



**LEED Rating System
3rd Public Comment Draft**

LEED RATING SYSTEM

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Existing Buildings: Operations and Maintenance*

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LOCATION AND TRANSPORTATION (LT)

LT CREDIT: ALTERNATIVE TRANSPORTATION

EB:O&M

1-15 points

This credit applies to:

- Existing Buildings: Operations & Maintenance (1-15 points)
- EB:O&M Schools (1-15 points)
- EB:O&M Retail (1-15 points)
- EB:O&M Data Centers (1-15 points)
- EB:O&M Hospitality (1-15 points)
- EB:O&M Warehouse and Distribution Centers (1-15 points)

Intent

To reduce pollution and land development impacts from automobile use for transportation.

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

ESTABLISHMENT

For All Projects: Transportation Survey (1 point)

Conduct a survey of building occupants on their transportation patterns and provide the results to USGBC. The survey must follow the methodology and data collection procedures of SCAQMD Rule 2202. For the purposes of this credit, all building occupants, including transients, residents and students must be accounted for in the calculations.

AND

Option 1: Convention Trip Reduction (1-14 points)

Demonstrate a reduction in the number of conventional single occupant vehicle trips according to Table 1. Alternative transportation strategies that contribute to this reduction include human-powered conveyances (e.g. walking or biking), *public transit*, telecommuting, compressed workweeks, carpools, vanpools, and *low-emitting or fuel-efficient vehicles*.

Calculations are performed relative to a baseline case that assumes all regular occupants commute alone in conventional automobiles. The calculations must account for seasonal variations in the use of alternative commuting methods and, where possible, indicate the distribution of commuting trips using each type of alternative transportation strategy.

Table 1. Points for percentage reduction in conventional commuting

Demonstrated percentage reduction in	Points
--------------------------------------	--------

conventional commuting trips	
10%	1
15%	2
20%	3
25%	4
30%	5
35%	6
40%	7
45%	8
50.00%	9
55%	10
60%	11
65%	13
70%	15

OR

OPTION 2: Comprehensive Alternative Transportation Program (2 points)

Implement an alternative transportation program to reduce the conventional travel rates of building occupants. The program shall include at least element from each of the categories below.

Education Strategies	
New hire orientation	Rideshare website
Employee newsletter, flyer, announcements, memos or letters	Employer rideshare events
Transit trip planning website	
Basic Support Strategies	
Guaranteed return trip	Flex time schedules
Preferential parking for ridesharers	Ride matching services
Direct Strategies	
Telecommuting	Bicycle program
Compressed work week schedules	Parking cash-out
Transit subsidy	Employee clean vehicle purchase program
Parking charge or subsidy program	Vanpool program

PERFORMANCE

For projects achieving at least one point under Option 1 above, conduct a transportation survey at least once every five years. For projects using Option 2 above, conduct a survey annually.

SUSTAINABLE SITES

SS PREREQUISITE: SITE MANAGEMENT POLICY Required

EB:O&M

This credit applies to:

- Existing Buildings: Operations & Maintenance
- EB:O&M Schools
- EB:O&M Retail
- EB:O&M Data Centers
- EB:O&M Hospitality
- EB:O&M Warehouse and Distribution Centers

Intent

To preserve ecological integrity and encourage environmentally sensitive site management practices that provide a clean, well-maintained and safe building exterior while supporting high-performance building operations and integration into the surrounding landscape.

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE & DISTRIBUTION CENTERS

ESTABLISHMENT

Create and implement a site management plan that employs best management practices to reduce harmful chemical use, energy waste, water waste, air pollution, solid waste, and/or chemical runoff for all of the following operational elements on the building and grounds:

- use of maintenance equipment (in accordance with manufacturer's recommendations and current EPA standards for class I-IV non-road spark ignition engines, or local equivalent standard, whichever is more stringent);
- snow and ice removal;
- cleaning of building exterior, pavement, and other impervious surfaces;
- erosion and sedimentation control (for ongoing operations and for construction activity);
- organic waste management (return to the site or divert from landfills);
- invasive and exotic species management (monitor and eradicate);
- fertilizer use (test soils prior to fertilizer use to prevent over-application of nutrients);
- irrigation management (including bi-weekly system checks during the operating season to monitor the system for appropriate water usage, system times, leaks or breaks); and
- storage of materials and equipment.

The policy must include detail on:

- physical and programmatic scope;
- duration of applicability;
- responsible parties (by individual name or title);
- sustainability goals and objectives;
- procedures and strategies for implementation;
- specific metrics by which performance will be measured; and
- a quality assurance process to evaluate and verify successful implementation of the policy.

PERFORMANCE

None.

SS CREDIT: SITE DEVELOPMENT—PROTECT OR RESTORE HABITAT

EB:O&M

1-2 points

This credit applies to:

- Existing Buildings: Operations & Maintenance (1-2 points)
- EB:O&M Schools (1-2 points)
- EB:O&M Retail (1-2 points)
- EB:O&M Data Centers (1-2 points)
- EB:O&M Hospitality (1-2 points)
- EB:O&M Warehouse and Distribution Centers (1-2 points)

Intent

To conserve existing natural areas, remediate damaged areas, and promote biodiversity through the protection or restoration of watersheds, habitat, soils, and urban greenspace.

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

OPTION 1. Onsite Restoration (2 points)

ESTABLISHMENT

Have in place native or adapted vegetation on 20% of the total site area (including the building footprint), a minimum of 5,000 square feet (465 square meters), to provide habitat and promote biodiversity.

PERFORMANCE

Demonstrate that the required native or adapted vegetation has been maintained.

OR

OPTION 2. Financial Support (1 point)

ESTABLISHMENT

Provide financial support equivalent to a minimum of \$0.05 per square foot (\$0.50 per square meter) of the total site area (including building footprint) to support one of the following:

1. Land acquisition or management for natural processes;
2. Restoration of native habitat;
3. Watershed management, restoration, or protection within the same watershed as the project site;
4. Public urban greenspace restoration or revitalization.

Financial support is a one-time commitment for the life of the building, and is to be provided to a nationally or locally- recognized land trust within the same EPA Level III Ecoregion or the project's state (or within 100 miles (160 kilometers) for projects outside the U.S.). For U.S. projects, the land trust must be accredited by the Land Trust Alliance.

PERFORMANCE

None.

SS CREDIT: RAINWATER MANAGEMENT

EB:O&M

1-3 points

This credit applies to:

- Existing Buildings: Operations & Maintenance (1-3 points)
- EB:O&M Schools (1-2 points)
- EB:O&M Retail (1-3 points)
- EB:O&M Data Centers (1-3 points)
- EB:O&M Hospitality (1-3 points)
- EB:O&M Warehouse and Distribution Centers (1-3 points)

Intent

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

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

ESTABLISHMENT

Implement at least two of the following strategies to reduce the annual volume of rainwater runoff from the existing site's *baseline condition*:

- Use *Low Impact Development (LID)* practices to capture and treat water from 25% of the impervious surfaces from 1.2" (30 millimeters) of rainfall;
- Disconnect 40% of existing directly connected impervious surfaces and redirect to pervious areas;
- Rainwater collection system capturing and reusing 25% of the runoff from impervious surfaces;
- Rainwater filtering system to treat water prior to release into public storm drain systems or drainage easements;
- Reconnect impervious areas to existing green infrastructure systems.

Establish an annual inspection program of all rainwater management facilities to confirm continued performance.

PERFORMANCE

Employ the annual inspection program of all rainwater management facilities to confirm continued performance. Maintain documentation of inspection, including identification of areas of erosion, maintenance needs, and repairs. Perform all routine required maintenance, necessary repairs or stabilization within 60 days of inspection.

SS CREDIT: HEAT ISLAND REDUCTION

EB:O&M

2 points

This credit applies to:

- Existing Buildings: Operations & Maintenance (2 points)
- EB:O&M Schools (2 points)
- EB:O&M Retail (2 points)
- EB:O&M Data Centers (2 points)
- EB:O&M Hospitality (2 points)
- EB:O&M Warehouse and Distribution Centers (2 points)

Intent

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

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

Choose one of the following options:

OPTION 1. Nonroof (1 point)

ESTABLISHMENT

Use any combination of the following strategies for a minimum of 50% of the site paving:

- Utilize the existing plant material or install plants that provide shade over paving areas (including playgrounds) on the site within five years of plant material installation. Plants must be in place at the time of certification application.
- Provide vegetated planters that include plant material in place at the time of occupancy permit. Plant material cannot include artificial turf.
- Provide shade with structures covered by energy generation systems that produce renewable energy, such as: solar thermal heaters, photovoltaics and wind turbines.
- Provide shade with architectural devices or structures that have a *solar reflectance index (SRI)* of at least 39 at installation, OR a 3-year aged SRI of at least 32.
- Provide shade with vegetated structures.
- Use paving materials with a *solar reflectance (SR)* of at least 0.33 at installation, OR a 3-year aged SR of at least 0.28.
- Use an *open-grid pavement system* (at least 50% unbound).

PERFORMANCE

Implement a maintenance program that ensures all high-reflectance paving surfaces are cleaned at least every 2 years to maintain good reflectance.

OR

OPTION 2. Roof (1 point)

ESTABLISHMENT

Use either roofing materials with a SRI equal to or greater than the values in Table 1 below for a minimum of 75% of the roof area, or a vegetated roof for a minimum of 50% of the roof area, or both. If using both high-reflectance and vegetated roof surfaces, meet the following criterion:

$$[(\text{Area of High-Reflectance Roof} / 0.75) + (\text{Area of Vegetated Roof} / 0.5)] \geq \text{Total Roof Area}$$

Alternatively, a weighted average approach may be used to calculate compliance:

$$\left(\left[\left(\text{Area of High-Reflectance Roof A} \right) \times \left(\text{SRI of High-Reflectance Roof A} \right) / \left(\text{Required SRI} \right) \right] + \left[\left(\text{Area of High-Reflectance Roof B} \right) \times \left(\text{SRI of High-Reflectance Roof B} \right) / \left(\text{Required SRI} \right) \right] \right) / 0.75 + \left(\text{Area of Vegetated Roof} / 0.5 \right) \geq \left(\text{Total Roof Area} \right)$$

PERFORMANCE

Implement a maintenance program that ensures all high-reflectance roof surfaces are cleaned at least every 2 years to maintain good reflectance, and that all vegetated roofs are maintained to ensure plant health and good structural condition.

OR

OPTION 3. Nonroof and Roof (2 points)

ESTABLISHMENT

Meet the following criterion:

$$\left(\left(\text{Area of Nonroof Measures} / 0.5 \right) + \left(\text{Area of High-Reflectance Roof} / 0.75 \right) + \left(\text{Area of Vegetated Roof} / 0.75 \right) \right) \geq \left(\text{Total Site Paving Area} + \text{Total Roof Area} \right)$$

Alternatively, a weighted average approach may be used to calculate compliance:

$$\left(\left[\left(\text{Area of Nonroof Measure A} \right) \times \left(\text{SR of Nonroof Measure A} \right) / \left(\text{Required SR} \right) \right] + \left[\left(\text{Area of Nonroof Measure B} \right) \times \left(\text{SR of Nonroof Measure B} \right) / \left(\text{Required SR} \right) \right] \right) / 0.5 + \left(\left[\left(\text{Area of High-Reflectance Roof A} \right) \times \left(\text{SRI of High-Reflectance Roof A} \right) / \left(\text{Required SRI} \right) \right] + \left[\left(\text{Area of High-Reflectance Roof B} \right) \times \left(\text{SRI of High-Reflectance Roof B} \right) / \left(\text{Required SRI} \right) \right] \right) / 0.75 + \left(\text{Area of Vegetated Roof} / 0.75 \right) \geq \left(\text{Total Site Paving Area} + \text{Total Roof Area} \right)$$

Use any combination of the following strategies:

Nonroof Measures

- Use the measures listed above in Option 1. Plant material must be in place at time of certification application.

High-Reflectance Roof

- Use roofing materials that have an SRI equal to or greater than the values in Table 1. Meet either the initial SRI value or the 3-year aged SRI value, or both.

Table 1. Minimum solar reflectance index value, by roof slope

	Slope	Initial SRI	3-Year Aged SRI
Low-sloped roof	≤ 2:12	82	64
Steep-sloped roof	> 2:12	39	32

Vegetated Roof

- Install a vegetated roof.

PERFORMANCE

Implement a maintenance program that ensures all high-reflectance surfaces are cleaned at least every 2 years to maintain good reflectance.

OR

OPTION 4. Parking Under Cover (1 point)

ESTABLISHMENT

Place a minimum of 50% of *parking spaces under cover*. Any roof used to shade or cover parking must have an SRI of at least 39 at installation, OR a 3-year aged SRI of at least 32, be a vegetated roof or be covered by energy generation systems that produce renewable energy used to offset some nonrenewable resource use.

PERFORMANCE

Implement a maintenance program that ensures all SRI surfaces are cleaned at least every 2 years to maintain good reflectance.

SS CREDIT: LIGHT POLLUTION REDUCTION

EB:O&M

1 point

This credit applies to:

- Existing Buildings: Operations & Maintenance (1 point)
- EB:O&M Schools (1 point)
- EB:O&M Retail (1 point)
- EB:O&M Data Centers (1 point)
- EB:O&M Hospitality (1 point)
- EB:O&M Warehouse and Distribution Centers (1 point)

Intent

To increase night sky access, improve nighttime visibility, and reduce development impacts on wildlife environments.

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

Meet the Light Pollution Reduction requirements for:

- Interior Lighting, and
- One Exterior Lighting option

ESTABLISHMENT

Requirement 1. Interior Lighting

For all spaces with luminaires having a direct line of sight to exterior fenestration, all interior lighting exiting the space shall be automatically reduced by at least 90% whenever the space becomes unoccupied during nighttime hours.

Exemptions:

- lighting specifically required to be operated 24-7;
- emergency lighting that is automatically off during normal building operation;
- lighting within dwelling units;
- lighting that is specifically designated as required by a health or life safety statute, ordinance, or regulation; and
- decorative gas lighting systems.

AND

Requirement 2. Exterior Lighting

Meet the requirements of one of the options below:

OPTION 1. Fixture Shielding

Shield all exterior fixtures (where the sum of the mean lamp lumens for that fixture exceeds 2,500) such that the installed fixtures do not directly emit any light at a vertical angle more than 90 degrees from straight down.

OR

OPTION 2. Meet BD&C Requirements

If the project is certified under LEED for New Construction, Schools, demonstrate that the project complies with the exterior lighting requirements of the latest published LEED for New Construction SS Credit, Light Pollution Reduction.

If the project is certified under LEED for Core & Shell Development and 75% of the floor area is LEED for Commercial Interiors, demonstrate that the project complies with the exterior lighting requirements of the latest published requirements for both rating systems.

OR

Option 3. Perimeter Measurements

Measure the night illumination levels at regularly spaced points around the LEED Project Boundary, taking the measurements with the building's exterior and site lights both on and off.

At least 8 measurements are required at a maximum spacing of 100 feet (30 meters) apart. The illumination level measured with the lights on must not be more than 20% above the level measured with the lights off.

PERFORMANCE

None.

SS CREDIT: SITE MANAGEMENT

EB:O&M

1 point

This credit applies to:

- Existing Buildings: Operations & Maintenance (1 point)
- EB:O&M Schools (1 point)
- EB:O&M Retail (1 point)
- EB:O&M Data Centers (1 point)
- EB:O&M Hospitality (1 point)
- EB:O&M Warehouse and Distribution Centers (1 point)

Intent

To preserve ecological integrity and encourage environmentally sensitive site management practices that provide a clean, well-maintained and safe building exterior while supporting high-performance building operations and integration into the surrounding landscape.

