOLOGIES/STRATEGIES:

Establish a whole facility energy and water utility data collection and analysis procedure and generate quarterly reports that track and compare to target utility use goals and/or install equipment to measure base building systems to allow for comparison, management, and optimization of actual vs. target energy and water performance. Employ building automation systems to perform M&V functions where applicable. Provide for ongoing M&V system maintenance and operating plan in building operations and maintenance manuals. Refer to the LEED EB Reference Guide for a synopsis of IPMVP options.

DOCUMENTATION REQUIREMENTS:

- Metering - Groupings 1, 2 and 3
- Provide a copy of the measurement verification plan providing continuous metering of specified items as stated in Option B: Methods by Technology of the U.S. DOE's International Performance Measurement and Verification Protocol (IPMVP).
 - Include a summary schedule of the Instrumentation and controls for the three required monitoring categories, one point per group) highlighting the I/O data points to be collected and programming driving data collection and storage.
 - Provide a description of how this data is being used to maintain and improve building performance over time, and one day of actual out put of all data recorded.
- Energy Savings and Emissions Reductions
- Provide a list of all building performance parameters that reduce energy use, calculate the total savings or each type of energy and calculate the resulting reductions in all types of environmental emissions. Document that all these various types of emission reductions resulting from these energy efficiency operations have been reported using the Cleaner and Greenersm Emission reduction reporting program or other similar voluntary certification programs and retire at least 10 percent of the emission reductions delivered by the energy efficiency through the Cleaner and Greenersm Environment program or other similar voluntary certification programs and ask suppliers to do the same..

Credit 6: Green Power

INTENT:

Encourage the development and use of grid-source, renewable energy technologies on a net zero pollution basis.

REQUIREMENT:

- Engage and maintain a contract to purchase power for the whole building generated from renewable sources that meet the Center for Resource Solutions (CRS) Green-E requirements or meets equivalent standards. (1 point)

TECHNOLOGIES/STRATEGIES:

Purchase power from a provider that guarantees a fraction of its delivered electric power is from net nonpolluting renewable technologies. Begin by contacting local utility companies. If the project is in an open market state, investigate

Green Power and Power Marketers licensed to provide power in that state. Grid power that qualifies for this credit originates from solar, wind, geothermal, biomass, or low-impact hydro sources. Low-impact hydro shall comply with the Low Impact Hydropower Certification Program.

DOCUMENTATION REQUIREMENTS:

Green Electricity

- Provide a copy of the electric utility purchase contract for power generated from renewable sources covering the last year and demonstrating that the entire building's energy load was met by a green power provider.
- Provide documentation demonstrating that the supplied renewable power over the last year meets the referenced Green-E requirements.

Materials & Resources

With a Side-by-Side Comparison of LEED for Existing Buildings to LEED 2.0

LEED 2.0 Prerequisites and Credits (Pnts13)	LEED for Existing Buildings Prerequisites and Credits	Relation to 2.0†	Pts (10)
<u>Prerequisite</u> Storage & Collection of Recyclables Facilitate the reduction of waste generated by building occupants that is hauled & disposed of in landfills.	Prerequisite 1: Waste Management	**	Prereq.
<u>Credit 1</u> 1-3 Pts. Building Reuse Extend the life cycle of existing building stock, conserve resources, retain cultural resources, reduce waste, & reduce environmental impact of building materials manufacturing and transport.	Credit 1: Continued Existing Building Use	**	1
<u>Credit 2</u> 1-2 Pts. Construction Waste Management Divert construction, demolition & land clearing debris from landfill disposal. Redirect recyclable material back to the manufacturing process.	Credit 2: Construction Waste Management	**	1
<u>Credit 3</u> 1-2 pts. Resource Reuse Extend the life cycle of targeted building materials, reducing environmental impact of materials manufacturing and transport.	Credit 3: Resource Reuse	**	1
<u>Credit 4</u> 1-2 pts. Recycled Content Increase demand for building products that have incorporated recycled content material, reducing the impacts resulting from extraction of new material.	Credit 4: Recycled Content	**	1
<u>Credit 5</u> 1-2 pts. Local/Regional Materials Increase demand for locally manufactured building products, reducing the environmental impact of transportation while supporting the local economy.	Credit 5: Local/Regional Materials	**	1
<u>Credit 6</u> 1 pt. Rapidly Renewable Materials Reduce that use and depletion of finite raw and long-cycle renewable materials by replacing them with rapidly renewable materials.	Credit 6: Rapidly Renewable Materials	**	1
<u>Credit 7</u> 1 pt. Certified Wood Encourage environmentally responsible forest management.	Credit 7: Certified Wood	*	1
	Credit 8: Occupant Recycling	****	1-3

† Relation to 2.0 (Indicates any variations between LEED 2.0 and LEED for EB)

* Copied directly from LEED 2.0

** Language change only - adapting to operations perspective rather than construction perspective

*** Credit modified to adapt substance to operations and upgrade perspective

**** Original to LEED for EB

Materials and Resources

Prerequisite 1: Waste Management

INTENT:

Establish minimum recycling program elements and quantify current waste stream production volume.

REQUIREMENT:

- Conduct a waste stream audit to establish current waste baseline and implement and maintain procurement/management policies to reduce waste stream through purchasing strategies and collection station equipment and agreements, and occupant awareness notices.
- Provide/maintain an easily accessible recycling area that serves the entire building and that is dedicated to the separation, collection and storage of materials for recycling including (at a minimum) paper, glass, plastics, and metals.
- Maintain average mercury content of all purchased mercury containing lighting products purchased below 25 ppm.

TECHNOLOGIES/STRATEGIES:

Engage in a waste stream audit that studies and documents the material that enters the building that results in the generation of waste. Establish materials and supplies purchasing policies that reduce the supply side of waste generation. Place recycling containers throughout the building. Conduct occupant awareness campaigns. Engage recycling company. (The LEED EB Reference Guide will demonstrate how to do calculations to meet mercury requirements.)

DOCUMENTATION REQUIREMENTS:

- Waste Stream Audit and Reduction Actions
 - Provide a copy of the waste stream audit conducted to establish current waste baseline.
 - Provide copy of procurement/management policies implemented to maintain reduced waste stream through purchasing strategies and collection station equipment and agreements, and occupant awareness notices.
- Recycling Facilities
 - Provide floor plan copies highlighting locations of collection and storage of materials separated for recycling and the easily accessible area that serves the entire building and that is dedicated to the separation, collection and storage of materials for recycling including (at a minimum) paper, glass, plastics, and metals.
- Mercury Reduction in Lighting
 - Provide a copy of the policy specifying that purchases of mercury-containing lighting lamps for use in the building will be made in such a way that the annual average mercury content of these lamps is less than 25 ppm. The annual overall average mercury content of these lamps is calculated by dividing the total weight of mercury in all the lamps by the total weight of all the lamps. Calculations should show the total mercury content in the lamps purchased, the total weight of lamps and the average mercury content in ppm.
 - Provide records of all purchases of mercury-containing lighting lamps for use in the building, and calculations showing that the annual average mercury content of these lamps is less than 25 ppm. The annual overall average mercury content of these lamps is calculated by dividing the total weight of mercury in all these lamps by the total weight of all these lamps.

Credit 1: Continued Existing Building Use

INTENT:

Extend the life cycle of existing building stock, conserve resources, retain cultural resources, reduce waste, and reduce environmental impacts of new buildings as they relate to materials manufacturing and transport.

REQUIREMENT:

- Continue to occupy an existing building there by reusing on an ongoing basis 100% of shell and more than 50% of non-shell building components. (1 points)

TECHNOLOGIES/STRATEGIES:

Continue to occupy an exiting building.

Documentation Requirements

- Provide a signed statement that the applicant continues to occupy the building that is being submitted for LEED EB certification.

Credit 2: Construction Waste Management

INTENT:

Divert construction demolition waste from landfill disposal. Redirect recyclable material back to the manufacturing process.

REQUIREMENT:

- Develop and implement a waste management specification for any future building retrofits, renovations or modifications on the site, that requires qualification of material diversion by weight. Recycle and/or salvage at least 75% (by weight) of any construction, demolition and land clearing waste (if applicable). (1 point)

TECHNOLOGIES/STRATEGIES:

Develop and adopt a waste management plan to be added as a general requirement for all construction to occur on the site. Identify licensed haulers and processors of recyclables. Identify markets for salvaged materials. Employ deconstruction, salvage and recycling strategies and processes. Documents the cost for recycling, salvaging and reusing materials. Source reduction on the job site should be an integral part of the plan. Investigate salvaging/recycling lighting fixture pans when retrofitting.

The plan should address recycling of corrugated cardboard, metals, concrete brick, asphalt, land clearing debris (if applicable), beverage containers, clean dimensional wood, plastic, glass, gypsum board and carpet, and evaluates the cost-effectiveness of recycling rigid insulation, engineered wood products and other materials. Refer to the LEED Reference Guide for guidelines and references that provide waste management plan development and implementation support including model bid specifications.

DOCUMENTATION REQUIREMENTS:

- Construction Waste Management
 - Provide a copy of the waste management policy that specifies inclusion of waste management specifications for any future building retrofits, renovations or modifications that may occur on the site.
 - Provide documentation that the Waste Management Policy has been followed:
 - For any future building retrofits, renovations or modifications that have occurred in the building over the last year provide calculations on end-of-project waste management rates, salvage rates, and landfill rates demonstrating that percentage of construction wastes were recycled or salvaged meets the requirement.
 - OR
 - Provide a written statement that no building retrofits, renovations or modifications were carried out in the building or on the site during the last year.

Credit 3: Resource Reuse

INTENT:

Extend the life cycle of targeted building materials, reducing environmental impacts related to materials manufacturing and transport.

REQUIREMENT:

- Specify salvaged or refurbished materials for 10% of any building materials used in the building or on the site. (1 point)

TECHNOLOGIES/STRATEGIES:

Specify salvaged or refurbished materials.

DOCUMENTATION REQUIREMENTS:

- Resource Reuse
 - Provide a copy of the resource reuse policy that specifies inclusion of resource reuse specifications for any construction materials used in the building on the site.
 - Provide documentation that the resource reuse policy has been followed:
 - For any construction projects that have occurred in the building over the last year provide calculations showing that the salvaged or refurbished materials requirement was met.
OR
 - Provide a written statement that no construction materials used in the building or on the site during the last year.

Credit 4: Recycled Content

INTENT:

Increase demand for building products that have incorporated recycled content material, reducing the impacts resulting from extraction of raw materials.

REQUIREMENT:

- Specify that 50% of any building materials used in the building or on the site: Contain at least an 20% post-consumer recycled materials on a weighted average basis; or contain at least an 40% post-industrial recycled materials on a weighted average basis. (1 point)

TECHNOLOGIES/STRATEGIES:

Specify Recycled Content materials.

DOCUMENTATION REQUIREMENTS:

- Recycled Content
 - Provide a copy of the recycled content plan that specifies inclusion of recycled content specifications for the any construction projects that may occur in the building or on the site.
 - Provide documentation that the recycled content plan policy has been followed:
 - For any construction materials used in the building over the last year provide calculations showing that the recycled material content requirement was met.
OR
 - Provide a written statement that no construction materials used in the building or on the site during the last year.

Credit 5: Local/Regional Materials

INTENT:

Increase demand for building products that are manufactured locally, reducing the environmental impacts resulting from transportation, and supporting the local economy.

REQUIREMENT:

- Develop and implement a local/regional materials specification for construction materials used in the building or on the site. Specify a minimum of 50% of building materials that are manufactured regionally within a radius of 500 miles. (1 point)

TECHNOLOGIES/STRATEGIES:

When conducting renovations/upgrade to a facility, specify and install regionally extracted, harvested, and manufactured building materials. Contact the state and local waste management boards for information about regional building materials. See the LEED for Existing Building Reference Guide for calculation methodology guidelines.

DOCUMENTATION REQUIREMENTS:

Local/Regional Materials

- Provide a copy of the Local/Regional Materials Policy that specifies inclusion of Local/Region Material specification provisions for any construction materials used in the building or on the site.
- Provide documentation that the Local/Regional Materials Policy has been followed:
 - For any construction materials used in the building over the last year:
 - Provide specifications and contractor submittals highlighting local/regional materials installed.
 - Provide a spreadsheet of all materials used in the building or on the site highlighting locally manufactured materials, including the location of the material manufacturer the distance from the manufacturer to the project site, the cost of all materials, and calculations demonstrating the percentage of building materials are manufactured within 500 miles of the project.

OR

- Provide a written statement that no construction materials used in the building or on the site during the last year.