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE & DISTRIBUTION CENTERS

ESTABLISHMENT

None.

PERFORMANCE

Demonstrate that the following performance criteria were met:

- Use no calcium chloride or sodium chloride deicers, and/or establish reduced treatment areas equal to 50% of applicable hardscape area.
- Prevent erosion, sedimentation and air pollution of or from site soils and construction materials, if applicable. Restore eroded soils.
- Divert from landfills 100% of landscape waste via low-impact means.
- Perform soils testing to prevent the over-application of nutrients. Use no ammonia-based fertilizers, biosolid-based fertilizers (for continuous application), synthetic quick-release fertilizers, or “weed and feed” formulations. Blanket applications of herbicides are prohibited. Turf weeds are to be controlled by spot spraying only.
- Perform bi-weekly irrigation system checks during the operating season and correct any leaks, breaks, inappropriate water usage, or incorrect timing.

AND

Meet one of the following options:

Option 1. Limit Gasoline-Powered Equipment

Use no gasoline-powered equipment, or limit turf to 25% or less of the vegetated area.

Playgrounds and athletic fields in schools or parks are excluded for this option.

OR

Option 2. All Manual or Electric-Powered Equipment

Use all manual or electric-powered equipment in all site management operations.

OR

Option 3. Reduction in Emissions

Show a 50% reduction in Hydrocarbon (HC) and Nitrogen Oxide (NOx) emissions, and a 75% reduction in Carbon Monoxide (CO) emissions from *baseline conditions*.

SS CREDIT: SITE IMPROVEMENT PLAN

EB:O&M

1 point

This credit applies to:

- Existing Buildings: Operations & Maintenance (1 point)
- EB:O&M Schools (1 point)
- EB:O&M Retail (1 point)
- EB:O&M Data Centers (1 point)
- EB:O&M Hospitality (1 point)
- EB:O&M Warehouse and Distribution Centers (1 point)

Intent

To preserve and improve ecological integrity while supporting high-performance building operations.

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

ESTABLISHMENT

Develop a five-year site improvement plan that includes:

- documentation of existing site conditions,
- site improvement objectives,
- performance standards to evaluate ongoing progress, and
- monitoring protocols.

The improvement plan must cover the following areas:

hydrology: protection and improvement of water bodies on site, rainwater management and reuse opportunities, potable water use reduction;

vegetation: documentation of existing vegetation on site, turf quantity reduction, protection of threatened, endangered or unique species, management of native and invasive plants; and

soils: documentation of general soil structure, preservation of healthy soils, remediation of compacted soils, identification of previously developed area.

The plan must be developed with professionals trained and experienced in the areas above.

At least 5% of the site must be vegetated to be eligible for this credit.

PERFORMANCE

Implement all no-cost and low-cost measures. Develop a new improvement plan and implement all new no-cost and low-cost measures every 5 years.

SS CREDIT: JOINT USE OF FACILITIES

EB:O&M

1 point

This credit applies to:

- EB:O&M Schools

Intent

To integrate the school with the community by sharing the building and its playing fields for nonschool events and functions.

Requirements

SCHOOLS EBOM

ESTABLISHMENT

OPTION 1. Make Building Space Open to the General Public (1 point)

In collaboration with the school board or other decision-making body, establish at least 3 of the following spaces included in the school as accessible to and available for shared use by the general public: auditorium, gymnasium, cafeteria/cafetorium, 1 or more classrooms, playing fields and stadiums, and/or joint parking.

Provide access to toilets in joint use areas after normal school hours.

OR

OPTION 2. Contract with Specific Organizations to Share Building Space (1 point)

In collaboration with the school board or other decision-making body, establish a contract with community or other organizations that provides at least 2 dedicated-use spaces in the building.

Dedicated-use spaces include, but are not limited to:

- Commercial office
- Health clinic
- Community service centers (provided by state, city, or county offices)
- Police offices
- Library or media center
- Parking lot
- One or more commercial sector businesses

Provide access to toilets in joint use areas after normal school hours.

OR

OPTION 3. Use Shared Space Owned by Other Organizations (1 point)

In collaboration with the school district or other decision-making body, establish at least 2 of the following 6 spaces (owned by other organizations/agencies) are accessible to students:

- Auditorium
- Gymnasium
- Cafeteria
- One or more classrooms
- Swimming pool
- Playing fields and stadiums

Provide direct pedestrian access to these spaces from the school. In addition, provide signed joint-use agreements with the other organizations/ agencies that stipulate how they and the school district and organizations or agencies will share these spaces.

PERFORMANCE

None.

WATER EFFICIENCY

WE PREREQUISITE: OUTDOOR WATER USE REDUCTION Required

WE PREREQUISITE: INDOOR WATER USE REDUCTION Required

EB:O&M

This prerequisite applies to:

- Existing Buildings: Operations & Maintenance
- EB:O&M Schools
- EB:O&M Retail
- EB:O&M Data Centers
- EB:O&M Hospitality
- EB:O&M Warehouse and Distribution Centers

Intent

To reduce water consumption inside buildings.

Requirements

EBOM: SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

ESTABLISHMENT

Reduce water use of indoor plumbing fixtures and fittings to or below the LEED 2012 for Existing Buildings: Operations & Maintenance baseline, calculated assuming 100% of the building's indoor plumbing fixtures and fittings meet the baseline flush and flow rates listed in Table 1. Fixtures and fittings includes exclusively the fixtures and fittings listed below.

The LEED 2012 for Existing Buildings: Operations & Maintenance water use baseline is set depending on the year of building's occupancy. Set the baseline as follows:

- For a building with a certificate of occupancy dated 1995 or later, the baseline is 120% of the water use that would result if all fixtures met the codes cited above.
- For a building with a certificate of occupancy dated before 1995, the baseline is 150% of the water use that would result if all fixtures met the codes cited above.

Table 1. Baseline water consumption of fixtures and fittings

Fixtures and Fittings	Current Baseline (Imperial Units)	Current Baseline (Metric Units)
Toilets (water closets)*	1.6 gallons per flush (gpf)	6 liters per flush (lpf)
Urinals*	1.0 gpf (3.8 lpf)	4 lpf

Public lavatory (restroom) faucets	0.5 gpm at 60 psi** all others except private applications	1.9 lpm at 415 kPa, all others except private applications
Private lavatory faucets*	2.2 gpm at 60 psi	8.3 lpm at 415 kPa
Kitchen faucet (excluding faucets used exclusively for filling operations)	2.2 gpm at 60 psi	8.3 lpm at 415 kPa
Showerheads*	2.5 gpm at 80 psi per shower stall	9.5 lpm at 550 kPa per shower stall

gpf = gallons per flush
gpm = gallons per minute
psi = pounds per square inch

lpf = liters per flush
lpm = liters per minute
kPa = kilopascals

If indoor plumbing systems were renovated subsequent to initial occupancy of the building, set a whole-building average baseline by prorating between the above limits. Prorate based on the proportion of plumbing fixtures installed during the plumbing renovations in each date period. Pre-1995 buildings that have had only minor fixture retrofits (e.g., aerators, showerheads, flushing valves) but no plumbing renovations in or after 1995 may use the 150% baseline for the whole building.

- Calculate fixture and fitting performance to compare the water use of the as-installed fixtures and fittings with the use of UPC- or IPC-compliant (baseline) fixtures and fittings.
- Inspect all existing fittings or fixtures to determine if they are operating properly. Make any repairs needed to bring all fixtures into good working order or permanently turn off water supply to non-functional units.
- Implement a fixture and fitting replacement and retrofit policy that specifies that all newly installed toilets, urinals, lavatory faucets and showerheads must be WaterSense labeled for label-eligible product types (or local equivalent for projects outside the U.S.).

Healthcare, Retail, Hospitality and Schools projects only:

ESTABLISHMENT

Have in place a Process and Appliance Water Equipment Purchasing policy for the building and site addressing of the products and purchases covered below in Table 2. The policy must cover at least those products purchases within the building and site management’s control.

Table 2. Minimum performance requirements for water-consuming appliances

Appliance	Minimum Performance Requirement
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Residential clothes washers	ENERGY STAR or equivalent
Commercial clothes washers	CEE Tier 3A
Residential dishwashers (standard and compact)	ENERGY STAR or equivalent
Prerinse spray valves	≤ 1.6 gpm (6 lpm)
Ice Machine	ENERGY STAR or equivalent and use either air-cooled or closed-loop cooling, such as a chilled or condenser water system.

gpm = gallons per minute

The policy must include detail on its physical and programmatic scope; duration of applicability; responsible parties (by individual name or title); sustainability goals and objectives; procedures and strategies for implementation; specific metrics by which performance will be measured; and a quality assurance process to evaluate and verify successful implementation of the policy.

PERFORMANCE

BUILDING WATER USE: Confirm that calculations are up to date. Demonstrate that all applicable purchases made since the end of the performance period meet the requirements of the fixture and fitting replacement and retrofit policy.

AND

APPLIANCE WATER: Demonstrate that water-consuming appliances purchased and installed within the building meet the prescriptive minimum performance requirements listed in Table 2 . Appliances not listed below are not subject to any additional prescriptive requirements.

WE PREREQUISITE: BUILDING-LEVEL WATER METERING Required

EB:O&M

This prerequisite applies to:

- Existing Buildings: Operations & Maintenance
- EB:O&M Schools
- EB:O&M Retail
- EB:O&M Data Centers
- EB:O&M Hospitality
- EB:O&M Warehouse and Distribution Centers

Intent

To provide accurate water consumption patterns to support water management and identify opportunities for additional water savings .

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

ESTABLISHMENT

Establish permanently installed water meters that measure the total potable water use for the building and associated grounds. Metering of any gray or reclaimed water supplied to the building is encouraged but not required.

PERFORMANCE

Meter data must be recorded on a regular basis and compiled into monthly and annual summaries; meter readings can be manual or automated.

Commit to sharing with USGBC whole-project water usage data acquired from meters installed on the project, extending for a five year period beginning on the date the project accepts LEED certification from the Green Building Certification Institute (GBCI) or typical occupancy, whichever comes first. At a minimum, water consumption must be tracked at one-month intervals or in accordance with utility billing intervals.

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

WE CREDIT: OUTDOOR WATER USE REDUCTION

EB:O&M

1-2 points

This credit applies to:

- Existing Buildings: Operations & Maintenance (1-2 points)
- EB:O&M Schools (1-2 points)
- EB:O&M Retail (1-2 points)
- EB:O&M Data Centers (1-2 points)
- EB:O&M Hospitality (1-2 points)
- EB:O&M Warehouse and Distribution Centers (1-2 points)

Intent

To limit the use of water for landscape irrigation.

Requirements

EBOM, RETAIL, DATA CENTERS, HOSPITALITY, SCHOOLS EBOM, WAREHOUSE AND DISTRIBUTION CENTERS

If landscape irrigation is not sub-metered, use Option 1 if .

CASE 1. No Irrigation Meter Installed: Calculated Water Budget (1-2 points)

ESTABLISHMENT

Use the existing landscape to calculate the landscape water requirement. Points are earned according to Table 1, below.

AND

Install an irrigation meter.

PERFORMANCE

None.

CASE 2. Irrigation Meter Installed(1-2 points)

ESTABLISHMENT

Calculate the change in metered outdoor water use. Baseline is established using the 12 months of meter data prior to the start of the initial performance period.

PERFORMANCE

Points are earned according to Table 1 below based on the meter data from the most recent 12 months, without overlapping the baseline months.

Table 1.

Reduction from Baseline	Points
30%	1
40%	2

Exclusions: The following areas should be excluded from all landscape area calculations:

- Non-vegetated surfaces such as permeable or non-permeable pavement.
- Athletic fields and playgrounds - projects teams may choose to include (if vegetated) or exclude these areas from landscape calculations.
- Food gardens/urban agriculture – projects teams may choose to include or exclude these areas from landscape calculations.

WE CREDIT: INDOOR WATER USE REDUCTION

EB:O&M

2-5 points

This credit applies to:

- Existing Buildings: Operations & Maintenance (2-5 points)
- EB:O&M Schools (2-5 points)
- EB:O&M Retail (2-5 points)
- EB:O&M Data Centers (2-4 points)
- EB:O&M Hospitality (2-5 points)
- EB:O&M Warehouse and Distribution Centers (2-5 points)

Intent

To reduce the burden on water supply and wastewater systems by increasing the water efficiency of fixtures and fittings.

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

OPTION 1. (2-5 points except Data Centers) (2-4 points Data Centers)

ESTABLISHMENT

None.

PERFORMANCE

In aggregate, use less water than the baseline calculated in WE Prerequisite: Indoor Water Use Reduction.

Points are awarded according to Table 1.

Table 1. Points for percentage reduction in water use beyond the prerequisite level.

Additional Percentage Reduction	Points (all projects except Data Centers)	Points (Data Centers)
10%	1	1
15%	2	2
20%	3	3
25%	4	4
30%	5	

Confirm that calculations are up to date. Demonstrate that all purchases made since the end of the performance period meet the design performance requirements.

OR

OPTION 2. (5 points except Data Centers) (4 points Data Centers)

ESTABLISHMENT

Meter fixtures and fittings, and record meter data for one year to establish a water use baseline. Reset baseline every 10 years.

PERFORMANCE

For projects with at least 80% of fixtures and fittings metered:

Show a reduction from the baseline year of meter data.

Additional Percentage Reduction	Points (all projects except Data Centers)	Points (Data Centers)
0-5%	1	1
5-10%	2	2
10-15%	3	3
15-10%	4	4
20% or more	5	

WE CREDIT: COOLING TOWER WATER USE

EB:O&M

1-4 points

This credit applies to:

- Existing Buildings: Operations & Maintenance (1-3 points)
- EB:O&M Schools (1-3 points)
- EB:O&M Retail (1-3 points)
- EB:O&M Data Centers (1-4 points)
- EB:O&M Hospitality (1-3 points)
- EB:O&M Warehouse and Distribution Centers (1-3 points)

Intent

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

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

ESTABLISHMENT

Conduct a one-time potable water analysis, measuring at least the five control parameters listed in Table 1.

Table 1. Maximum concentrations for parameters in condenser water

Parameter	Maximum level
Ca (as CaCO ₃)	1,000 ppm
Total alkalinity	1,000 ppm
SiO ₂	100 ppm
Cl	250 ppm
Conductivity	3,500 µS/ml

Calculate the number of cooling tower cycles by dividing the amount of each parameter in the condenser water by the amount in the potable makeup water. The maximum acceptable levels of the parameters in the condenser water are shown in Table 1. Limit cooling tower cycles to avoid exceeding maximum values for any of these parameters.

Table 2. Points for cooling tower cycles

Cooling tower cycles	Points (except Data Centers)	Points Data Centers
Equal to maximum number of cycles achieved without exceeding any filtration levels or affecting the operation of the condenser water system (up to a maximum of 10 cycles)	1	1

Double preceding number by increasing the level of treatment OR If the project has achieved 10 cycles, blend the makeup water with at least 20% recycled non-potable water	2	3
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PERFORMANCE

Confirm that the number of cooling tower cycles is up-to-date..

WE CREDIT: WATER METERING

EB:O&M

2 points

This credit applies to:

- Existing Buildings: Operations & Maintenance (2 points)
- EB:O&M Schools (2 points)
- EB:O&M Retail (2 points)
- EB:O&M Data Centers (2 points)
- EB:O&M Hospitality (2 points)
- EB:O&M Warehouse and Distribution Centers (2 points)

Intent

To provide accurate water consumption patterns to support water management and identify opportunities for additional water saving investments.