Credit 6: Rapidly Renewable Materials

INTENT:

Reduce the use and depletion of finite raw and long cycle renewable materials by replacing them with rapidly renewable materials.

REQUIREMENT:

- Specify that 5% of any building materials used in the building or on the site will be rapidly renewable materials. (1 point)

TECHNOLOGIES/STRATEGIES:

Specify Rapidly Renewable Materials.

DOCUMENTATION REQUIREMENTS:

Rapidly Renewable Materials

- Provide a copy of the rapidly renewable materials policy that specifies inclusion of rapidly renewable materials specifications for any construction materials used in the building or on the site.
- Provide documentation that the rapidly renewable materials policy has been followed:
 - For any construction materials used in the building or on the site over the last year provide calculations showing that the rapidly renewable materials content requirement was met.

OR

- Provide a written statement that no construction materials used in the building or on the site during the last year.

Credit 7: Certified Wood

INTENT:

Encourage environmentally responsible forest management.

REQUIREMENT:

- Develop and implement a purchasing policy for certified wood for any current and future retrofit/renovations. Use a minimum of 50% of wood-based materials certified in accordance with the Forest Stewardship Council guidelines

for wood building components including but not limited to framing, flooring, finishes, furnishings, and non-rented temporary construction applications such as bracing, concrete form work and pedestrian barriers. (1 point)

TECHNOLOGIES/STRATEGIES:

Refer to the Forest Stewardship Council guidelines for wood building components that qualify for compliance to the requirements and incorporate into material selection for the project.

DOCUMENTATION REQUIREMENTS:

Certified Wood

- Provide a copy of the certified wood policy that specifies inclusion of certified wood specification provisions for any construction materials used in the building or on the site.
- Provide documentation that the certified wood policy has been followed:
 - For any construction materials used in the building or on the site over the last year provide calculations showing that at least 50% of wood-based materials certified in accordance with the Forest Stewardship Council guidelines for wood building components and provide wood certification documentation from the manufacturer declaring conformance with Forest Stewardship Council guidelines for certified wood building components. Provide specifications and contractor submittals highlighting certified wood-based materials installed. Provide a spreadsheet of all wood-based materials used highlighting certified wood-based materials.
OR
 - Provide a written statement that no construction materials used in the building or on the site during the last year.

Credit 8: Occupant Recycling

INTENT:

Facilitate the reduction of waste and toxins generated by building occupants and building operations that is hauled to and disposed of in landfills.

REQUIREMENT:

Establish/maintain building occupant waste reduction and recycling programs addressing the separation, collection and storage of materials for recycling including (at a minimum) paper, glass, plastics, and metals, and divert from landfill disposal.

- Divert/Recycle 30% of total waste stream volume (1 point)
- Divert/Recycle 40% of total waste stream volume (2 points)
- Divert/Recycle 50% of total waste stream volume (3 points)

TECHNOLOGIES/STRATEGIES:

Establish space for recycling functions dedicated to collection of recycled materials. Broader recycling support space considerations should allow for collection and storage of the required elements and newspaper, organic waste (food and soiled paper), and dry waste. When collection bins are used, bin(s) should be able to accommodate a 75% diversion rate and be easily accessible to custodial staff and recycling collection workers. Consider bin designs that allow for easy cleaning to avoid health issues. Implement waste diversion tracking and reporting processes.

DOCUMENTATION REQUIREMENTS:

Waste Stream Diversion / Recycling Achievements

- Provide report on the waste produced by the building over the last year and hauler documentation and calculation on the amount of this waste that has been recycled over the last year.

Indoor Environmental Quality

With a Side-by-Side Comparison of LEED for Existing Buildings to LEED 2.0

LEED 2.0 Prerequisites and Credits	LEED for Existing Buildings Prerequisites and Credits	Rel. to 2.0†	Pts (18)
<u>Prerequisite 1</u> Minimum IAQ Performance Establish minimum IAQ performance to prevent the development of IAQ problems while maintaining the health & well being of the occupants.	Prerequisite 1: Minimum IAQ Performance	**	Prereq.
<u>Prerequisite 2</u> Environmental Tobacco Smoke (ETS) Control Prevent exposure of occupants & systems to ETS.	Prerequisite 2: Environmental Tobacco Smoke (ETS) Control	**	Prereq.
	Prerequisite 3: Asbestos Removal or Encapsulation	****	Prereq.
<u>Credit 1</u> 1 Pt. Carbon Dioxide (CO₂) Monitoring Provide capacity for IAQ monitoring to sustain long-term occupant health & comfort.	Credit 1: Carbon Dioxide (CO₂) Monitoring	*	1
<u>Credit 2</u> 1 pt. Increase Ventilation Effectiveness Provide for the effective delivery & mixing of fresh air to building occupants to support their health, safety & comfort.	Credit 2: Increase Ventilation Effectiveness	**	1
<u>Credit 3</u> 1-2 pts. Construction IAQ Management Prevent indoor air quality problems resulting from the construction/renovation process to sustain long-term installer & occupant health & comfort.	Credit 3: Construction IAQ Management Plan	***	1
<u>Credit 4</u> 1-4 pts. Low-Emitting Materials Reduce the quantity of indoor air contaminants that are odorous or potentially irritating to provide installer & occupant health & comfort.	Not Applicable (Covered in LEED Commercial Interiors)		
<u>Credit 5</u> 1 pt. Indoor Chemical & Pollutant Source Control Avoid exposure of building occupants to potential hazardous chemicals that adversely impact IAQ.	Credit 5: Green Housekeeping	***	1-7
<u>Credit 6</u> 1-2 pts. Controllability of Systems Provide a high level of individual occupant control of thermal, ventilation & lighting systems to support optimum health, productivity and comfort.	Credit 6: Controllability of Systems	*	1-2
<u>Credit 7</u> 1-2 pts. Thermal Comfort Provide for a thermally comfortable environment that supports productive & healthy performance of the building occupants.	Credit 7: Thermal Comfort	*	1-2
<u>Credit 8</u> 1-2 Pts. Daylighting and Views Provide connection between indoor spaces & outdoor environment through inclusion of sunlight & views into building occupied areas.	Credit 8: Daylighting and Views	**	1-3
	Credit 9: Contemporary IAQ Practice	****	1

† Relation to 2.0 (Indicates any variations between LEED 2.0 and LEED EB)

- * Copied directly from LEED 2.0
- ** Language change only - adapting to operations perspective rather than construction perspective
- *** Credit modified to adapt substance to LEED EB perspective
- **** Original to LEED EB

Indoor Environmental Quality

Prerequisite 1: Minimum IAQ Performance

INTENT:

Establish minimum IAQ performance to prevent the development of indoor air quality problems in buildings, maintaining the comfort and well being of the occupants.

REQUIREMENTS:

- ❑ Maintain existing building outside-air ventilation introduction and distribution system to allow the maximum capacity of outside air introduction into the building or 10 CFM/person, whichever is greater, AND meet the EPA IAQ guidelines OR SMACNA IAQ guidelines for HVAC system maintenance to insure the proper operations and maintenance of HVAC components as they relate to IAQ.
- ❑ Maintain the operation of all exhaust systems in existence in the building including bathroom, shower, kitchen, and parking exhaust system.

TECHNOLOGIES/STRATEGIES:

Identify as designed outside air component of total CFM for each fan system in the building. Conduct a visual inspection of OA air vent/dampers and remove any OA air vent/louver obstructions that restrict full capacity to enter the distribution system. Conduct airflow monitoring to document OA in terms of CFM. Compare measured flow to designed flow for each unit. Test the operation of each exhaust fan and verify that exhaust airflow is unobstructed. Airflow is the quantity (CFM) of outside air equal to the documented quantity based on original specification or original design calculations or a comprehensive audit or 10 CFM/person, whichever is greater. (Definitions of performance baselines and standards for meeting requirements will be defined in the Reference Guide.)

DOCUMENTATION REQUIREMENTS:

- ❑ Minimum IAQ Performance
 - Provide a letter and backup tabular information from a mechanical engineer or HVAC system specialist demonstrating the existing outside air capacity of all HVAC systems as designed serving the building.
 - Provide a letter and backup tabular information from a mechanical engineer or HVAC system specialist demonstrating the existing exhaust capacity of all HVAC systems as designed serving the building and the operational status of each exhaust system.

Prerequisite 2: Environmental Tobacco Smoke (ETS) Control

INTENT:

Prevent exposure of building occupants and systems to Environmental Tobacco Smoke (ETS).

REQUIREMENT:

- ❑ Provide and maintain zero exposure of nonsmokers to ETS by prohibition of smoking in the building, OR by providing a designated smoking room designed to effectively contain, capture and remove ETS from the building. At a minimum, the smoking room shall be directly exhausted to the outdoors with no re-circulation of ETS-containing air to the non-smoking area of the building, enclosed with impermeable structural deck-to-deck partitions and operated at a negative pressure compared with the surrounding spaces of at least 7 Pa (0.03 inches of water gauge). Performance of smoking rooms shall be verified using tracer gas testing methods as described in ASHRAE Standard 129-1997. Acceptable exposure in non-smoking areas is defined as less than 1% of the tracer gas concentration in the smoking room detectable in the adjoining non-smoking areas. Smoking room testing as described in the ASHRAE Standard 129-1997 is required in the contract documents and critical smoking facility systems testing results must be included in the building commissioning plan and report or as a separate document.

TECHNOLOGIES/STRATEGIES:

Prohibit smoking in the building and/or provide designated smoking areas outside the building in locations where ETS cannot reenter the building or ventilation system and away from high building occupant or pedestrian traffic.

DOCUMENTATION REQUIREMENTS:

- Environmental Tobacco Smoke (ETS) Control
 - Provide a copy of the building no smoking policy signed by a current officer or executive in charge of building or asset management and a letter from the building owner verifying the building policy prohibiting smoking. Include site drawings highlighting designated outdoor smoking areas if applicable.
 - OR
 - Provide drawings and a narrative demonstrating that designated smoking rooms have dedicated ventilation systems independent of building HVAC systems. AND
 - Provide a letter from the testing engineer stating compliance with ASHRAE 129-1997 for the smoking rooms/areas. Include the tracer gas analysis report as specified in ASHRAE 129-1997. Section 8.

Prerequisite 3: Asbestos Removal or Encapsulation

INTENT:

Reduce the potential exposure of building occupants to asbestos and avoid associated harmful effects of asbestos in existing buildings.

REQUIREMENT:

- Comply with EPA's asbestos removal, encapsulation and management regulations under EPA, NESHAP 40 CFR 61, for asbestos containing material in buildings. Remove any potentially friable asbestos materials that are located in ventilation distribution plenums or chases in accordance with OSHA 29 CFR Part 1926.

TECHNOLOGIES/STRATEGIES:

See OSHA and EPA regulations and excerpts located in the LEED EB Reference Guide.

DOCUMENTATION REQUIREMENTS:

- Asbestos Removal or Encapsulation
 - Provide a letter from an officer of the building ownership or Management Company showing that the reports below have been prepared and certifies that any potentially friable asbestos materials that were located in ventilation distribution plenums or chases have been removed in accordance with OSHA 29 CFR Part 1926.
 - Audit and condition status report that documents all asbestos that exists or existed in the building in compliance with EPA's asbestos removal, encapsulation, and management regulations under EPA, NESHAP 40 CFR 61, for asbestos containing material in buildings.
 - A report documenting that treatment of any asbestos complied with EPA's asbestos removal, encapsulation, and management regulations under EPA, NESHAP 40 CFR 61, for asbestos containing material in buildings.
 - OR
 - Provide a letter from a CIH professional stating that asbestos-containing materials are not present in the building or on the site.

Credit 1: Carbon Dioxide (CO₂) Monitoring

INTENT:

Provide IAQ monitoring to sustain long-term occupant comfort.

REQUIREMENT:

- Install/maintain a permanent carbon dioxide (CO₂) monitoring system that provides feedback on space ventilation performance in a form that affords operational adjustments, AND maintain indoor carbon dioxide levels no higher than outdoor levels by more than 530 parts per million at any time. (1 point)

TECHNOLOGIES/STRATEGIES:

Install/maintain an independent system or make CO₂ monitoring a function of the building automation system. Situate monitoring locations in areas of the building with high occupant densities and at the ends of the longest runs of the distribution ductwork. Specify that system operation manuals require calibration of all of the sensors per manufacturer recommendations but not less than one year. Include sensor and system operational testing and initial set point adjustment in the commissioning plan and report.