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

ESTABLISHMENT

Establish permanently installed meters for 2 or more the following water subsystems:

- Irrigation. Meter water systems serving at least 80% of the irrigated landscaped area on the grounds. The percentage of irrigated landscape area served must be calculated as the total metered irrigated landscape area divided by the total irrigated landscape area. All landscaping areas fully covered with xeriscaping or native vegetation that requires no routine irrigation may be excluded from the calculation entirely.
- Indoor plumbing fixtures and fittings. Meter water systems serving at least 80% of the indoor plumbing fixtures and fittings listed in WE Prerequisite, Minimum Indoor Plumbing Fixture and Fitting Efficiency, either directly or by deducting all other measured water use from the measured total water consumption of the building and grounds
- Cooling towers. Meter replacement water use of all cooling towers serving the facility.
- Domestic hot water. Meter water use of at least 80% of the installed domestic hot water heating capacity (including both tanks and on-demand heaters).
- Other process water. Meter at least 80% of expected daily water consumption for process-type end uses, such as humidifiers, dishwashers, clothes washers, and pools.

Meters must measure potable water use, but gray water use may also be measured to meet the requirements of this credit.

PERFORMANCE

Metering must be continuous and data-logged (at least weekly) to allow for an analysis of time trends. Compile monthly and annual summaries of results for each subsystem metered

Meters must be calibrated within the manufacturer's recommended interval if the building owner, management organization, or tenant owns the meter. Meters owned by third parties (e.g., utilities or governments) are exempt.

Commit to sharing with USGBC water usage data acquired from all meters installed on the project, extending for a five year period beginning on the date the Project accepts LEED certification from the Green Building Certification Institute (GBCI) or typical occupancy.

ENERGY AND ATMOSPHERE

EA PREREQUISITE: ENERGY EFFICIENCY BEST MANAGEMENT PRACTICES— PLANNING, DOCUMENTATION AND OPPORTUNITY ASSESSMENT Required

EB:O&M

This prerequisite applies to:

- Existing Buildings: Operations & Maintenance
- EB:O&M Schools
- EB:O&M Retail
- EB:O&M Data Centers
- EB:O&M Hospitality
- EB:O&M Warehouse and Distribution Centers

Intent

To promote continuity of information to ensure that energy-efficient operating strategies are maintained and provide a foundation for training and system analysis.

Requirements

EBOM, SCHOOLS, RETAIL, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

ESTABLISHMENT

Conduct an energy audit that meets the requirements of the Preliminary Energy Use Analysis and ASHRAE Level I walk-through assessment that includes each step identified in the ASHRAE Procedures for Commercial Building Energy Audits or equivalent. Use the ASHRAE Guideline Forms or their equivalent to document audit results.

AND

Prepare and maintain a Current Facilities Requirements and Operations and Maintenance Plan documenting information necessary for efficient building operations. These documents must include, at a minimum:

- Building occupancy schedule
- Equipment run-time schedule
- Set points for all HVAC equipment
- Set points for lighting levels throughout the building.
- Minimum outside air requirements,
- Any changes in schedules or set points for different seasons, days of the week and times of day
- Systems narrative describing the mechanical and electrical systems and equipment in the building
- Preventive maintenance plan for building equipment described in the systems narrative
- Current sequence of operations for the building

Projects that are connected to district energy systems (DES) must follow LEED's DES requirements.

DATA CENTERS

For data center projects, use the U.S. DOE DC PRO Profiling Tool to perform a preliminary assessment of energy consumption in data center spaces for critical systems.

PERFORMANCE

None.

EA PREREQUISITE: MINIMUM ENERGY PERFORMANCE Required

EB:O&M

This prerequisite applies to:

- Existing Buildings: Operations & Maintenance
- EB:O&M Schools
- EB:O&M Retail
- EB:O&M Data Centers
- EB:O&M Hospitality
- EB:O&M Warehouse and Distribution Centers

Intent

To reduce the environmental and economic impacts associated with excessive energy use by establishing a minimum level of operating energy performance.

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

ESTABLISHMENT

Calibrate meters within the manufacturer's recommended interval if the building owner, management organization or tenant owns the meter. Meters owned by third parties (e.g., utilities or governments) are exempt.

PERFORMANCE

Meter the building's energy use for a full 12 months of continuous operation and achieve the levels of efficiency set forth in the options below. Each building's energy performance must be based on actual metered energy consumption for both the LEED project building(s) and all comparable buildings used for the benchmark.

Projects that are connected to district energy systems (DES) must follow LEED's DES requirements.

CASE 1. ENERGY STAR Rating

For buildings eligible to receive an energy performance rating using the EPA's ENERGY STAR® Portfolio Manager tool, achieve an energy performance rating of at least 75. For projects outside the U.S., consult ASHRAE/ASHRAE/IESNA Standard 90.1-2010 Appendices B and D to determine the appropriate climate zone.

CASE 2. Projects not eligible for an ENERGY STAR Rating

OPTION 1. Benchmark Against Typical Buildings

Path 1. National Average Source Energy Data Available

Demonstrate energy efficiency performance that is better than 75% of similar buildings (75th percentile or better) by benchmarking against national source energy data provided in the Portfolio Manager tool.

Path 2. National Average Source Energy Data Not Available

If national average source energy data is unavailable for buildings of similar type, benchmark against the building site energy data of at least three like buildings, normalized for climate, building use and occupancy.

OPTION 2. Benchmark Against Historical Data

For projects where national average source energy data is unavailable, compare the building's site energy data for the previous 12 months with the data from three contiguous years of the previous five, normalized for climate, building use, and occupancy.

EA PREREQUISITE: BUILDING-LEVEL ENERGY METERING Required

EB:O&M

This prerequisite applies to:

- Existing Buildings: Operations & Maintenance
- EB:O&M Schools
- EB:O&M Retail
- EB:O&M Data Centers
- EB:O&M Hospitality
- EB:O&M Warehouse and Distribution Centers

Intent

To provide accurate building level energy-use information to support energy management and identify opportunities for additional energy-saving investment.

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

ESTABLISHMENT

Install new or use existing building-level energy resource meters (e.g. electricity, natural gas, chilled water, steam, fuel oil, propane, etc). Utility owned meters capable of aggregating building-level resource use are acceptable.

PERFORMANCE

Compile meter data into monthly and annual summaries; meter readings can be manual or automated.

Commit to sharing with USGBC energy consumption data and electrical demand data (if metered) acquired from whole-project energy resource meters installed on the project, extending for a five year period beginning on the date the project accepts LEED certification from the Green Building Certification Institute (GBCI) or typical occupancy, whichever comes first. At a minimum, energy consumption must be tracked at one month intervals or in accordance with utility billing intervals.

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

EA PREREQUISITE: FUNDAMENTAL REFRIGERANT MANAGEMENT Required

EB:O&M

This prerequisite applies to:

- Existing Buildings: Operations & Maintenance
- EB:O&M Schools
- EB:O&M Retail
- EB:O&M Data Centers
- EB:O&M Hospitality
- EB:O&M Warehouse and Distribution Centers

Intent

To reduce stratospheric ozone depletion.

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

ESTABLISHMENT

Do not use chlorofluorocarbon (CFC)-based refrigerants in heating, ventilating, air conditioning and refrigeration (HVAC&R) systems unless a third-party audit shows that system replacement or conversion is not economically feasible or it is demonstrated that a phase-out plan for CFC-based refrigerants is in place.

Required economic analysis: The replacement or conversion of HVAC&R equipment is considered not economically feasible if the simple payback of the replacement or conversion is greater than 10 years.

$$\text{Simple Payback} = \frac{\text{Cost of replacement or conversion}}{\text{Resulting annual energy cost difference} + \text{Resulting annual maintenance and refrigerant cost difference}} > 10$$

If CFC-based refrigerants are maintained in the building, reduce annual leakage to 5% or less using EPA Clean Air Act, Title VI, Rule 608 procedures governing refrigerant management and reporting or local equivalent outside the U.S., and reduce the total leakage over the remaining life of the unit to less than 30% of its refrigerant charge.

Small HVAC&R units (defined as containing less than 0.5 pounds [225 grams] of refrigerant), standard refrigerators, small water coolers and any other cooling equipment that contains less than 0.5 pounds (225 grams) of refrigerant are exempt.

PERFORMANCE

None.

EA CREDIT: EXISTING BUILDING COMMISSIONING—INVESTIGATION AND ANALYSIS

EB:O&M

2 points

This credit applies to:

- Existing Buildings: Operations & Maintenance (1 point)
- EB:O&M Schools (1 point)
- EB:O&M Retail (1 point)
- EB:O&M Data Centers (1 point)
- EB:O&M Hospitality (1 point)
- EB:O&M Warehouse and Distribution Centers (1 point)

Intent

To identify and implement improvements to building operations, energy and resource efficiency using the existing building commissioning process.

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

ESTABLISHMENT

Evaluate the current performance of your building against the performance specifications in the Current Facilities Requirements (CFR) and the Operations & Maintenance Plan for the building.

Identify the components in each of the building systems being analyzed and provide a breakdown of the utility or other resource use for each of these systems.

Develop a commissioning plan to effectively inventory and evaluate specific opportunities within the systems being analyzed.

- The commissioning plan must include:
 - Updated CFR document;
 - Existing building commissioning process team and their roles and responsibilities during the existing building commissioning process;
 - Investigative approach for identification and analysis of facility improvement opportunities;
 - Process of reviewing and prioritizing identified opportunities with the owner and development of an implementation plan;
 - Format and content of the eventual deliverables from the existing building commissioning process; and
 - Proposed schedule.

PERFORMANCE

Implement the existing building commissioning plan and prepare existing building commissioning report.

AND

Apply the requirements below to all direct energy consuming or producing systems including:

- Lighting
- Process Loads
- HVAC & R
- Domestic Water Heating
- Renewable Energy

Conduct a detailed audit of operations practices, current system performance, building controls and set points, and equipment efficiencies and retrofit opportunities for each building system covered by existing building commissioning plan that will result in operations savings. The audit must follow the requirements of American Society of Heating, Refrigerating and Air-Conditioning Engineers (ASHRAE), Level II, Energy Survey and Analysis including all identified steps and deliverables.

For each opportunity, describe the potential improvement, estimated implementation costs, and anticipated savings.

Use procedures in the Assessment and Investigation Sections of ASHRAE Guidelines 0.2 and 1.2 for existing building commissioning process to identify improvement opportunities.

Projects that are connected to district energy systems (DES) must follow LEED's DES requirements.

DATA CENTERS

In addition to the requirements above, data centers must also follow the Department of Energy's Save Energy Now Program's on-line DC Pro Energy Assessment Tools for data center critical systems.

EA CREDIT: EXISTING BUILDING COMMISSIONING—IMPLEMENTATION

EB:O&M

2 points

This credit applies to:

- Existing Buildings: Operations & Maintenance (2 points)
- EB:O&M Schools (2 points)
- EB:O&M Retail (2 points)
- EB:O&M Data Centers (2 points)
- EB:O&M Hospitality (2 points)
- EB:O&M Warehouse and Distribution Centers (2 points)

Intent

To use the existing building commissioning process to identify and implement improvements to building operations, energy and resource efficiency.

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

ESTABLISHMENT

Meet requirements of previous credit of PF Credit: Existing Building Commissioning – Investigation and Analysis.

PERFORMANCE

Implement no- or low-cost operational improvements and develop a five-year plan for equipment replacement and major modifications or upgrades following the project review and prioritization process identified in the investigation and analysis phase and incorporating the organization's standard investment evaluation processes.

Confirm training of building operations staff so that they are adequately prepared for efficient operations of all new or substantially altered building equipment or system changes.

Develop a formal project tracking and verification program for all projects implemented as part of the existing building commissioning process that includes verification of project effectiveness and documentation of the observed financial costs and benefits as well as observed or estimated environmental and/or human health and comfort benefits. Produce annual reports summarizing these projects.

Update the Operations and Maintenance Plan and the CFR to incorporate the newly implemented improvements identified through the existing building commissioning process.

AND

Apply the requirements above to all direct energy consuming or producing systems including:

- Lighting
- Process Loads (if applicable)
- HVAC & R
- Domestic Water Heating
- Renewable Energy

EA CREDIT: EXISTING BUILDING COMMISSIONING—ONGOING COMMISSIONING

EB:O&M

3 points

This credit applies to:

- Existing Buildings: Operations & Maintenance (3 points)
- EB:O&M Schools (3 points)
- EB:O&M Retail (3 points)
- EB:O&M Data Centers (3 points)
- EB:O&M Hospitality (3 points)
- EB:O&M Warehouse and Distribution Centers (3 points)

Intent

To use the existing building commissioning process to identify and implement improvements to building operations, energy and resource efficiency.

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

ESTABLISHMENT

Meet requirements of EA Credit: Existing Building Commissioning – Investigation and Analysis and EA Credit: Existing Building Commissioning – Implementation.

AND

Implement an ongoing commissioning process that includes elements of planning, monitoring points, system testing, performance verification, corrective action response, ongoing measurement and documentation to proactively address operating problems in those systems being commissioned.

The process must include:

An on-going commissioning plan that defines:

- Roles and responsibilities
- Measurement requirements (e.g., meters, points, metering system, data access)
- List trend points and associated frequency and duration
- The limits of acceptable values for tracked points and metered values
- Review techniques that will be used to evaluate and identify performance of monitored points and associated systems
- An action plan for correction of operational issues and deficiencies:
 - Identification of operational errors and recommended training to help ensure errors are not duplicated
 - Repairs needed to maintain performance
- Frequency of analysis (at least quarterly) in the first year of implementation, with subsequent analysis cycle not to exceed 24 months

PERFORMANCE

- Update Systems Manual with modifications performed, settings as appropriate, and the reasoning for the modifications from the original design.
- Define methods for improving O&M
- Include quarterly reports during the first year of implementation and annual reports on the performance of building systems, corresponding resource consumption, and LEED related performance metrics in subsequent years.

ASHRAE Guideline 0.2, Ongoing Commissioning Section 10, must be used as minimum requirements to develop and implement the ongoing commissioning plan.

Only activities associated with ongoing commissioning completed within 2 years prior to application may be included to show progress in the ongoing commissioning cycle.

Continue to update the facility's operating and maintenance plan and CFR to reflect actual conditions and issue annual revisions of these documents.

AND

Apply the requirements above to all direct energy consuming or producing systems including:

- Lighting
- Process Loads
- HVAC & R
- Domestic Water Heating
- Renewable Energy

EA CREDIT: OPTIMIZE ENERGY PERFORMANCE

EB:O&M

1-20 Points

This credit applies to:

- Existing Buildings: Operations & Maintenance (2-20 Points)
- EB:O&M Schools (2-20 Points)
- EB:O&M Retail (2-20 Points)
- EB:O&M Data Centers (2-20 Points)
- EB:O&M Hospitality (2-20 Points)
- EB:O&M Warehouse and Distribution Centers (2-20 Points)

Intent

To achieve increasing levels of operating energy performance relative to typical buildings of similar type to reduce environmental and economic impacts associated with excessive energy use.

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

ESTABLISHMENT

None.

PERFORMANCE

Demonstrate increased energy efficiency or efficiency improvement beyond EA Prerequisite: Minimum Energy Performance by using one of the following options. Each building must provide actual metered energy data. A full 12 months of continuous energy data is required.

Projects that are connected to district energy systems (DES) must follow LEED's DES requirements.

CASE 1. ENERGY STAR Rating (1-20 Points)

For buildings eligible to receive an energy performance rating using the EPA’s ENERGY STAR’s Portfolio Manager tool, points will be awarded for ENERGY STAR scores above 75 according to the following table. For projects outside the U.S., consult ASHRAE/ASHRAE/IESNA Standard 90.1-2010 Appendices B and D to determine the appropriate climate zone.