DOCUMENTATION REQUIREMENTS:

- Carbon Dioxide (CO₂) Monitoring
 - Provide system schematic diagrams and sensor technical information highlighting the installed locations of carbon dioxide monitoring sensors, showing sensor locations in occupied spaces as well as in the duct systems. Include a narrative describing the sequence of operation and control of building ventilation systems and initial operation set point parameters.
 - Provide a report on how this system has helped to improve air quality in the building over the last year.

Credit 2: Increased Ventilation Effectiveness

INTENT:

Provide for the effective delivery and mixing of fresh air to building occupants to support their safety and comfort.

REQUIREMENT:

- Retrofit/maintain ventilation systems that demonstrate a distribution and laminar flow pattern that involves not less than 90% of the room or zone area in the direction of air flow for at least 95% of hours of occupancy, OR result in an air change effectiveness (E) greater than or equal to 0.9 as determined by ASHRAE 129-1997. (1 point)

TECHNOLOGIES/STRATEGIES:

Employ architectural and HVAC ventilation path strategies in ASHRAE Fundamentals Chapter 31 to increase ventilation effectiveness and prevent short-circuiting of airflow delivery. Techniques available include use of displacement ventilation, low velocity, and laminar flow ventilation (under floor or near floor delivery) and natural ventilation. Operable windows with an architectural strategy for natural ventilation, cross ventilation or stack effect can be appropriate options with study of inlet areas and locations. See the LEED for Existing Building Reference Guide for compliance methodology guidelines.

DOCUMENTATION REQUIREMENTS:

- Increased Ventilation Effectiveness
 - Provide a report summarizing test results and calculations demonstrating that the building ventilation scheme (mechanical and/or natural) has an air-change effectiveness value of 0.9 or greater as determined by ASHRAE 129-1997, Appendix B. If E is less than 0.9, provide documentation indicating the corrected, retrofitted ventilation path effectiveness (CDVR) used in the system retrofit, OR
 - Provide a design narrative that describes how the existing or retrofitted ventilation path is in compliance with the recommended design approaches in ASHRAE Fundamentals Chapter 31, Space Air Diffusion design for as described in the calculation details of this credit.

Credit 3: Construction IAQ Management Plan

INTENT:

Prevent indoor air quality problems resulting from the construction/renovation process, to sustain long-term installer and occupant comfort.

REQUIREMENT:

- Develop, implement and maintain an IAQ Management Plan for the occupancy phases of the building as follows:

Meet or exceed the minimum requirements for IAQ Management Plan for the occupancy phases of the building. During construction meet or exceed the minimum requirements of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guideline for Occupied Buildings under Construction, 1995, and protect stored on-site or installed absorptive materials from moisture damage, and immediately prior to occupancy. Replace all filtration media. Filtration media shall have a Minimum Efficiency Reporting Value (MERV) of 13 as determined by ASHRAE 52.2-1999, or conduct a minimum two-week building flush-out with new filtration media at 100% outside air after construction ends and prior to occupancy of the effected space. (1 point)

TECHNOLOGIES/STRATEGIES:

Specify containment control strategies including protecting the HVAC system, controlling pollutant sources, interrupting pathways for contamination, enforcing proper housekeeping and coordinating schedules to minimize disruption. Specify the construction sequencing to install absorptive materials after the prescribed dry or cure time of wet finishes to minimize adverse impacts on indoor air quality. Materials directly exposed to moisture through precipitation, plumbing leaks, or condensation from the HVAC system, are susceptible to microbial contamination. Absorptive materials to protect and sequence installation include; insulation, carpeting, ceiling tiles, and gypsum products. Appoint an IEQ Manager with owner's authority to inspect IEQ problems and require mitigation as necessary.

DOCUMENTATION REQUIREMENTS:

Construction IAQ Management Plan

- Provide a copy of the Construction IAQ Management Plan policy that specifies inclusion of Construction IAQ Management specification provisions for the any construction projects that may occur in the building.
- For any construction projects carried out in the building in the last year provide:
 - *Construction IAQ Management Plan, During Construction*
 - Provide a copy of the construction IAQ Management Plan highlighting the six requirements of SMACNA IAQ Guideline for Occupied Buildings under Construction, 1995, Chapter 3.
 - Provide photographs of construction IAO management measures such as protection of ducts and on-site stored or installed absorptive materials.
 - Provide technical information of filtration media used during construction and installed immediately prior to occupancy with MERV values highlighted.
 - *Construction IAQ Management Plan, After Construction*
 - Provide a letter from the architect or engineer describing building flush-out procedures including actual dates or building flush-out.
OR
 - Provide specifications and documentation demonstrating conformance with EPA testing procedures and requirements as described in the referenced standard.

Credit 4: Low-Emitting Materials (Not Applicable in LEED EB)

Credit 5: Green Housekeeping

INTENT:

Avoid exposure of building occupants and maintenance personnel to potentially hazardous chemical, biological and particle contaminants, which adversely impact air quality, health, building finishes and systems, and the environment.

REQUIRMENTS:

Retrofit/maintain/manage to minimize contamination of regularly occupied areas by chemical, biological or particle pollutants:

- Provide/maintain entryway systems (grills, grates, mats etc.) to prevent dirt, dust, pollen and other particles from entering the building at all entryways and develop the associated cleaning strategies to maintain those entryway systems, as well as the exterior walkways. (1 point)
- Provide/maintain structural deck-to-deck partitions with separate outside exhausting, no air re-circulation and negative pressure and provide hot and cold water and drains plumbed for appropriate disposal of liquid waste in areas where water and cleaning chemical concentrate mixing occurs and janitorial equipment are stored. (1 point)

- ❑ Provide/maintain structural deck-to-deck partitions with separate outside exhausting, no air re-circulation and negative pressure to contain and isolate high volume copying/print rooms/fax stations. (1 point)
- ❑ Develop/maintain a low-impact environmental cleaning fluid and housekeeping policy addressing (1 point):
 - Sustainable cleaning and hard flooring coating systems products
 - Green Seal Standard GS-37 approved OR California Code of Regulations low VOC cleaning products
 - Utilization of concentrated cleaning products
- ❑ Develop and maintain a low environmental impact house keeping disposable product policy (1 point):
 - Use of disposable paper products utilizing 100% recycled content and a minimum of 30% post-consumer recycled content and manufactured without the additional use of elemental chlorine or chlorine compounds AND
 - Use plastic trashcan and other liners with a minimum of 30% post-consumer recycled content.
- ❑ Develop and adopt a low environmental impact integrated indoor pest management policy. (1 point)
- ❑ Develop/adopt /maintain a policy and facility for outdoor chemical storage. (1 point)

TECHNOLOGIES/STRATEGIES:

Refer to the LEED EB Reference Guide for a comprehensive list of technologies and strategies addressing the credit requirements listed.

DOCUMENTATION REQUIREMENTS:

- ❑ Entryway Systems to Prevent Particles from Entering
 - Provide a building plan showing all high volume entryways and photos of installed permanent entryway systems (grills, grates, mats, etc.).
 - Provide documentation that these entry-systems have been effectively maintained on a regular basis.
- ❑ Isolation of Water and Chemical Concentrate Mixing Areas
 - Provide a building plan showing all areas where water and chemical concentrate mixing occurs and photos of structural deck-to-deck partitions with separate outside exhausting, no air re-circulation and negative pressure and drains plumbed for appropriate disposal of liquid waste.
- ❑ Isolation of High Volume Copying/Print Rooms/Fax Stations (high volume will be defined in the LEED EB Reference Guide)
 - Provide a building plan showing all locations of high volume copying/print rooms/fax stations and photographs of structural deck-to-deck partitions with separate outside exhausting, no air re-circulation and negative pressure to contain and isolate high volume copying/print rooms/fax stations.
- ❑ Low-Impact Environmental Cleaning Fluid and Housekeeping Policy
 - Provide a copy of the low environmental impact cleaning fluid and housekeeping policy adopted by your organization.
- ❑ Low Environmental Impact House Keeping Disposable Products Policy
 - Provide a copy of the low environmental impact house keeping disposable product policy adopted by your organization.
- ❑ Low Environmental Impact Pest Management Policy
 - Provide a copy of the low environmental impact pest management policy adopted by your organization.
- ❑ Outdoor Chemical Storage Policy and Facility
 - Provide a copy of the outdoor chemical storage policy adopted by your organization.
 - Provide a scale drawing showing the location of outdoor chemical storage facility and a written description of how it was used over the last year.

Credit 6: Controllability of Systems

INTENT:

Provide a high level of individual occupant control of thermal, ventilation, and lighting systems to support optimum health, productivity, and comfort conditions.

REQUIREMENT:

- ❑ Provide and maintain controls for each individual for airflow, temperature and lighting for 45% of the regularly occupied areas. (1 point)
- ❑ Provide and maintain controls for each individual for airflow, temperature and lighting for an additional 45% (90% total) of the regularly occupied areas. (1 point)

TECHNOLOGIES/STRATEGIES:

Provide individual or integrated controls systems that control lighting, airflow, and temperature in individual rooms and/or work areas. Consider combinations of system components that provide ambient and task lighting control, operable windows (if available or practical) and VAV systems for non-perimeter with a 1:1: 2 terminal box to controller to occupant ratio.

DOCUMENTATION REQUIREMENTS:

- ❑ Controllability of Systems
 - Provide controls schematic drawings and/or component furniture and workstation package control system technical information highlighting and documenting that 45% or 90% of the regularly occupied spaces have individual control of lighting/ventilation and temperature.

Credit 7: Thermal Comfort

INTENT:

Provide for a thermally comfortable environment that supports the productive and healthy performance of the building occupants.

REQUIREMENT:

- ❑ Comply and maintain compliance with ASHRAE Standard 55-1992, Addenda 1995 for thermal comfort standards including humidity control within established ranges per climate zone. (1 point)
- ❑ Install/maintain a permanent temperature and humidity monitoring system configured to provide operators control over thermal comfort performance and effectiveness of humidification and/or dehumidification systems in the building. (1 point)

TECHNOLOGIES/STRATEGIES:

Install and maintain a temperature and humidity monitoring system for key areas of the building (i.e., at the perimeter and spaces provided with humidity control). This function can be satisfied by the building automation system. Analyze existing building HVAC systems and coil capacities relative to the ASHRAE requirements.

DOCUMENTATION REQUIREMENTS:

- ❑ Thermal Comfort, Compliance with ASHRAE 55-1992
 - Provide a letter from a mechanical engineer or HVAC system specialist confirming that the building HVAC system and coil capacities comply with ASHRAE Standard 55-1992, Addenda 1996.
- ❑ Thermal Comfort Permanent Monitoring System
 - Provide control system schematic and point list highlighting the installed permanent temperature and humidity monitoring system. Include a narrative describing measurement points and operator interface.

Credit 8: Daylighting and Views

INTENT:

Provide a connection between indoor spaces and the outdoor environment through introduction of sunlight and views into the occupied areas of the building.

REQUIREMENT:

- ❑ Develop and adopt a space churn renovation plan and policy that specifies the goal of achieving direct line of sight to vision glazing from 90% of all regularly occupied spaces, (not including copy rooms, storage areas, mechanical,

laundry and other low-occupancy support areas), and have the plan goals implemented on 40% of the total building area. (1 point)

- Implement line of sight plan on an additional 40% (80% total) of building area. (1 point)
- Achieve a minimum Daylight Factor of 2% (excluding all direct sunlight penetration) in 65% of all space occupied for critical visual tasks, not including copy rooms, storage areas, mechanical, laundry and other low-occupancy support areas. Exceptions include those spaces where tasks would be hindered by the use of daylight or where accomplishing the specific tasks within a space would be enhanced by the direct penetration of sunlight. (1 point)

TECHNOLOGIES/STRATEGIES:

Implement renovation design strategies to provide access to daylight and views to the outdoors in a glare-free way using vision panels, low partitions, exterior sun shading, interior light shelves and/or window treatments. Employ courtyards, atriums, clerestory windows, skylights and light shelves to achieve daylight penetration (from other than direct effect or direct rays from the sun) deep into regularly occupied areas of the building.

DOCUMENTATION REQUIREMENTS:

- Views
 - Provide a copy of the adopted space churn renovation plan and policy that specifies the goal of achieving direct line of sight to vision glazing from 90% of all regularly occupied spaces, (not including copy rooms, storage areas, mechanical, laundry and other low-occupancy support areas).
 - Provide building floor plan copies and calculations indicating where the space plan has been implemented:
 - On 40% of the total building area.
 - OR
 - On an additional 40% (80% total) of building area.
- Daylighting
 - Provide building floor plan copies and calculations indicating where the space plan has been implemented on 65% of the total building area. Include area calculations defining the day lighting and daylight prediction calculations demonstrating a minimum Daylight Factor of 2% in these areas.