Points will be awarded at the following thresholds:

EPA ENERGY STAR Energy Performance Rating	Points
76	1
77	2
78	3
79	4
80	5
81	6
82	7
83	8
84	9
85	10
86	11
87	12
88	13
89	14
90	15
91	16
92	17
93	18
94	19
95	20

CASE 2. Projects not eligible for an ENERGY STAR Rating

OPTION 1. Benchmark Against Typical Buildings (1-20 Points)

PATH1. National Average Source Energy Data Available (1-20 Points)

Demonstrate energy efficiency better than the average for typical buildings of similar type by

benchmarking against national average source energy data provided in the Portfolio Manager tool as an alternative to energy performance ratings.

Percentile level above the national median (buildings not eligible for ENERGY STAR performance rating)	Percentile level above three like buildings AND historical data (national energy data not available for similar building type)	Points
26	26	1
27	27	2
28	28	3
29	29	4
30	30	5
31	31	6
32	32	7
33	33	8
34	34	9
35	35	10
36	36	11
37	37	12
38	38	13
39	39	14
40	40	15
41	41	16
42	42	17
43	43	18
44	44	19
45	45	20

PATH 2. National Average Source Energy Data Not Available (2-14 Points)

If national average source energy data is unavailable for buildings of similar type, benchmark against the weather and building use normalized by the building site energy data of at least three like buildings.

OR

OPTION 2. Benchmark Against Historical Data

Compare the building's site energy data for the previous 12 months with the data from three contiguous years of the previous five, normalized for climate, building use, and occupancy.

Percentile level above three like buildings OR historical data (national energy data not available for similar building type)	Points
27	2
30	4
33	6
36	8
39	10
42	12
45	14

OR

OPTION 3. Benchmark Against Both Similar Buildings and Historical Data

Follow the requirements of both Option 1, Path 2, and Option 2.

EA CREDIT: ADVANCED ENERGY METERING

EB:O&M

2 points

This credit applies to:

- Existing Buildings: Operations & Maintenance (1 point)
- EB:O&M Schools (1 point)
- EB:O&M Retail (1 point)
- EB:O&M Data Centers (1 point)
- EB:O&M Hospitality (1 point)
- EB:O&M Warehouse and Distribution Centers (1 point)

Intent

To provide accurate building level and system level energy-use information to support energy management and identify opportunities for additional energy-saving investments.

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

ESTABLISHMENT

Install *advanced energy metering* for:

- All whole-building energy sources consumed by the building
- Major end uses that represent 20% or more of the total annual consumption of the building minus plug load use as determined by actual end use data or as determined by the ASHRAE Level I Walk-Through Analysis

Advanced energy metering is defined as:

- Meters that are permanently installed, record at intervals of 1 hour or less, and transmit data to a remote location.
 - Electrical meters shall record both consumption and demand.
 - Whole-building electrical meters should record power factor if appropriate.
- Data collection systems that use LAN, Building Automation System, wireless network, or some other similar communication infrastructure.
- Data storage with the capability of storing all meter data for at least 36 months.
- Remotely-accessible data retrieval that provides energy use management features that include, as a minimum, reporting or hourly, daily, monthly, and annual energy use data for all meters in the system.

Projects that are connected to district energy systems (DES) must follow LEED's DES requirements.

PERFORMANCE

Include programming within the facility's energy management system to set an alarm whenever the energy consumption and peak demand rises above the anticipated peak by more than 5%. The anticipated consumption and peak should be determined by analyzing historic facility performance and weather and operating conditions and should be set on at least a monthly basis if not daily. Demand measurements must be taken in time increments no larger than the increments used for billing by the applicable utility company or in one hour increments, whichever is less time.

On at least a monthly basis, create reports documenting the facility's utility peak demand and total consumption and comparing it to the previous month's and the same month from the previous year's peak demand and total consumption.

Projects that are connected to district energy systems (DES) must follow LEED's DES requirements

EA CREDIT: DEMAND RESPONSE

EB:O&M

1-3 points

This credit applies to:

- Existing Buildings: Operations & Maintenance (1-3 points)
- EB:O&M Schools (1-3 points)
- EB:O&M Retail (1-3 points)
- EB:O&M Data Centers (1-3 points)
- EB:O&M Hospitality (1-3 points)
- EB:O&M Warehouse and Distribution Centers (1-3 points)

Intent

To increase participation in Demand Response technologies and programs that make energy generation and distribution systems more efficient, increase grid reliability, and reduce environmental impacts and greenhouse gas (GHG) emissions.

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

ESTABLISHMENT

Evaluate building systems and equipment for participation in a Demand Response program. On-site electricity generation does not meet the intent of this credit.

CASE 1. Existing Demand Response Program Available (3 points)

Participate in an existing Demand Response (DR) program with the following requirements:

- Have in place a system with the capability for real-time, fully-automated DR based on external initiation by a DR Program Provider.
- Enroll in a minimum 1-year DR-Participation Amount Contractual Commitment (DR-PACC) with a qualified DR Program Provider, with the intention of multi-year renewal, for 10% or more of the annual peak electricity demand, or a minimum of 20kW, whichever is more. Peak Demand is based on electric utility bills.
- Develop a comprehensive plan of how the project will meet the contracted demand reduction commitment during a Demand Response event.
- Include the DR processes in the Current Facilities Requirements and Operations and Maintenance Plan.
- Initiate at least one full test of the DR response plan.

CASE 2. Demand Response Program not yet Available (1 point)

Have infrastructure in place to take advantage of future demand response programs or dynamic/real-time pricing programs. Project team must:

- Develop a comprehensive plan of how to shed at least 10%, or 20kW, whichever is greater, of the annual peak electricity demand during a Demand Response event. Peak Demand is based on electric utility bills.
- Include the DR processes in the Current Facilities Requirements and Operations and Maintenance Plan.

- Initiate at least one full test of the DR response plan.
- Contact local utility representative to discuss interest in, and availability for, participation in future DR programs.

PERFORMANCE

Meet the contracted demand reduction commitment of at least 10%, or 20 kW, whichever is greater, during Demand Response events.

EA CREDIT: GREEN ENERGY PRODUCTION AND UTILIZATION

EB:O&M

1-5 points

This credit applies to:

- Existing Buildings: Operations & Maintenance (1-5 points)
- EB:O&M Schools (1-5 points)
- EB:O&M Retail (1-5 points)
- EB:O&M Data Centers (1-5 points)
- EB:O&M Hospitality (1-5 points)
- EB:O&M Warehouse and Distribution Centers (1-5 points)

Intent

To encourage and recognize increasing levels of renewable energy production and to reduce environmental and economic impacts associated with fossil fuel energy use.

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

ESTABLISHMENT

Demonstrate one or more of the following for a portion of, or all, the building's total energy use:

- Total energy use is met directly with renewable energy systems, or
- A minimum two year contract is in place, with the commitment to renew on an ongoing basis, to purchase qualified resources, to be delivered annually or more frequently. Resources must have come online after Jan 1, 2005.

PERFORMANCE

Meet some, or all, of the building's total energy use directly with renewable energy systems, or engage in a contract to purchase green energy, carbon offsets or Renewable Energy Certificates (RECs).

Green power and RECs must be Green-e Energy Certified or the equivalent. RECs can only be used to mitigate the impacts of Scope 2, electricity use.

Carbon offsets may be used to mitigate Scope 1 or Scope 2 emissions on a metric ton of carbon-dioxide-equivalent basis, and must be Green-e Climate certified or procured from a Green-e Climate endorsed program, or equivalent.

For projects located within the US, the offsets must be from green house gas emissions reduction projects within the United States.

Renewable energy generation	Points		Energy Use Mitigation	Points
1.5%	1	OR	25%	1
3%	2	OR	50%	2

4.5%	3	OR	75%	3
6%	4	OR	100%	4
7.5%	5			

Up to the 5 point limit,

$$\text{Points} = \frac{\text{Renewable Energy Generation \%}}{1.5\%} + \frac{\text{Energy Use Mitigation \%}}{25\%}$$

Projects that are connected to district energy systems (DES) must follow LEED's DES requirements.

EA CREDIT: ENHANCED REFRIGERANT MANAGEMENT

EB:O&M

1 point

This credit applies to:

- Existing Buildings: Operations & Maintenance (1 point)
- EB:O&M Schools (1 point)
- EB:O&M Retail (1 point)
- EB:O&M Data Centers (1 point)
- EB:O&M Hospitality (1 point)
- EB:O&M Warehouse and Distribution Centers (1 point)

Intent

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

Requirements

EBOM, SCHOOLS, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

ESTABLISHMENT

OPTION 1. (1 point)

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

OR

OPTION 2. (1 point)

Select refrigerants that are used in heating, ventilation, air conditioning and refrigeration (HVAC&R) equipment to minimize or eliminate the emission of compounds that contribute to ozone depletion and climate change. The combination of all new and existing base building and tenant HVAC&R equipment that serve the project must comply with the following formula:

Imperial units	Metric units
$\text{LCGWP} + \text{LCODP} \times 10^5 \leq 100$	$\text{LCGWP} + \text{LCODP} \times 10^5 \leq 13$
Calculation definitions for $\text{LCGWP} + \text{LCODP} \times 10^5 \leq 100$ (Imperial units)	Calculation definitions for $\text{LCGWP} + \text{LCODP} \times 10^5 \leq 13$ (Metric units)
LCODP = $[\text{ODPr} \times (\text{Lr} \times \text{Life} + \text{Mr}) \times \text{Rc}] / \text{Life}$	LCODP = $[\text{ODPr} \times (\text{Lr} \times \text{Life} + \text{Mr}) \times \text{Rc}] / \text{Life}$
LCGWP = $[\text{GWPr} \times (\text{Lr} \times \text{Life} + \text{Mr}) \times \text{Rc}] / \text{Life}$	LCGWP = $[\text{GWPr} \times (\text{Lr} \times \text{Life} + \text{Mr}) \times \text{Rc}] / \text{Life}$
LCODP: Lifecycle Ozone Depletion Potential (lb CFC 11/Ton-Year)	LCODP: Lifecycle Ozone Depletion Potential (kg CFC 11/(kW/year))
LCGWP: Lifecycle Direct Global Warming Potential (lb CO ₂ /Ton-Year)	LCGWP: Lifecycle Direct Global Warming Potential (kg CO ₂ /kW-year)
GWPr: Global Warming Potential of Refrigerant (0 to 12,000 lb CO ₂ /lbr)	GWPr: Global Warming Potential of Refrigerant (0 to 12,000 kg CO ₂ /kg r)

ODPr: Ozone Depletion Potential of Refrigerant (0 to 0.2 lb CFC 11/lbr)	ODPr: Ozone Depletion Potential of Refrigerant (0 to 0.2 kg CFC 11/kg r)
Lr: Refrigerant Leakage Rate (2.0%)	Lr: Refrigerant Leakage Rate (2.0%)
Mr: End-of-life Refrigerant Loss (10%)	Mr: End-of-life Refrigerant Loss (10%)
Rc: Refrigerant Charge (0.5 to 5.0 lbs of refrigerant per ton of gross AHRI rated cooling capacity)	Rc: Refrigerant Charge (0.065 to 0.65 kg of refrigerant per kW of AHRI rated or Eurovent Certified cooling capacity)
Life: Equipment Life (10 years; default based on equipment type, unless otherwise demonstrated)	Life: Equipment Life (10 years; default based on equipment type, unless otherwise demonstrated)

For multiple types of equipment, a weighted average of all base building HVAC&R equipment must be calculated using the following formula:

<p>Imperial units</p> $\frac{\sum (LCGWP + LCODP \times 10^5) \times Q_{unit}}{Q_{total}} \leq 100$	<p>Metric units</p> $\frac{\sum (LCGWP + LCODP \times 10^5) \times Q_{unit}}{Q_{total}} \leq 13$
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<p>Calculation definitions for $[\sum (LCGWP + LCODP \times 10^5) \times Q_{unit}] / Q_{total} \leq 100$ (Imperial units)</p>	<p>Calculation definitions for $[\sum (LCGWP + LCODP \times 10^5) \times Q_{unit}] / Q_{total} \leq 13$ (Metric units)</p>
<p>Qunit = Gross ARI rated cooling capacity of an individual HVAC or refrigeration unit (Tons)</p>	<p>Qunit = Eurovent Certified cooling capacity of an individual HVAC or refrigeration unit (kW)</p>
<p>Qtotal = Total gross ARI rated cooling capacity of all HVAC or refrigeration</p>	<p>Qtotal = Total Eurovent Certified cooling capacity of all HVAC or refrigeration (kW)</p>

RETAIL EBOM

Meet Option 1 or 2 for all HVAC systems.

AND

For stores containing commercial refrigeration systems:

- use only non-ozone-depleting refrigerants,
- achieve an average HFC refrigerant charge of no more than 1.75 pounds of refrigerant per 1,000 BTU/h (580 grams of refrigerant per 300 W) total evaporator cooling load, and
- achieve a store-wide annual refrigerant emissions rate of no more than 15%.

OR

Provide proof of attainment of U.S. EPA GreenChill's Silver-Level Store Certification for Fully Operational Food Retail Stores.

All Projects: Projects that are connected to district energy systems (DES) must follow LEED's DES requirements.

PERFORMANCE

None.

MATERIALS AND RESOURCES

MR PREREQUISITE: ONGOING CONSUMPTION POLICY Required

EB:O&M

This prerequisite applies to:

- Existing Buildings: Operations & Maintenance
- EB:O&M Schools
- EB:O&M Retail
- EB:O&M Data Centers
- EB:O&M Hospitality
- EB:O&M Warehouse and Distribution Centers

Intent

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

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

ESTABLISHMENT

Environmentally Preferable Purchasing:

Have in place an Environmentally Preferable Purchasing (EPP) policy for the project addressing products and purchases covered under:

- Materials and Resources Credit: Purchasing—Ongoing Consumption
- Materials and Resources Credit: Purchasing – Facility Alterations and Additions

The policy must cover at least those product purchases within the building and site management's control. The policy must include detail on its physical and programmatic scope, duration of applicability, responsible parties (by individual name or title), sustainability goals and objectives, procedures and strategies for implementation, specific metrics by which performance will be measured, and a quality assurance process to evaluate and verify successful implementation of the policy.

Solid Waste Management

Conduct an audit of the building's entire waste stream of ongoing consumables (not including construction waste from facility alterations and additions). Use the results of the audit to establish a baseline identifying the types of waste and the amount by weight or volume. Consider documenting the cost of the current waste stream to calculate savings realized if the diversion rates were improved.

Using the results of the waste stream audit, establish a solid waste management policy for the building and site addressing the products and purchases covered under the following credits.

- MR Credit: Solid Waste Management—Ongoing Consumption

The policy must cover at least those product purchases within the building and site management's control. The policy must include detail on its physical and programmatic scope, duration of applicability, responsible parties (by individual name or title), sustainability goals and objectives, procedures and strategies for implementation, specific metrics by which performance will be measured, and a quality assurance process to evaluate and verify successful implementation of the policy.

Establish storage locations for recyclable materials, at a minimum include mixed paper¹, corrugated cardboard, glass, plastics, metals, including safe storage for batteries, and mercury containing lamps.

PERFORMANCE

Maintain a high performing solid waste management program by achieving:

- Materials and Resources Credit Solid Waste Management – Ongoing Consumption which requires the waste stream audit to be performed every 5 years or after changes in tenancy greater than 20% by gross floor area, whichever occurs sooner. Use results of the audit to identify opportunities for increased recycling and waste diversion.
- or
- by conducting a waste stream audit of ongoing consumables once a year.

EBOM RETAIL

Promote environmentally responsible sourcing of retail merchandise through one (1) of the four (4) following options:

OPTION 1. Supply Chain Survey

Establish procedures and resources for implementing a supply chain survey including the process for obtaining information, how often information should be collected, a sample survey including required data to be obtained, and a suggested format for an output report.