Credit 9: Contemporary IAQ Practice

INTENT:

Enhance Indoor Air Quality (IAQ) performance by optimizing outdoor-air introduction and other IAQ practices to prevent the development of indoor-air quality problems in buildings, maintaining the well-being of the occupants.

REQUIREMENT:

- Meet all physically practical minimum requirements of voluntary consensus standard ASHRAE 62-1999, Ventilation for Acceptable IAQ and approved Addenda. (1 point)

TECHNOLOGIES/STRATEGIES:

Include proactive maintenance program that will eliminate some of the common causes of indoor air quality problems in buildings. Incorporate references to targets in plans and specifications for HVAC system retrofits. Ensure ventilation system outdoor air capacity can meet standards in all modes of operation. Locate building outdoor air intakes away from loading areas, building exhaust fans, cooling towers, and other sources of contamination. If this is not possible due to physical limitations of the building, include documentation demonstrating acceptable ambient air quality at the intakes and a narrative explaining measures taken to mitigate potential negative impacts on IAQ. Include operational testing in the building commissioning report where possible. Design cooling coil drain pans to ensure complete draining.

DOCUMENTATION REQUIREMENTS:

- Contemporary IAQ Practice
 - Provide documentation from a qualified engineer that the system complies with the requirements of ASHRAE 62-99 including a discussion of any exceptions to the requirements that were not able to be implemented due to physical limitations of the building.

Innovation & Design Process for Existing Buildings

Credit 1: Innovations in Building Operations and Upgrades

INTENT:

To provide building project and facility improvement teams the opportunity to be awarded points for exceptional performance above requirements set by the LEED Green Building Rating System for Existing Buildings and/or innovative performance in green building categories not specifically addressed by LEED for Existing Buildings.

REQUIREMENT:

- In writing, using the LEED Credit Equivalence process, identify the Intent of the proposed innovation, the proposed Requirements for compliance, and the proposed Documentation to demonstrate completion of the innovation, and the Technologies and Strategies employed to achieve the desired outcome and/or demonstrate the sustainability benefits and achievements of innovative performance in green building categories not specifically addressed by LEED EB. (1-4 points)

TECHNOLOGIES/STRATEGIES:

Suggested Topics for Innovation Credits in the LEED EB Pilot are listed below. Additional information on these suggested topics will be provided in the Reference Guide.

1. Evaluate a cleaning or pest control product, being used or being considered for use in the building, on the basis of a life-cycle assessment system based on ISO 14040 principles.
2. Evaluate a cleaning or pest control product, being used or being considered for use in the building, on the basis of a risk assessment for users and building occupants.
3. Provide an education program for the building occupants on: the benefits of the green operation of this building to the occupants of this building and the environment; and how the occupants of this building can help the building operate in a green way and improve the buildings green performance achievements. Evaluate results and refine occupant education program to increase impact.
4. Ride sharing programs that include providing a database on ride sharing opportunities and guaranteed get home policy for participants that get stranded.
5. Incentives for using public transportation and walking.
6. Implement control program for dust mites.
7. After storm water runoff reduction credit Reduce/maintain the rate and quantity of storm water runoff from existing conditions by an additional 25% (50% total).
8. Evaluate the lighting needs of the occupants using the process shown in Chapter 10 of the 9th Edition IESNA Handbook and install/maintain a lighting system which addresses the Design Issues designated as "Very Important" in the above Lighting Design Guide matrix for all regularly occupied areas.
9. Evaluate the lighting needs of the occupants using the process shown in Chapter 10 of the 9th Edition IESNA Handbook and install/maintain a high-quality lighting system which addresses all relevant Design Issues shown in the above Lighting Design Guide matrix for all regularly occupied areas.
10. Implement atmosphere friendly grounds keeping maintenance procedures.
11. Other innovations developed per innovation by the project team.

DOCUMENTATION REQUIREMENTS:

- Innovations in Building Operations and Upgrades

- Provide a narrative and supporting documents (e.g. drawings, technical information, policies, measured results, etc.) for EACH innovative measure incorporated into the project. Include information that demonstrates the sustainable benefits of each measure.

Credit 2: LEED for Existing Buildings Accredited Professional(s)

INTENT:

To support and encourage the adaptation and integration required by a LEED green building project for existing buildings and to streamline the application process.

REQUIREMENT:

- Use at least one principal participant of the project or facility improvement team who has successfully completed the LEED Accredited Professional exam. (1 point)

TECHNOLOGIES/STRATEGIES:

Attend a LEED workshop sponsored by the USGBC and take the Accredited Professional exam.

DOCUMENTATION REQUIREMENTS:

- LEED for Existing Buildings Accredited Professional(s)
 - Provide a copy of the LEED Accredited Professional Certificate of the person involved in the project. Provide a narrative describing that person's role.
 - Provide documentation that one person on the project team has attended a LEED EB training workshop. Provide a narrative describing that person's role in the project.

SCORECARD for LEED for Existing Buildings

For tracking point scores at the beginning middle and completion of a building project.

16 Points – Sustainable Sites

- Prerequisite 1: Erosion and Sedimentation Control
- Credit 1: Site Selection
- Credit 2: Urban Redevelopment (2 points)
- Credit 3: Brown Field Redevelopment [Not Available for LEED EB]
- Credit 4.1: Environmentally Preferable Transportation
- Credit 4.2: Environmentally Preferable Transportation
- Credit 4.3: Environmentally Preferable Transportation
- Credit 4.4: Environmentally Preferable Transportation
- Credit 5.1: Reduced Site Disturbance
- Credit 5.2: Reduced Site Disturbance
- Credit 6.1: Stormwater Management
- Credit 6.2: Stormwater Management
- Credit 7.1: Reduced Heat Island Effect
- Credit 7.2: Reduced Heat Island Effect
- Credit 8: Light Pollution Reduction
- Credit 9.1: Green Site and Building Exterior Management
- Credit 9.2: Green Site and Building Exterior Management

5 Points – Water Efficiency

- Prerequisite 1: Minimum Water Efficiency
- Prerequisite 2: Discharge Water Compliance
- Credit 1.1: Water Efficient Landscaping
- Credit 1.2: Water Efficient Landscaping
- Credit 2: Innovative Wastewater Technologies
- Credit 3.1: Water Use Reduction
- Credit 3.2: Water Use Reduction

22 Points – Energy and Atmosphere

- Prerequisite 1: Comprehensive Building Commissioning/Retro Commissioning
- Prerequisite 2: Minimum Energy Performance
- Prerequisite 3: Ozone Protection
- Credit 1.1: Optimize Energy Performance (2 points)
- Credit 1.2: Optimize Energy Performance (2 points)
- Credit 1.3: Optimize Energy Performance (2 points)
- Credit 1.4: Optimize Energy Performance (2 points)
- Credit 1.5: Optimize Energy Performance (2 points)
- Credit 2.1: Renewable Energy
- Credit 2.2: Renewable Energy
- Credit 2.3: Renewable Energy
- Credit 3.1: Continuous Commissioning and Maintenance
- Credit 3.2: Continuous Commissioning and Maintenance
- Credit 3.3: Continuous Commissioning and Maintenance
- Credit 4: Additional Ozone Protection
- Credit 5.1: Measurement and Verification
- Credit 5.2: Measurement and Verification
- Credit 5.3: Measurement and Verification
- Credit 5.4: Measurement and Verification
- Credit 6: Green Power

SCORECARD for LEED for Existing Buildings

Continued

10 Points – Materials and Resources

- Prerequisite 1: Waste Management
- Credit 1: Continued Existing Building Use
- Credit 2: Construction Waste Management
- Credit 3: Resource Reuse
- Credit 4: Recycled Content
- Credit 5: Local/Regional Materials
- Credit 6: Rapidly Renewable Materials
- Credit 7: Certified Wood
- Credit 8.1: Occupant Recycling
- Credit 8.2: Occupant Recycling
- Credit 8.3: Occupant Recycling

18 Points – Indoor Environmental Quality

- Prerequisite 1: Minimum IAQ Performance
- Prerequisite 2: Environmental Tobacco Smoke (ETS) Control
- Prerequisite 3: Asbestos Removal or Encapsulation
- Credit 1: Carbon Dioxide (CO₂) Monitoring
- Credit 2: Increase Ventilation Effectiveness
- Credit 3: Construction IAQ Management Plan
- Credit 4: Low-Emitting Materials [Not Applicable to LEED EB]
- Credit 5.1: Green Housekeeping
- Credit 5.2: Green Housekeeping
- Credit 5.3: Green Housekeeping
- Credit 5.4: Green Housekeeping
- Credit 5.5: Green Housekeeping
- Credit 5.6: Green Housekeeping
- Credit 5.7: Green Housekeeping
- Credit 6.1: Controllability of Systems
- Credit 6.2: Controllability of Systems
- Credit 7.1: Thermal Comfort
- Credit 7.2: Thermal Comfort
- Credit 8.1: Daylighting and Views
- Credit 8.2: Daylighting and Views
- Credit 8.3: Daylighting and Views
- Credit 9: Contemporary IAQ Practice

71 TOTAL POINTS AVAILABLE [To Date]

LEED Certified for Existing Buildings	= 28 – 35 points	(40% of total)
LEED Certified Silver for Existing Buildings	= 36 – 42 points	(50% of total)
LEED Certified Gold for Existing Buildings	= 43 – 56 points	(60% of total)
LEED Certified Platinum for Existing Buildings	= 57+ points	(80% of total)

5 Additional Points – Innovation and Accredited Professional

- Credit 1.1: LEED EB Innovation Credits
- Credit 1.2: LEED EB Innovation Credits
- Credit 1.3: LEED EB Innovation Credits
- Credit 1.4: LEED EB Innovation Credits
- Credit 2: LEED Accredited LEED EB Professional

Overview of Documentation Requirements For LEED for Existing Buildings

The objective of LEED EB is to encourage and support building owners in their efforts to operate their buildings in a sustainable way over the long term. Hence, reporting requirements are designed to capture just how owners do to track their sustainable building operations. With this valuable documentation submitted for annual review, buildings owners have ongoing measures of their building's economic and environmental performance, as well as maintaining or improving their LEED certification at the corresponding level: Green, Silver, Gold or Platinum. Narratives in the documentation should be brief. Examples will be provided in the LEED EB Reference Guide.

Specific documentation requirements are included with each prerequisite and credit of the rating system.

Description of Typical Process for Obtaining Certification Using LEED for Existing Buildings

LEED EB addresses the application of the LEED Green Building Rating System™ for measuring and recognizing green building performance. It provides criteria for building owners and project teams to follow in obtaining LEED certification by meeting specified standards for green building operations and upgrades. It is also for owners of LEED-certified buildings to continue ongoing sustainable operation of their building and ongoing recognition of their achievements. As such, LEED EB opens the opportunity for initial and ongoing LEED certification of green building operation to all existing building owners and annual LEED re-certification for green building operation to owners of buildings that have been certified under the LEED for new construction program.

Obtaining certification under LEED EB standards requires the following basic steps:

- (1) Register your project with the USGBC as a notice of your intent to apply for certification under LEED EB standards – You will then be informed of technical support resources, training workshops and other USGBC programs and activities.
- (2) Review [Audit] your building performance and operation to see how your building ranks relative to LEED EB standards.
- (3) If your building performance and operation does not meet the standards for your target level of achievement under the LEED EB rating system:
 - a. Identify what operational improvements and retrofits would let your building meet the standards for your target LEED EB rating.
 - b. Establish policies and procedures to implement these operational improvements.
 - c. Implement retrofits.
- (4) Set up a tracking system to track ongoing building operating practices and performance so sustainable operating goals can be achieved.
 - a. So deviations from desired performance can be rapidly recognized and corrected.
 - b. So opportunities for continuous improvement can be identified, captured, and implemented.
 - c. So ongoing achievements in the sustainable operation of the building are documented.
- (5) After you have a full year of data collected for your building, file application with the USGBC including the required supporting documentation.
- (6) USGBC will review application and ask for any additional supporting documentation that may be needed.
- (7) USGBC will determine if your building has met the LEED EB standards, and if so at what level.
- (8) If your building performance and operation do not meet the standards for your target level of achievement under the LEED EB rating system continue improving the sustainable operation of the building and reapply.
- (9) Once your building receives a LEED EB Rating, maintain your building rating on an ongoing basis by continuing to meet standards for building operation and retrofits and by gathering the necessary documentation on an ongoing basis. Apply, on an annual basis, for annual re-certification of sustainable operation of your building under the LEED EB Rating system.