The survey should request information regarding the following:

- Social equity practices
- Energy and carbon reduction measures
- Material selection practices for products, packaging and distribution
- Waste reduction and waste management measures
- Human health protection measures

OR

OPTION 2. Supply Chain Education Program for Retail Employees and/or Retail Tenant Representatives

Establish procedures and resources for implementing an education program to educate employees and/or tenants that have departments involved in merchandise purchasing, packaging and distribution decisions about environmentally preferable supply chain strategies through a guideline, manual, preferred sustainable work practices report or regular educational workshop program.

The Education Program should include the following information:

- Description of program including format, location, frequency, and employees or tenants included in education program.
- Summary of environmental best practices for supply chain decisions.
- Suggestions of supply chain strategy best practices to implement.
- Resources for additional information.
- Internal contacts for more information.

OR

¹ **Mixed papers** includes white and colored papers, envelopes, forms, file folders, tablets, junk mail, cereal boxes, wrapping paper, catalogs, magazines and phone books and photos but not "instant" film (eg. Polaroids).

OPTION 3. Supply Chain Environmental Criteria List

Establish criteria for encouraging an environmentally preferable supply chain strategy. The supply chain environmental criteria list should address each of the following areas²:

- Purchasing
- Materials Handling (packaging)
- Storage (inventory)
- Materials Recovery (during manufacturing)
- Disposition (waste disposal)
- Product Take Back (product recovery)

OR

OPTION 4. Sustainable Purchasing Education for Customers

Provide an educational display in the retail project that promotes awareness of the environmental impacts of materials sourcing and supply chains. The educational display should be a kiosk, educational board, etc and should incorporate information including but not limited to the supply chain environmental criteria listed above.

² The Lean and Green Supply Chain, EPA742-R-00-001, January 2000

MR PREREQUISITE: FACILITY ALTERATIONS AND ADDITIONS POLICY Required

EB:O&M

This prerequisite applies to:

- Existing Buildings: Operations & Maintenance
- EB:O&M Schools
- EB:O&M Retail
- EB:O&M Data Centers
- EB:O&M Hospitality
- EB:O&M Warehouse and Distribution Centers

Intent

To divert construction, renovation, and demolition waste from disposal to landfills and incinerators, to recover and recycle reusable materials, and to reduce the environmental and air quality impacts of the materials acquired for use in the upgrade of buildings.

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

ESTABLISHMENT

Prepare a guideline document for renovation activities utilizing applicable LEED rating system strategies to be implemented at the discretion of building owners, operators or tenants. Include at a minimum guidelines for HVAC upgrade, building improvements, and tenant fit-outs. Utilize purchasing policies created for the project addressing products and purchases covered under Materials and Resources Credit: Purchasing – Facility Alterations and Additions as part of Materials and Resources Prerequisite: Ongoing Consumption.

Have in place a facility alterations and additions policy that includes the following:

Construction Waste Management

A construction waste management policy for the building and site addressing the products and purchases covered under the following credits.

- MR Credit: Solid Waste Management—Major Alterations and Additions

The policy must address the following:

- Waste diversion goals for the project by identifying a minimum of 5 materials (both structural and nonstructural) targeted for diversion. Approximate a percentage of overall project waste that these materials may represent
- Considering the diversion goals of the project, detail diversion strategies being implemented on-site
- The process the contractor will utilize including where material will be taken and the strategies the recycling facility will employ to sort and process the material.

Indoor Air Quality:

Plan for the construction and preoccupancy phases of the building as follows:

- During construction, meet or exceed the recommended control measures of the Sheet Metal and Air Conditioning National Contractors Association (SMACNA) IAQ Guidelines for Occupied Buildings Under Construction, 2nd Edition 2007, ANSI/SMACNA 008-2008 (Chapter 3).
- Protect stored on-site and installed absorptive materials from moisture damage.

- Prohibit operation of permanently-installed air handling equipment during construction. Exception: if permanently installed air handling equipment operates during construction, filtration media with a minimum efficiency reporting value (MERV) of 8, as determined by ASHRAE 52.2-2007 (with errata but without addenda^[1]), must be installed at each return air grille and return or transfer duct inlet opening such that there is no bypass around the filtration media. Additionally, the permanently-installed air handling equipment shall have its intended final design filtration media installed in accordance with the manufacturer's recommendations. Replace all filtration media within the permanently-installed air handling equipment immediately before occupancy and remove all temporary construction filtration
- After construction ends, but before occupancy and with all interior finishes installed, create a plan to evaluate if a flush out or air quality testing is needed.

The policy must include detail on its physical and programmatic scope, duration of applicability, responsible parties (by individual name or title), sustainability goals and objectives, procedures and strategies for implementation, specific metrics by which performance will be measured, and a quality assurance process to evaluate and verify successful implementation of the policy.

PERFORMANCE

None.

^[1] Project teams wishing to use ASHRAE approved addenda for the purposes of this credit may do so at their discretion. Addenda must be applied consistently across all LEED credits.

MR CREDIT: SOLID WASTE MANAGEMENT—ONGOING CONSUMPTION

EB:O&M

2 points

This credit applies to:

- Existing Buildings: Operations & Maintenance (2 points)
- EB:O&M Schools (2 points)
- EB:O&M Retail (2 points)
- EB:O&M Data Centers (2 points)
- EB:O&M Hospitality (2 points)
- EB:O&M Warehouse and Distribution Centers (2 points)

Intent

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

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

ESTABLISHMENT

None.

PERFORMANCE

Maintain a waste reduction and recycling program that reuses, recycles, or composts the following:

- At least 50% of the ongoing consumables waste stream (by weight or volume). Include at a minimum, paper, toner cartridges, glass, plastics, corrugated cardboard; food waste, and metals.
- At least 75% of the durable goods waste stream³ (by weight, volume or replacement value). Include at a minimum, office equipment, appliances, and audiovisual equipment.

In addition, safely dispose of the following:

- All discarded batteries.
- All mercury containing lamps.

Demonstrate the results of this program through continuous tracking of waste streams. In addition conduct an audit of the building's waste stream of ongoing consumables (not construction waste from facility alterations and additions) every 5 years or after changes in tenancy greater than 20% by gross floor area, whichever occurs sooner. Use results of the audit to identify opportunities for increased recycling and waste diversion.

Schools EB:O&M

K-12 schools are allowed to exclude food waste from the final performance calculations of the total building waste stream if both of the following criteria are met:

³ Durable goods waste stream is defined as durable goods leaving the project building, site and organization that have fully depreciated and reached the end of their useful lives for normal business operations. Durable goods that remain useful and functional and are moved to another floor or building, etc. do not qualify. Leased durable goods returned to their owner at the end of their useful lives for normal business operations do qualify.

1. Provide documentation that food waste composting services are not available in their region and/or are not economically feasible based on the school or district's operational budget for solid waste management.
2. Provide documentation that an awareness program was implemented during the performance period in the project school aimed at adjusting occupant behavior and reducing food waste. Compliant programs should include at least two of the following:
 - a. Visible signage in food service and cafeteria areas encouraging building occupants to reduce food waste
 - b. Food service employee training aimed at reducing waste in food preparation and helping occupants make positive choices when selecting menu options to reduce the potential for food waste
 - c. Extra-curricular activities or student organizations aimed at promoting awareness of the environmental impacts associated with food waste that is not composted

MR CREDIT: SOLID WASTE MANAGEMENT—MAJOR ALTERATIONS AND ADDITIONS

EB:O&M

2 points

This credit applies to:

- Existing Buildings: Operations & Maintenance (2 points)
- EB:O&M Schools (2 points)
- EB:O&M Retail (2 points)
- EB:O&M Data Centers (2 points)
- EB:O&M Hospitality (2 points)
- EB:O&M Warehouse and Distribution Centers (2 points)

Intent

To divert construction, renovation, and demolition debris from disposal in landfills and incinerators and recover and recycle reusable materials.

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

ESTABLISHMENT

None.

PERFORMANCE

Divert at least 70% of the waste (by weight or volume) generated by facility alterations and additions, including facility renovations, demolitions, refits, and new construction additions from disposal to landfills and incineration facilities. Include base building elements permanently or semi-permanently attached to the building itself such as building components and structures (wall studs, insulation, doors, windows), panels, attached finishings (drywall, trim, ceiling panels), carpet and other flooring material, adhesives, sealants, paints and coatings, furniture and furnishings.

Exclude furniture and furnishings which pose human health concerns (e.g. mold) as well as components not considered base building elements; mechanical, electrical, and plumbing components, and specialty items such as elevators. All waste generated by facility alteration activity is included in credit calculations.

MR CREDIT: PURCHASING—ONGOING CONSUMPTION

EB:O&M

1-2 points

This credit applies to:

- Existing Buildings: Operations & Maintenance (1-2 points)
- EB:O&M Schools (1-2 points)
- EB:O&M Retail (1-2 points)
- EB:O&M Data Centers (1-2 points)
- EB:O&M Hospitality (1-2 points)
- EB:O&M Warehouse and Distribution Centers (1-2 points)

Intent

To reduce environmental harm from materials used in the operations and maintenance of buildings.

Requirements

EBOM, RETAIL, DATA CENTERS, WAREHOUSE AND DISTRIBUTION CENTERS

ESTABLISHMENT

Identify the top 5 most purchased ongoing consumable product categories based on total annual purchases.

PERFORMANCE

OPTION 1. Multi-Attribute Assessment of Ongoing Consumables (1 point)

Purchase a minimum of 60% of total ongoing consumables, by cost, meeting at least one of the below criteria. Include at a minimum the 5 product categories identified above as well as paper, toner cartridges, binders, batteries, and desk accessories. Purchases included in Materials and Resources credit: Purchasing - Facility Alterations must be excluded from credit achievement. Purchases can receive credit for each criterion met.

- Purchases contain postconsumer recycled content meeting or exceeding the levels listed in the Comprehensive Procurement Guidelines of the U.S. Environmental Protection Agency.
- Purchases contain material manufactured and purchased within the Core Based Statistical Area (CBSA) as defined by the Office of Management and Budget⁴ updated December 1 2009 in which the project is located. For projects located outside a prescribed CBSA, or outside the U.S., products must be purchased within 50 miles of the project site.
- Batteries are rechargeable.
- Toner cartridges for laser printers are remanufactured.
-
- Purchases contain raw material complying with one of the following:
 - Mined or Quarried*
Manufacturers and their raw material suppliers (mines, quarries) who each have a signed commitment letter by the owner of their company, stating the following, meet the responsible sourcing requirements.

- Reviewed and understood the Framework for Responsible Mining
- Publicly declared commitment to advancing responsible mining

Bio Based

Raw materials are harvested in a legal manner and meet the applicable criteria below. Hide products such as leather and other animal skin material are excluded from credit achievement.

- New wood products are certified by Forest Stewardship Council, or better.
- Other bio-based products as defined by ASTM Test Method D6866 meet the Sustainable Agriculture Network's Sustainable Agriculture Standard

Other Materials

- For raw materials that do not have a compliance path listed above, extraction and manufacture must meet all applicable laws for the exporting and receiving countries, including human rights laws
- Commitment to long-term ecologically responsible land use
- Reduction environmental impact of extraction and/or manufacturing processes
- Economic and social support of adjacent communities
- Commitment to meeting applicable standards and programs voluntarily that address responsible sourcing criteria
- Labor practices
- Governance structure

Food and beverage criteria (if applicable):

- Food or beverage is labeled USDA Organic, Food Alliance Certified, Rainforest Alliance Certified, Protected Harvest Certified, Fair Trade or Marine Stewardship Council's Blue Eco-Label.
- Food or beverages contain raw materials harvested and produced within a 50-mile (80 km) radius of the site.
- Purchase a minimum of 40% of electric-powered equipment, by cost, meeting at least one of the following criteria. Include at a minimum applicable products identified above as well as electric-powered equipment, appliances and other audiovisual equipment. In addition, create a phase out plan to replace remaining products with compliant products at the end of their useful life. The equipment is rated as Electronic Product Environmental Assessment Tool (EPEAT) silver or better.
- If the equipment does not yet fall under the EPEAT rating systems, then it must be ENERGY STAR[®] qualified
- The equipment (either battery or corded) replaces conventional gas-powered equipment.

EBOM SCHOOLS, EBOM HOSPITALITY

At least 25% of total combined food and beverage purchases (by cost) must meet one or both of the following criteria:

Hospitality Only: Exclude wine, beer, and liquor purchases from credit calculations.

- The food or beverage is labeled USDA Organic, Food Alliance Certified, Rainforest Alliance Certified, Protected Harvest Certified, Fair Trade or Marine Stewardship Council's Blue Eco-Label.

- Food or beverages contain raw materials harvested and produced within a 50-mile (80 km) radius of the site.

EBOM, RETAIL, DATA CENTERS, WAREHOUSE AND DISTRIBUTION CENTERS, EBOM SCHOOLS, EBOM HOSPITALITY

OPTION 2. Lamps (1 point)

Develop and Implement a lighting purchasing plan that specifies an overall maximum of 70 picograms of mercury per lumen hour for mercury-containing lamps purchased for the building and associated grounds. Include lamps for both indoor and outdoor fixtures, as well as both hard-wired and portable fixtures. Lamps containing no mercury may be counted toward plan compliance only if they have energy efficiency equaling or exceeding their mercury-containing counterparts. Create a phase out plan to replace remaining lamps with compliant lamps at the end of their useful life.

All mercury-containing lamps purchased shall be included in credit calculations. Performance metrics for lamps, including mercury content (mg/lamp), mean light output (lumens) and rated life (hours), must be derived according to industry standards, as described in the LEED Reference Guide for Green Building Operations & Maintenance, 2012 Edition. Mercury values generated by toxicity characteristic leaching procedure (TCLP) tests do not provide the required mercury information for LEED 2012 for Existing Buildings: Operations & Maintenance and cannot be used in the calculation.

This credit addresses only lamps purchased not lamps installed in the building. It does not require that each purchased lamp meet the specified mercury limit; only the overall average of purchased lamps must comply.

MR CREDIT: PURCHASING—FACILITY ALTERATIONS AND ADDITIONS

EB:O&M

1-2 points

This credit applies to:

- Existing Buildings: Operations & Maintenance (1-2 points)
- EB:O&M Schools (1-2 points)
- EB:O&M Retail (1-2 points)
- EB:O&M Data Centers (1-2 points)
- EB:O&M Hospitality (1-2 points)
- EB:O&M Warehouse and Distribution Centers (1-2 points)

Intent

To reduce the environmental harm from materials used in building renovations.

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

ESTABLISHMENT

None.

PERFORMANCE

OPTION 1. Products and Materials (1 point)

Demonstrate that at least 50% of the total materials purchased (by cost) for base building elements permanently or semi-permanently attached to the building itself meet at least one of the criteria. Exclude furniture, fixtures and equipment (FF&E), which are not considered base building elements; mechanical, electrical and plumbing components and specialty items, such as elevators. There is no minimum scope of renovation or new construction work required for eligibility of this credit.

- Purchases contain recycled content⁵ purchased from a manufacturer (producer) that has a closed-loop product recycling program⁶. Recycled content is the sum of the postconsumer⁷ recycled content plus ½ of the preconsumer⁸ (post- industrial) recycled content based on cost.
- Purchases contain material salvaged, refurbished, or reused from on-site or off-site through an external or internal organization reuse program.
- Purchases contain material manufactured and purchased within Core Based Statistical Area CBSA⁹ in which the project is located. For projects located outside a prescribed CBSA, or outside

⁵ **Recycled content** is defined in accordance with International Organization of Standards document 14021 – Environmental labels and declarations – Self declared environmental claims (Type II labeling standard).

⁶ Closed loop programs are those of product producer or manufactures that accept either its products or the products or other manufacturers in order to process materials at the end of their useful life to be recycled back into a similar product category. [Programs must be available to a substantial majority of communities notionally.](#)

⁷ **Postconsumer material** is defined as waste material generated by households or by commercial, industrial, and institutional facilities in their role as end-users of the product, which can no longer be used for its intended purposes.

⁸ **Preconsumer material** is defined as material diverted from waste stream during the manufacturing process. Reutilization of materials (i.e. rework, regrind, or scrap generated in the process and capable of being reclaimed within the same process that generated it) is excluded.

the U.S., products must be purchased within 50 miles of the project site..

- Purchase products from manufacturers and their raw material¹⁰ suppliers complying with the applicable criteria below:

Mined or Quarried

Manufacturers and their raw material suppliers (mines, quarries) who each have a signed commitment letter by the owner of their company, stating the following, meet the responsible sourcing requirements.

- Reviewed and understood the Framework for Responsible Mining
- Publicly declared commitment to advancing responsible mining

Bio Based

Raw materials harvested in a legal manner. Hide products such as leather and other animal skin material are excluded from credit achievement.

- New wood products are certified by Forest Stewardship Council, or better.
- Other bio-based products as defined by ASTM Test Method D6866 meet the Sustainable Agriculture Network's Sustainable Agriculture Standard

Extracted

For raw materials that do not have a compliance path listed above, meet all applicable laws, including human rights laws for the exporting and receiving country. Product manufacturers must also make publically available”

- Commitment to long-term ecologically responsible land use
- Reduction of environmental impact of extraction and/or manufacturing processes
- Economic and social support of adjacent communities
- Commitment to meeting applicable standards and programs voluntarily that address responsible sourcing criteria
- Labor practices
- Governance structure

- Purchase the following products that have been tested and determined compliant in accordance with California Department of Public Health (CDPH) Standard Method V1.1-2010 using the applicable exposure scenario. The default scenario shall be the private office scenario.

Classroom furniture may use the school classroom scenario:

- Thermal and acoustic insulation
- Flooring materials and finishes
- Ceiling materials and finishes
- Wall materials and finishes

- Purchase built-in cabinetry and architectural millwork containing composite woods that are constructed with materials documented to have low formaldehyde emissions that:

- Meet the California Air Resources Board ATCM for formaldehyde requirements for Ultra-Low-Emitting Formaldehyde (ULEF) resins or No-Added Formaldehyde based resins; or
-

Salvaged and re-used architectural millwork more than one-year old at the time of occupancy is considered compliant provided it meets the requirements for any site-applied paints, coatings, adhesives, and sealants.

¹⁰ Raw materials include concrete, glass, gypsum, masonry, metals, plastics, stone, agrfiber, bamboo, and wood

OPTION 2. Furniture (1 point)

Purchase at least 75% of total furniture and furnishings meeting one or more of the following criteria:

- Tested following ANSI/BIFMA Standard Method M7.1-2011. Comply with BIFMA e3-2010 Furniture Sustainability Standard, Sections 7.6.1 and 7.6.2 using either the concentration modeling approach or the emission factor approach. For classroom furniture, use the standard school classroom model in CDPH Standard Method v1.1. Salvaged and re-used furniture more than one-year old at the time of use is considered compliant provided they meet the requirements for any site-applied paints, coatings, adhesives, and sealants.
- Purchases contain recycled content¹¹ purchased from a manufacturer (producer) that has a closed-loop product recycling program¹². Recycled content is the sum of the postconsumer¹³ recycled content plus ½ of the preconsumer¹⁴ (post- industrial) recycled content based on cost.
- Purchases contain material manufactured and purchased within the Core Based Statistical Area (CBSA) as defined by the Office of Management and Budget¹⁵ updated December 1 2009 in which the project is located. For projects located outside a prescribed CBSA, or outside the U.S., products must be purchased within 50 miles of the project site.
-
- Purchases contain material salvaged, refurbished, or reused from on-site or off-site through an internal or external organization materials and equipment reuse program.

OR

OPTION 3: No Alterations or Furniture Purchasing (1 point)

Make no alterations to the project space and do not purchase any furniture.

¹¹ **Recycled content** is defined in accordance with International Organization of Standards document 14021 – Environmental labels and declarations – Self declared environmental claims (Type II labeling standard).

¹² Closed loop programs are those of product producer or manufactures that accept either its products or the products or other manufacturers in order to process materials at the end of their useful life to be recycled back into a similar product category. Programs must be available to a substantial majority of communities notionally.

¹³ **Postconsumer material** is defined as waste material generated by households or by commercial, industrial, and institutional facilities in their role as end-users of the product, which can no longer be used for its intended purposes.

¹⁴ **Preconsumer material** is defined as material diverted from waste stream during the manufacturing process. Reutilization of materials (i.e. rework, regrind, or scrap generated in the process and capable of being reclaimed within the same process that generated it) is excluded.

INDOOR ENVIRONMENTAL QUALITY

EQ PREREQUISITE: MINIMUM INDOOR AIR QUALITY PERFORMANCE Required

EB: O&M

This prerequisite applies to:

- Existing Buildings: Operations & Maintenance
- EB:O&M Schools
- EB:O&M Retail
- EB:O&M Data Centers
- EB:O&M Hospitality
- EB:O&M Warehouse and Distribution Centers

Intent

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

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE & DISTRIBUTION CENTERS

ESTABLISHMENT

CASE 1. Systems Able to Meet ASHRAE Standard 62.1–2010 Outdoor Air Flow Rates

- Modify or maintain each outdoor air intake, supply air fan and ventilation distribution system to meet the outdoor air intake flow rates of ASHRAE Standard 62.1–2010 (with errata but without addenda¹⁶) using the Ventilation Rate Procedure, or local equivalent, whichever is more stringent.

AND/OR

- To find the minimum outdoor air opening and space configuration requirements for naturally ventilated spaces or mixed mode systems, use the Natural Ventilation Procedure of ASHRAE Standard 62.1-2010 (with errata but without addenda), or local equivalent, whichever is more stringent, under all normal operating conditions.

CASE 2. Systems Unable to Meet ASHRAE Standard 62.1–2010 Outdoor Air Flow Rates

If meeting ASHRAE Standard 62.1–2010 (with errata but without addenda⁴) outdoor air flow rates is not feasible because of the physical constraints of the existing ventilation system, modify or maintain the system to supply at least 10 cubic feet per minute (cfm) (5 liters per second) of outdoor air per person under all normal operating conditions. Demonstrate that the current system cannot provide the flow rates required by ASHRAE Standard 62.1-2010 under all normal operating condition even when functioning properly.

All EB:O&M Projects

Each air-handling unit in the building must comply with either Case 1 or Case 2. If some air-handling units can provide the outdoor air flow required by ASHRAE Standard 62.1-2010 (with errata but without addenda¹) and others cannot, those that are able must do so. The Indoor Air Quality Procedure as defined in Standard 62.1-2010 shall not be used to comply with the requirements of this prerequisite.

¹⁶ Project teams wishing to use ASHRAE approved addenda for the purposes of this prerequisite may do so at their discretion. Addenda must be applied consistently across all LEED credits.

PERFORMANCE

Show compliance with the applicable requirement above through measurements taken at the system level within five years of the end of the performance period.

Implement and maintain an HVAC system maintenance program, based upon ASHRAE 62.1-2010 Section 8, to ensure the proper operations and maintenance of HVAC components as they relate to outdoor air introduction and exhaust.

EQ PREREQUISITE: ENVIRONMENTAL TOBACCO SMOKE CONTROL Required

EB:O&M

This prerequisite applies to:

- Existing Buildings: Operations & Maintenance
- EB:O&M Schools
- EB:O&M Retail
- EB:O&M Data Centers
- EB:O&M Hospitality
- EB:O&M Warehouse and Distribution Centers

Intent

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

Requirements

EBOM, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE & DISTRIBUTION CENTERS

ESTABLISHMENT

Prohibit smoking in the building.

Prohibit smoking inside the property line within 25 feet (7.5 meters) of entries, outdoor air intakes and operable windows. If any outdoor space is used for business purposes, this space must also prohibit smoking within 25 feet (7.5 meters) of entries, outdoor air intakes and operable windows. Locate any exterior designated smoking areas at least 25 feet (7.5 meters) from entries, outdoor air intakes and operable windows. If the requirement to prohibit smoking within 25 feet (7.5 meters) cannot be implemented due to code, documentation of these regulations is required.

Signage must be posted within 10 feet (3 meters) of all building entrances indicating the no smoking policy.

Residential projects:

Meet the requirements above

OR

Prohibit smoking in all common areas of the building. The prohibition must be communicated in building rental or lease agreements condo or coop association covenants and restrictions. Provisions for enforcement must be included.

Prohibit smoking inside the property line within 25 feet (7.5 meters) of entries, outdoor air intakes and operable windows. If any outdoor space is used for business purposes, this space must also prohibit smoking within 25 feet (7.5 meters) of entries, outdoor air intakes and operable windows. Locate any exterior designated smoking areas at least 25 feet (7.5 meters) from entries, outdoor air intakes and operable windows. If the requirement to prohibit smoking within 25 feet (7.5 meters) cannot be implemented due to code, documentation of these regulations is required.

Signage must be posted within 10 feet (3 meters) of all building entrances indicating the no smoking policy.

Weather-strip all exterior doors and operable windows in the residential units to minimize leakage from outdoors. Minimize uncontrolled pathways for the transfer of ETS and other indoor air pollutants between

residential units by sealing penetrations in the walls, ceilings and floors and by sealing vertical chases (including utility chases, garbage chutes, mail drops, and elevator shafts) adjacent to the units. Weather-strip all doors leading from residential units into common hallways.

Demonstrate a maximum leakage of 0.50 cfm₅₀ per square foot (2.54 liters per second per square meter at 50 Pa) of enclosure (i.e. all surfaces enclosing the apartment, including exterior and party walls, floors, and ceilings) or establish a baseline for a 30% improvement.

Hospitality projects only:

Meet the requirements for residential projects. Leakage rates do not need to be verified for guest rooms where smoking is prohibited.

SCHOOLS

Prohibit smoking on site.

Signage must be posted at the property line indicating the no smoking policy.

PERFORMANCE

Residential and Hospitality projects only:

Demonstrate on a regular basis (at least once every five years) a maximum leakage of 0.50 cfm₅₀ per square foot (2.54 liters per second per square meter at 50 Pa) of enclosure (i.e. all surfaces enclosing the apartment, including exterior and party walls, floors, and ceilings), or if the project does not meet this requirement, demonstrate a 30% improvement over the most recent baseline. This current measurement establishes the new baseline.

EQ PREREQUISITE: GREEN CLEANING POLICY Required

EB:O&M

This prerequisite applies to:

- Existing Buildings: Operations & Maintenance
- EB:O&M Schools
- EB:O&M Retail
- EB:O&M Data Centers
- EB:O&M Hospitality
- EB:O&M Warehouse & Distribution Centers

Intent

To reduce levels of chemical, biological and particulate contaminants that can compromise air quality, human health, building finishes, building systems, and the environment.

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE & DISTRIBUTION CENTERS

OPTION 1.

ESTABLISHMENT

Have in place a green cleaning policy for the building and site addressing the green cleaning credits, goals and strategies, and personnel listed below. At a minimum, the policy must cover green cleaning procedures, materials, and services that are within the building and site management's control, and include the organization responsible for cleaning the building and building site.

Address the requirements of the following credits:

- EQ Credit: Green Cleaning – Purchase of Cleaning Products and Materials
- EQ Credit: Green Cleaning – Cleaning Equipment

Goals and Strategies

- Establish standard operating procedures addressing how an effective cleaning and hard floor and carpet maintenance system will be consistently used, managed and audited.
- Address how to protect vulnerable building occupants when cleaning.
- Address how to select and appropriately use disinfectants and sanitizers.
- Develop goals and strategies for promoting the conservation of energy, water and chemicals related to cleaning the building.
- Develop goals and strategies for reducing the toxicity of the chemicals used for laundry, ware washing and other cleaning activities.
- Develop strategies for promoting and improving hand hygiene.
- Develop guidelines addressing the safe handling and storage of cleaning chemicals used in the building, including a plan for managing hazardous spills and mishandling incidents.

Personnel

- Develop requirements for maintenance personnel. Specifically address contingency planning to manage staffing shortages under a variety of conditions to ensure that basic cleaning services are met and critical cleaning needs are addressed. Include a process to obtain occupant and

custodial staff input and feedback after contingency plans are implemented.

- Address when and how often training of maintenance personnel in the hazards of use, disposal and recycling of cleaning chemicals, dispensing equipment and packaging takes place.

The policy must include detail on its physical and programmatic scope; duration of applicability; responsible parties (by individual name or title); sustainability goals and objectives; procedures and strategies for implementation; specific metrics by which performance will be measured; and a quality assurance process to evaluate and verify successful implementation of the policy.

PERFORMANCE

Implement a high-performance cleaning program based on the above policy and track performance goals associated with this policy.

OPTION 2.

ESTABLISHMENT

None.

PERFORMANCE

Clean the building with a cleaning service provider, either in-house custodial staff or a contracted service contractor, certified under one of the following:

- Green Seal's Environmental Standard for Commercial Cleaning Services (GS-42).
- The International Sanitary Supply Association's (ISSA's) Cleaning Industry Management Standard for Green Buildings (CIMS-GB).

Confirm that the building was audited by the related third party within 12 months of the end of the performance period.

In addition, the cleaning contractor must develop goals and strategies for promoting the conservation of energy, water and chemicals related to cleaning the building.

EQ CREDIT: INDOOR AIR QUALITY MANAGEMENT PROGRAM

EB:O&M

2 Points

This credit applies to:

- Existing Buildings: Operations & Maintenance (2 Points)
- EB:O&M Schools (2 Points)
- EB:O&M Retail (2 Points)
- EB:O&M Data Centers (2 Points)
- EB:O&M Hospitality (2 Points)
- EB:O&M Warehouse and Distribution Centers (2 Points)

Intent

To maintain the well-being of occupants by preventing and correcting indoor air quality (IAQ) problems.

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

ESTABLISHMENT

Develop and implement on an ongoing basis an IAQ management program based on the EPA Indoor Air Quality Building Education and Assessment Model (I-BEAM). At a minimum, investigate areas identified in EA prerequisite: Energy Efficiency Best Management Practices Planning, Opportunity Assessment and Implementation.

PERFORMANCE

Conduct an I-BEAM audit on a regular basis (at least once every five years) and revise the IAQ management program as appropriate.

EQ CREDIT: ENHANCED INDOOR AIR QUALITY STRATEGIES

EB:O&M

1-2 points

This credit applies to:

- Existing Buildings: Operations & Maintenance (1-2 points)
- EB:O&M Schools (1-2 points)
- EB:O&M Retail (1-2 points)
- EB:O&M Data Centers (1-2 points)
- EB:O&M Hospitality (1-2 points)
- EB:O&M Warehouse and Distribution Centers (1-2 points)

Intent

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

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE & DISTRIBUTION CENTERS

Option 1. (1 point)

Entryway Systems

ESTABLISHMENT

Have in place permanent entryway systems at least 10 feet (3 meters) long in the primary direction of travel to capture dirt and particulates entering the building at regularly used exterior entrances. Acceptable entryway systems include permanently installed grates, grills, slotted systems that allow for cleaning underneath and roll out mats. Maintain all on a weekly basis.

Warehouse & Distribution Center projects only: Buildings with loading docks or garage facilities are not required to provide entryway systems at doors leading from the exterior to the loading dock/garage, but must provide them between these spaces and adjacent office areas.

PERFORMANCE

Confirm entryway systems are in place and have been maintained on a weekly basis.

Option 2. (2 points)

Meet Option 1

AND

Meet the requirements of at least one of the following paths:

A. *Filtration*

ESTABLISHMENT

In mechanically ventilated spaces, each ventilation system that supplies outdoor air to occupied spaces must have particle filters or air cleaning devices. These filters or devices must meet one of the following filtration media requirements:

- Minimum Efficiency Reporting Value (MERV) of 13 or higher, in accordance with ASHRAE Standard 52.2-2007.
- Class F7 or higher as defined by CEN Standard EN 779-2002 Particulate air filters for general ventilation, Determination of the filtration performance;

- Minimum dust spot efficiency of 80% or higher and greater than 98% arrestance on a particle size of 3-10 µg.

•
Data Center projects only: The above filtration media requirements are only required for ventilation systems serving regularly occupied spaces.

PERFORMANCE

Establish and follow a regular schedule for maintenance and replacement of filtration media according to the manufacturer's recommended interval.

B. *Carbon Dioxide Monitors*¹⁷

ESTABLISHMENT

Have in place CO₂ monitors within all densely occupied spaces. CO₂ monitors must be between 3 and 6 feet (900 and 1800 millimeters) above the floor.

Configure the system to generate a visual alarm to the system operator if the differential CO₂ concentration in any zone rises more than 15% above that corresponding to the minimum outdoor air rate required in the ventilation section of the Minimum Indoor Air Quality Performance Prerequisite.

PERFORMANCE

Test and calibrate CO₂ sensors to have an accuracy of no less than 75 parts per million or 5% of the reading, whichever is greater. Sensors must be tested and calibrated at least once every 5 years or per the manufacturer's recommendation, whichever is shorter.

Monitor CO₂ sensors with a system configured to trend CO₂ concentrations in intervals no greater than 30 minutes.

C. *Outdoor Air Monitoring*

ESTABLISHMENT

In mechanically ventilated spaces with variable air volume systems, provide a direct outdoor airflow measurement device (air flow measuring station) capable of measuring the minimum outdoor air intake flow. This device must measure the minimum outdoor air intake flow with an accuracy of +/- 10% of the design minimum outdoor airflow rate required in the ventilation section of the Minimum Indoor Air Quality Performance Prerequisite and have an alarm condition indicating when the outdoor airflow value varies by 15% or more from the outdoor airflow setpoint.

For constant volume systems, outdoor airflow shall be balanced to the design minimum outdoor air flow rate required in the ventilation section of the Minimum Indoor Air Quality Performance Prerequisite or higher, during construction. A current transducer on the supply fan, air flow switch, or similar monitoring device shall be provided for the ventilation system.

PERFORMANCE

Calibrate all measurement devices within the manufacturer's recommended interval.

¹⁷ Rooms smaller than 150 square feet (14 square meters) are exempt.

EQ CREDIT: THERMAL COMFORT

EB:O&M

1 point

This credit applies to:

- Existing Buildings: Operations & Maintenance (1 point)
- EB:O&M Schools (1 point)
- EB:O&M Retail (1 point)
- EB:O&M Data Centers (1 point)
- EB:O&M Hospitality (1 point)
- EB:O&M Warehouse and Distribution Centers (1 point)

Intent

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

Requirements

Meet the requirements of Thermal Comfort Design and Thermal Comfort Control

Thermal Comfort Design

EBOM, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE & DISTRIBUTION CENTERS

ESTABLISHMENT

Have in place a system for continuous tracking and optimization of systems that regulate indoor comfort and conditions (air temperature, humidity, air speed and radiant temperature) in occupied spaces.

OPTION 1

Have a permanent monitoring system to ensure ongoing building performance to the desired comfort criteria as determined ASHRAE Standard 55-2010, Thermal Comfort Conditions for Human Occupancy (with errata but without addenda¹).

OPTION 2

Have a permanent monitoring system to ensure ongoing building performance of the desired comfort criteria as determined by:

- International Organization for Standardization (ISO) 7730 Ergonomics of the thermal environment, Analytical determination and interpretation of thermal comfort using calculation of the PMV and PPD indices and local thermal comfort criteria and;
- CEN Standard EN 15251, Indoor environmental input parameters for design and assessment of energy performance of buildings addressing indoor air quality, thermal environment, lighting and acoustics.

Data Center projects only: Meet the above requirements for occupants in regularly occupied spaces.

Hospitality projects only: Guest rooms are assumed to provide adequate thermal comfort controls and are therefore not included in the credit calculations.

PERFORMANCE

The system must do the following:

- Continuous monitoring of, at a minimum, air temperature and humidity in occupied spaces. The sampling interval cannot exceed 15 minutes.
- Periodic testing of air speed and radiant temperature in occupied spaces. Using handheld meters is permitted.

- Alarms for conditions that require system adjustment or repair. Submit a list of the sensors, zone set-points and limit values that would trigger an alarm.
- Procedures that deliver prompt adjustments or repairs in response to problems identified.
- All monitoring devices must be calibrated within the manufacturer's recommended interval.

EQ CREDIT: INTERIOR LIGHTING

EB:O&M

1-2 points

This credit applies to:

- Existing Buildings: Operations & Maintenance (1-2 points)
- EB:O&M Schools (1-2 points)
- EB:O&M Retail (1-2 points)
- EB:O&M Data Centers (1-2 points)
- EB:O&M Hospitality (1-2 points)
- EB:O&M Warehouse and Distribution Centers (1-2 points)

Intent

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

Requirements

EBOM, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE & DISTRIBUTION CENTERS

ESTABLISHMENT

Option 1: Lighting Control (1point)

For at least 50% of individual occupant spaces, have in place individual lighting controls that enable occupants to adjust the lighting to suit their individual tasks and preferences, with at least three lighting levels or scenes (on, off, mid-level¹⁸).

For hospitality projects only: Guest rooms are assumed to have adequate lighting controls and are therefore not included in the credit calculations.

For all shared multi-occupant spaces:

- Have in place multi-zone control systems that enable occupants to adjust the lighting to meet group needs and preferences, with at least three lighting levels or scenes (on, off, mid-level¹⁹).
- Lighting for any active presentation (as in a conference room or classroom, but not in a corridor) or projection wall must be separately controlled from the rest of the lighting in the space.
- Switches or manual controls must be within the space where the controlled luminaires are located. A person operating the controls must have a direct line of sight to the controlled luminaires.

AND/OR

Option 2: Lighting Quality (1 point)

For at least 50% of the regularly occupied²⁰ floor area, have in place at least four of the following interior lighting features. There are two categories, hardware and design.

Hardware:

- Light fixtures have a luminance of less than 12,500cd/m² above 45 degrees from nadir.

¹⁸ Mid-level is 30-70% of maximum

²⁰ Regularly occupied spaces are places where one or more individuals normally spend time (more than one hour per person per day on average) seated or standing as they work, study, or perform other focused activities inside a building.

Exceptions include:

- a) Wallwash fixtures properly aimed at walls, as specified by manufacturer's data
- b) Indirect uplighting fixtures, provided there is no view down into these uplights from a regularly occupied space above.
- Light sources have a CRI of 80 or higher for at least 95% of the associated connected lighting load. Exceptions include: Lamps or fixtures specifically included in the design to provide colored lighting for effect.
- The lamps last a minimum of 24,000 hours for at least 60% of the connected lighting load
AND
the lamps last a minimum of 6,000 hours for at least 90% of the connected lighting load..

Design:

- Suspended, wall-mounted, free-standing or partition-mounted indirect or direct/indirect ambient lighting is in place for up to 75% of the connected lighting load.
- Meet the following thresholds for average surface brightness (weighted average of surface reflectances):
 - Ceilings (85%):
 - Walls (60%):
 - Floors (30%):
- Meet the following thresholds for average surface brightness (weighted average of surface reflectances):
 - Work surfaces (50%):
 - Movable Partitions (50%):
- The average wall surface illuminance to average work plane (or surface if defined) illuminance ratio does not exceed 1:10.
- The average ceiling²¹ illuminance to work-surface illuminance ratio (excluding fenestration) does not exceed 1:10

PERFORMANCE

Demonstrate that the required controls and/or interior lighting features have been maintained.

²¹ The area of the ceiling that shall affect a workstation in an open plan environment shall extend 2x the ceiling height from the center of the workstation (may be drawn and calculated as a rectangle, square, or circle in plan)

EQ CREDIT: DAYLIGHT & QUALITY VIEWS

EB:O&M

2-4 points

This credit applies to:

- Existing Buildings: Operations & Maintenance (2-4 points)
- EB:O&M Schools (2-4 points)
- EB:O&M Retail (2-4 points)
- EB:O&M Data Centers (2-4 points)
- EB:O&M Hospitality (2-4 points)
- EB:O&M Warehouse and Distribution Centers (2-4 points)

Intent

To provide building occupants with a connection between indoor spaces and the outdoors through the introduction of daylight and views into the regularly occupied areas of the building. To reduce the use of electrical lighting and give building occupants a circadian stimulus and a connection to the outdoors by admitting daylight into regularly occupied areas.

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE & DISTRIBUTION CENTERS

ESTABLISHMENT

OPTION 1. Daylight Measurement (2 points)

Achieve illuminance levels between 300 lux and 3000 lux for at least 50% of the regularly occupied spaces.

Measure illuminance levels as follows:

- Measure during any given hour between 9:00 a.m. and 3:00 p.m. solar time.
- Measure twice, according to the table below.
- Furniture, fixtures, and equipment in place for the measurements.
- For spaces larger than 150 square feet (14 square meters), take measurements on a maximum 10-foot (3 000 millimeter) square grid.
- For spaces 150 square feet or smaller (14 square meters), take measurements on a maximum 3-foot (900 millimeter) square grid Measure at appropriate work plane height.

First Measurement (select any regularly occupied month)	Second Measurement (select one month in the corresponding period)
Jan	May-Sep
Feb	Jun-Oct
Mar	Jun-Jul, Nov-Dec
Apr	Aug-Dec
May	Sep-Jan
Jun	Oct-Feb
Jul	Nov-Mar
Aug	Dec-Apr
Sep	Dec-Jan, May-Jun
Oct	Feb-Jun
Nov	Mar-Jul

Dec	Apr-Aug
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AND/OR

OPTION 2. Views (2 points)

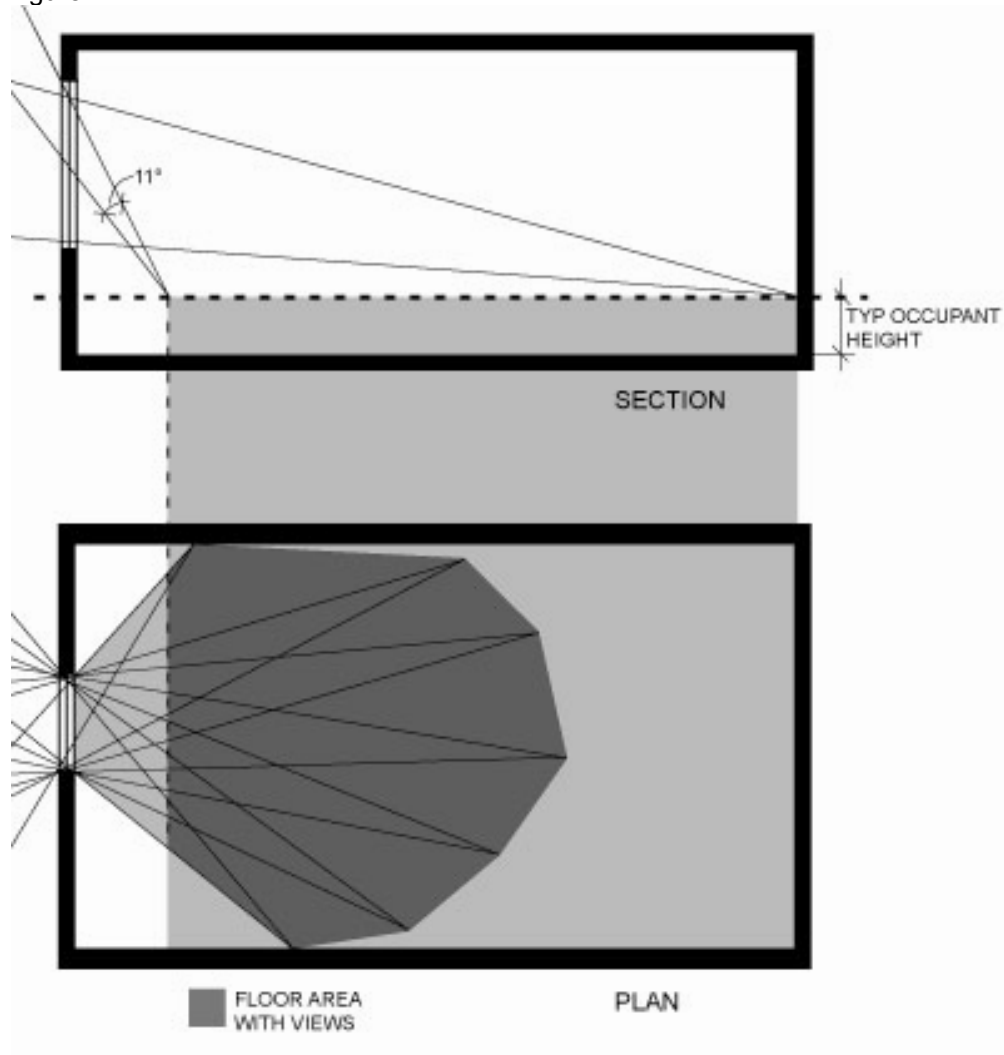
Achieve a direct line of sight to the outdoors via vision glazing for 50% of all regularly occupied floor area.

View glazing in the contributing area shall provide a clear image of the exterior. A clear image is not obstructed by frits, fibers, patterned glazing, added tints which distort color balance.

A direct line of sight is measured (see figure 1):

- In section view, sight lines drawn at 11 degree angles from perimeter vision glazing to points in the room at a typical height for occupants (e.g. 42" seated height)
- In plan view, sight lines drawn at 11 degree angles from perimeter vision glazing to points in the room.
- The contributing floor area is the overlap between plan and section.

Figure 1.



The view from each contributing area must include all of the following:

- Objects at least 25 feet (7.5 meters) outside the vision glazing
- Flora, fauna, or sky
- Movement

Include any permanent interior obstructions including lab hoods, fixed partitions and demountable opaque full or partial-height partitions. Movable furniture and partitions²² need not be included in the credit calculations.

Views of interior atria may be used to meet up to 30% of the required area.

Warehouse & Distribution Center projects only:

Meet the above requirements for Views for 25% of all regularly occupied spaces.

PERFORMANCE

Create a plan to confirm daylight and/or views have not changed when more than 50% of a space undergoes facility alteration.

²² **Movable furniture and partitions** are those that can be moved to provide access to the view by the user without the need for tools or assistance from special trades and facilities management.

EQ CREDIT: GREEN CLEANING—CUSTODIAL EFFECTIVENESS ASSESSMENT

EB:O&M

1 point

This credit applies to:

- Existing Buildings: Operations & Maintenance (1 point)
- EB:O&M Schools (1 point)
- EB:O&M Retail (1 point)
- EB:O&M Data Centers (1 point)
- EB:O&M Hospitality (1 point)
- EB:O&M Warehouse and Distribution Centers (1 point)

Intent

To reduce levels of chemical, biological and particulate contaminants, which can compromise air quality, human health, building finishes, building systems and the environment, by implementing effective cleaning procedures.

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE & DISTRIBUTION CENTERS

ESTABLISHMENT

None.

PERFORMANCE

Implement the strategies set forth in the Green Cleaning Policy and perform routine inspection and monitoring. This inspection must verify that the particular strategies specified have been implemented and track areas in need of improvement.

Additionally, conduct an annual audit in accordance with APPA Leadership in Educational Facilities' (APPA) "Custodial Staffing Guidelines" or local equivalent, whichever is more stringent, to determine the appearance level of the facility.

- The facility must score 2.5 or better.

EQ CREDIT: GREEN CLEANING—PRODUCTS AND MATERIALS

EB:O&M

1 point

This credit applies to:

- Existing Buildings: Operations & Maintenance (1 point)
- EB:O&M Schools (1 point)
- EB:O&M Retail (1 point)
- EB:O&M Data Centers (1 point)
- EB:O&M Hospitality (1 point)
- EB:O&M Warehouse & Distribution Centers (1 point)

Intent

To reduce the environmental effects of cleaning products, disposable janitorial paper products and trash bags.

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE & DISTRIBUTION CENTERS

ESTABLISHMENT

None.

PERFORMANCE

Purchase green cleaning materials and products, floor finishes and strippers, disposable janitorial paper products and trash bags. Cleaning product and material purchases include items used by in-house staff or outsourced service providers.

At least 75% of the total annual purchases of these products (by cost) must meet at least one of the following standards, by category:

Cleaning products must meet 1 or more of the following standards or local equivalent outside the U.S. for the appropriate category:

- Green Seal GS-37, for general-purpose, bathroom, glass and carpet cleaners used for industrial and institutional purposes.
- Environmental Choice CCD-110, for cleaning and degreasing compounds.
- Environmental Choice CCD-146, for hard surface cleaners.
- Environmental Choice CCD-148, for carpet and upholstery care.
- Green Seal GS-40, for industrial and institutional floor care products.
- Environmental Choice CCD-147, for hard floor care.
- US EPA's Design for the Environment Program's Standard for Safer Cleaning Products for these product categories.
- EcoForm's Information-Based Environmental Label for these product categories.
- Cleaning devices that use only ionized water or electrolyzed water and have third-party performance data demonstrating performance is equivalent to the other standards mentioned above. If the device is marketed for antimicrobial cleaning, performance data must demonstrate antimicrobial performance comparable to EPA's Office of Pollution Prevention and Toxics (OPPT) and Design for the Environment (DfE) requirements as appropriate for use patterns and

marketing claims.

Disinfectants, metal polish, or other products not addressed by the above standards must meet 1 or more of the following standards or local equivalent outside the U.S. for the appropriate category:

- Environmental Choice CCD-112, for digestion additives for cleaning and odor control.
- Environmental Choice CCD-113, for drain or grease traps additives.
- Environmental Choice CCD-115, for odor control additives.
- Green Seal GS-52/53, for specialty cleaning products
- California Code of Regulations maximum allowable VOC levels for the specific product category.
- US EPA's Design for the Environment Program's Standard for Safer Cleaning Products for these product categories.
- EcoForm's Information-Based Environmental Label for these product categories.
- Cleaning devices that use only ionized water or electrolyzed water and have third-party performance data demonstrating performance is equivalent to the other standards mentioned above. If the device is marketed for antimicrobial cleaning, performance data must demonstrate antimicrobial performance comparable to EPA's Office of Pollution Prevention and Toxics (OPPT) and Design for the Environment (DfE) requirements as appropriate for use patterns and marketing claims.

Disposable janitorial paper products and trash bags must meet the minimum requirements of 1 or more of the following programs or local equivalent outside the U.S. for the applicable product category:

- Environmental Protection Agency (EPA) Comprehensive Procurement Guidelines for Janitorial Paper.
- Green Seal GS-01, for tissue paper, paper towels and napkins.
- Environmental Choice CCD-082, for toilet tissue.
- Environmental Choice CCD-086, for hand towels.
- Janitorial paper products derived from rapidly renewable resources or made from tree-free fibers.
- FSC Certified fiber procurement. Environmental Protection Agency (EPA) Comprehensive Procurement Guidelines for Plastic Trash Can Liners
- California Integrated Waste Management requirements for Plastic Trash Can Liners (California Code of Regulations Title 14, Chapter 4, Article 5 or now SABRC 42290-42297 Recycled Content Plastic Trash Bag Program (PTB))

Hand soaps and hand sanitizers must meet 1 or more of the following standards or local equivalent outside the U.S.:

- No antimicrobial agents (other than as a preservative) except where required by health codes and other regulations (e.g., food service and health care requirements).
- Green Seal GS-41, for industrial and institutional hand cleaners.
- Environmental Choice CCD-104, for hand cleaners and hand soaps.
- Environmental Choice CCD-170, for hand sanitizers.

- US EPA's Design for the Environment Program's Standard for Safer Cleaning Products for this product category.
- EcoForm's Information-Based Environmental Label for hand soaps and hand sanitizers.

EQ CREDIT: GREEN CLEANING—EQUIPMENT

EB:O&M

1 point

This credit applies to:

- Existing Buildings: Operations & Maintenance (1 point)
- EB:O&M Schools (1 point)
- EB:O&M Retail (1 point)
- EB:O&M Data Centers (1 point)
- EB:O&M Hospitality (1 point)
- EB:O&M Warehouse & Distribution Centers (1 point)

Intent

To reduce chemical, biological and particulate contaminants from powered cleaning equipment.

Requirement

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE & DISTRIBUTION CENTERS

ESTABLISHMENT

Create an inventory of existing interior and exterior equipment, including what is brought on site by vendors. At least 40% of all powered janitorial equipment (purchased, leased, or used by contractors) must meet the following criteria. For equipment that has not reached the end of its useful life and does not meet the criteria, develop a phase out plan for replacing the equipment with an environmentally preferable product when its replacement time occurs. Create a plan that new equipment meet the requirements so that the overall goal is 80% of all equipment

PERFORMANCE

At least 40% of all powered janitorial equipment (purchased, leased, or used by contractors) must meet the following criteria. For equipment that has not reached the end of its useful life and does not meet the criteria, develop a phase out plan for replacing the equipment with an environmentally preferable product when its replacement time occurs. Create a plan that new equipment meet the requirements so that the overall goal is 80% of new equipment.

All Equipment:

- Designed with safeguards, such as rollers or rubber bumpers, to avoid damage to building surfaces.
- Powered equipment is ergonomically designed to minimize vibration, noise and user fatigue, as reported in the user manual in accordance with ISO 5349-1 for arm vibrations, ISO 2631-1 for vibration to the whole body is subjected and ISO 11201 for sound pressure at operator's ear.
- Battery-powered equipment that is equipped with environmentally preferable batteries including gel, absorbent glass mat (AGM) and lithium-ion are preferred except in applications requiring deep discharge and heavy loads where performance or battery life is reduced by the use of sealed batteries.

Vacuum Cleaners

- Certified by the Carpet and Rug Institute Seal of Approval/Green Label Vacuum Program and operate with a sound level of 70dBA or less in accordance with ISO 11201.

Carpet Extraction Equipment

- Equipment used for restorative deep cleaning is certified by the Carpet and Rug Institute's Seal of Approval Deep Cleaning Extractors and Seal of Approval Deep Cleaning Systems program.

Powered floor maintenance equipment²³

- Includes vacuums, guards or other devices for capturing fine particulates and operates with a sound level of 70dBA or less in accordance with ISO 11201.
- Propane-powered floor equipment has high-efficiency, low-emissions engines with catalytic converters and mufflers that meet the California Air Resources Board (CARB) or Environmental Protection Agency (EPA) standards for the specific engine size and operate with a sound level of 90dBA or less in accordance with ISO 11201.

Automated scrubbing machines

- Equipped with variable-speed feed pumps and on-board chemical metering to optimize the use of cleaning fluids. Alternatively, the scrubbing machines are equipped with variable-speed feed pump and use dilution control systems for chemical refilling or use only tap water with no added cleaning products.

²³ **Powered floor maintenance equipment** includes electric and battery-powered floor buffers and burnishers, with the exception of equipment used in wet applications.

EQ CREDIT: INTEGRATED PEST MANAGEMENT

EB:O&M

2 points

This credit applies to:

- Existing Buildings: Operations & Maintenance (2 points)
- EB:O&M Schools (2 points)
- EB:O&M Retail (2 points)
- EB:O&M Data Centers (2 points)
- EB:O&M Hospitality (2 points)
- EB:O&M Warehouse and Distribution Centers (2 points)

Intent

To minimize pest problems and exposure to pesticides.

Requirement

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE & DISTRIBUTION CENTERS

ESTABLISHMENT

Have in place an integrated pest management (IPM) plan²⁴ for the building and grounds within the project boundary. The IPM plan must include the following elements:

- a. The identification of an IPM Team for the project. Identify roles for building management, pest management contractors, maintenance staff, and liaisons with building occupants.
- b. Provisions for the identification and monitoring of pests using inspections, pest population monitoring, and a reporting system that allows occupants, maintenance staff, and others to report evidence of pest infestations.
- c. Action thresholds for all pests commonly encountered in the building for reference in deciding when control is required. The plan must also describe a process for modifying action thresholds, if necessary, through active communication between occupants and IPM Team.
- d. Nonchemical pest preventive measures either designed into the structure or implemented as part of pest management activities.
- e. Description of pest control methods to be utilized when action thresholds are exceeded. For each commonly encountered pest, the plan must list all of the potential control methods considered and adopt the lowest risk option(s); considering the risks to the applicator, building occupants, and the environment. The plan must preferentially require nonchemical approaches. If those approaches do not produce satisfactory results, then the application of pesticides registered for the site and pest to be controlled is permitted. Preference shall be given to the use of Least Risk pesticides based upon inherent toxicity and exposure potential²⁵. If a pesticide is selected that does not fall in the category of Least Risk, document the reason for selection.
- f. A mechanism for documentation of inspection, monitoring, preventive and control methods and a method for evaluation of the effectiveness of the IPM Plan. This component should include specific

²⁴ **Integrated pest management** manages pests in a way that protects human health and the surrounding environment and improves economic returns through the most effective, least-risk option.

²⁵ A **least-risk pesticide** is a registered pesticide that can be demonstrated to fall into the Tier III (lowest toxicity) category using the San Francisco Hazard Ranking system, or an insecticide sold as a self-contained bait, or as a crack and crevice treatment used in areas inaccessible to building occupants. Rodenticides are never considered least-risk pesticides.

metrics by which performance will be measured; and a quality assurance process to evaluate and verify successful implementation of the plan.

- g. A communications strategy that establishes communications between the IPM Team and the facility's key stakeholders (for example, tenants in multi-family housing, faculty and staff in schools, etc.). This strategy should facilitate education, participation in problem solving and provide a means of giving feedback. The communications strategy must include provision for education of occupants and building management staff about the IPM Plan, their role in successful implementation, a system for recording pest complaints, and a provision for notification of pesticide applications. At a minimum, the notification strategy must include notification by the facility manager to any occupant or employee of the facility that requests it and the posting of a sign at the application site which must remain in place for 24 hours. Notifications must include at minimum the pesticide name, EPA registration number, treatment location, and date of application. Applications of least-risk pesticides do not require notification. In the event that an emergency application of a pesticide is necessary, the individuals requesting notice shall receive notice within 24 hours of the application, including an explanation of the emergency.

The plan must include detail on its physical and programmatic scope; duration of applicability; responsible parties (by individual name or title); sustainability goals and objectives; procedures and strategies for implementation; specific metrics by which performance will be measured; and a quality assurance process to evaluate and verify successful implementation of the plan.

PERFORMANCE

Implement the strategies set forth in the IPM Plan and perform an annual evaluation of the IPM Plan. This evaluation must verify that the particular strategies specified in the IPM Plan have been implemented and identify any chemical applications that did not comply with the plan..

Perform record keeping and documentation required under the IPM Plan. Maintain records of IPM Team participation and decisions, as well as pesticide applications.

A project meets the requirements if the IPM service is provided by a certified member in good standing of the GreenPro, EcoWise or GreenShield programs or a program with equivalent IPM standards, provided that the service provided complies with the respective program's standards.

EQ CREDIT: OCCUPANT COMFORT SURVEY

EB:O&M

1 point

This credit applies to:

- Existing Buildings: Operations & Maintenance (1 point)
- EB:O&M Schools (1 point)
- EB:O&M Retail (1 point)
- EB:O&M Data Centers (1 point)
- EB:O&M Hospitality (1 point)
- EB:O&M Warehouse and Distribution Centers (1 point)

Intent

To assess building occupants' comfort.

Requirements

EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

ESTABLISHMENT

- Administer at least one occupant comfort survey to collect anonymous responses about, at a minimum:
 - Acoustics
 - Building cleanliness
 - Indoor air quality
 - Lighting
 - Thermal comfort
 - Overall satisfaction with building performance

The survey must be collected from a representative sample of building occupants making up at least 30% of the total occupants.

- Document survey results. Develop and implement a corrective action plan to address comfort issues when the survey results indicate that more than 20% of occupants are dissatisfied.

PERFORMANCE

- Perform at least one survey and implement corrective actions.

INNOVATION

IN CREDIT: INNOVATION

EB:O&M

1-5 points

This credit applies to:

- Existing Buildings: Operations & Maintenance (1-5 points)
- EB:O&M Schools (1-5 points)
- EB:O&M Retail (1-5 points)
- EB:O&M Data Centers (1-5 points)
- EB:O&M Hospitality (1-5 points)

Intent

To provide projects the opportunity to achieve exceptional performance above the requirements set by the LEED Green Building Rating System and/or innovative performance in categories not specifically addressed by the LEED Green Building Rating System.

Requirements

NC, CS, SCHOOLS, RETAIL, DATA CENTERS, WAREHOUSE & DISTRIBUTION CENTERS, HOSPITALITY, CI, RETAIL, HOSPITALITY, EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY

Credit can be achieved through a combination of Innovation, Pilot, and Exemplary Performance strategies as described below:

OPTION 1. Innovation (1 point)

Achieve significant, measurable environmental performance using a strategy not addressed in the LEED Green Building Rating System.

Identify the following in writing:

- The intent of the proposed innovation credit.
- The proposed requirement for compliance.
- The proposed submittals to demonstrate compliance.
- The design approach (strategies) used to meet the requirements.

AND/OR

OPTION 2. Pilot (1 point)

Attempt and achieve one pilot credit from the USGBC's LEED Pilot Credit Library.

AND/OR

OPTION 3. Additional Strategies (1-3 points)

- **Innovation (1- 3 points)**
Defined in Option 1 above.
- **Pilot (1- 3 points)**
Defined in Option 2 above.
- **Exemplary Performance (1-2 points)**

Achieve exemplary performance in an existing LEED 2012 prerequisite or credit that allows exemplary performance as specified in the LEED Reference Guide 2012 Edition. An exemplary performance point is typically earned for achieving double the credit requirements and/or achieving the next incremental percentage threshold of an existing credit in LEED.

IN CREDIT: LEED ACCREDITED PROFESSIONAL

EB:O&M

1 point

This credit applies to:

- Existing Buildings: Operations & Maintenance (1 point)
- EB:O&M Schools (1 point)
- EB:O&M Retail (1 point)
- EB:O&M Data Centers (1 point)
- EB:O&M Hospitality (1 point)
- EB:O&M Warehouse and Distribution Centers (1 point)

Intent

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

Requirements

NC, CS, SCHOOLS, RETAIL NC, DATA CENTERS, WAREHOUSE & DISTRIBUTION CENTERS, HOSPITALITY, HEALTHCARE, CI, RETAIL CI, HOSPITALITY, EBOM, SCHOOLS, RETAIL, DATA CENTERS, HOSPITALITY, WAREHOUSE AND DISTRIBUTION CENTERS

At least one (1) principal participant of the project team shall be a LEED Accredited Professional (AP) with a specialty most appropriate for the project.

