2026

CIRCLE SUSTAINABILITY

LEED Data Centre

Latos Manchester Limited

Overview & Pre - Feasibility Report

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Contents

1. Project Overview 2
2. Applicable LEED Rating System 2
3. Credit Strategy Overview 2
5. Data Centre Pre-Feasibility Score Card 3
6. Credit Document Requirement 5
7. Energy-Specific Considerations for Data Centres 7
8. Documentation & Timeline 7
9. Additional Resources 7

1. Project Overview

This document outlines the recommended certification pathway for a data centre project pursuing LEED v4.1 BD+C (Building Design and Construction). The pathway focuses on optimising energy performance, sustainable site development, water conservation, material transparency, and indoor environmental quality while accommodating the specific operational demands of a mission-critical facility.

2. Applicable LEED Rating System

LEED v4.1 BD+C: Data Centres is the most suitable rating system for this project, designed specifically for buildings that are primarily used to house computer systems and support critical data infrastructure. This includes server rooms, cooling systems, backup generators, and IT spaces.

3. Energy-Specific Considerations for Data Centres

Data centres are energy-intensive buildings due to the continuous operation of IT systems. Key strategies include:

- Use of high-efficiency UPS and power distribution systems
- Free cooling and economisers to reduce HVAC energy use
- Use of ASHRAE 90.1-2016 or ASHRAE 90.4-2016 via Alternative Compliance Path
- Advanced metering for server loads, cooling, and lighting

4. Documentation & Timeline

1. Pre-Design: Feasibility study and integrative design workshop
2. Design Development: LEED credit targeting and documentation kick-off
3. Construction: Implement strategies, track credits, and submit LEED submittals
4. Commissioning: Execute enhanced commissioning and monitor energy systems
5. Certification: Submit LEED documentation to GBCI and respond to review comments

5. Additional Resources

- LEED v4.1 BD+C Reference Guide for Data centres
- ASHRAE 90.1-2016 and ASHRAE 90.4-2016 Standards
- LEED Interpretation #10465 for data centre energy modelling
- Energy Star Portfolio Manager for Data Centres

6. Credit Strategy Overview

The table below outlines the predicted target of this scheme, outlining the requirements and evidence required to achieve a target of 71 points to achieve a score of over 60 points to achieve LEED Gold.

This table will be reviewed with the design team in a workshop to confirm if compliance can be met where possible. We will aim for a target of at least 65 points, with a 5-point buffer, to ensure LEED Gold is achieved for any scheme. This scheme has a buffer of 11 points. Where credits are lost over the course of the project that takes us below this buffer, the potential credits will need to be considered to make up for the loss of credits.

See the full table below:

CIRCLE SUSTAINABILITY

Project:	Latos Manchester East data centre
Report:	Design Stage
Design Target: Gold (60-79)	71 Points
Potential Rating: Platinum	86 Points

Credit	Compliance Requirements	Evidence Required	Available	Target	Achieved	Potential
Integrated Process	Perform a preliminary energy modelling analysis before the completion of schematic design that explores how to reduce energy loads in the building and accomplish related goals. Assess at least two potential strategies assocaited with the following: Site condition, Massing and Orientation, Basic envelope attributes, lighting levels, thermal comfort ranges, plug and process load needs, programmatic and operational parameters. AND Perform a preliminary water budget analysis before the completuon of the schematic design stage that explore how to reduce potable water loads in the building and accomplish related sustainability goals. Assess and estiamte the projects potential nonpotable water supply sources and water demand volumnes inclduing the following: Indoor water demand, outdoor water demand, process water demand and supply sources.	Document how the analysis informed the design and building form decisions in the projects OPR and BOD and the eventual design of the project including the following: Building and site program, building form and geomertry, building envelope and façade treatement on different orientations, elimination and or signification downsizing of building systems, other sytems AND Document how the analysis informed the builing and site design decisions in the projects OPR and BOD. Demonstrate how at least one on-sire nonpotable water supply source was used to reduce the burder on municipal supply or waste water treatment systems by contributing to at least two of the water demand components listed. Demonstrate how the analysis informed the desin of the project including: plumbing systems, sewage conveyance and quality management, landscaping and irregation and site elements, roofing system and or building geomertry and other systems.	1	0	0	0
Location and Transportation Overview		**Evidence Required**	**Available**	**Target**	**Achieved**	**Potential**
Sensitive Land Protection	Locate the development on previously occupied land OR Locate the development on land that doesn't meet the following criteria for sensitive land Prime farmland, floodplains, habitiat, water bodies, wetlands	Site map(s) showing project boundary, development footprint, any previous development, any sensitive areas, and any minor improvements in required buffers Explanation of the previous development on the site Description of how the project team verified prime farmland and sensitive habit criteria	1	1	0	0

High- Priority Site	**Option 1. Historic District (1 point BD+C except Core and Shell, 2 points Core and Shell)** Locate the project on an infill location in a historic district. OR **Option 2. Priority Designation (1 point BD+C except Core and Shell, 2 points Core and Shell).** Locate the project on one of the following: · a site listed by the EPA National Priorities List; . a Federal Empowerment Zone site; · a Federal Enterprise Community site; · a Federal Renewal Community site; · a Department of the Treasury Community Development Financial Institutions Fund Qualified Low-Income Community (a subset of the New Markets Tax Credit Program); · a site in a U.S. Department of Housing and Urban Development's Qualified Census Tract (QCT) or Difficult Development Area (DDA); or · a local equivalent program administered at the national level for projects outside the U.S. OR **Option 3. Brownfield Remediation (2 points BD+C except Core and Shell, 3 points Core and Shell)** Locate on a brownfield where soil or groundwater contamination has been identified, and where the local, state, or national authority (whichever has jurisdiction) requires its remediation. Perform remediation to the satisfaction of that authority.	**Option 1** Vicinity map indicating previously developed land within ½ mile (800 meters) of project boundary Document from historic preservation entity confirming location in historic district **Option 2** Vicinity map or other documentation confirming priority site designation **Option 3** Documentation from authority having jurisdiction declaring existence of specific contamination and confirming that remediation has been or will be completed to its satisfaction	1	0	0	1

Surrounding Density and Diverse Uses	**Option 2. Transportation Resources (1–2 points)** Construct or renovate the project on a site that has two or three (1 point) or four (2 points) of the following transportation resources: · The site is within a 10-mile (16 kilometer) driving distance of a main logistics hub, defined as an airport, seaport, intermodal facility, or freight village with intermodal transportation. · The site is within a 1-mile (1 600-meter) driving distance of an on-off ramp to a highway. · The site is within a 1-mile (1 600-meter) driving distance of an access point to an active freight rail line. · The site is served by an active freight rail spur. In all cases, a planned transportation resource must be sited, funded, and under construction by the date of the certificate of occupancy and complete within 24 months of that date..	Area plan or map showing project site and location of existing residential and non-residential buildings within ¼-mile (400-meter) radius of project site Description of the previous development on the site Area plan or map showing project site, location and type of each use, and walking routes	5	1	0	0
Access to Quality Transit	Locate any functional entry of the project within a 1/4-mile (400-meter) walking distance of existing or planned bus, streetcar, or rideshare stops, or within a 1/2-mile (800-meter) walking distance of existing or planned bus rapid transit stops, light or heavy rail stations, commuter rail stations, or commuter ferry terminals. The transit service at those stops and stations in aggregate must meet the minimums listed in Tables 1 and 2. Planned stops and stations may count if they are sited, funded, and under construction by the date of the certificate of occupancy and are complete within 24 months of that date. Both weekday and weekend trip minimums must be met. · Qualifying transit routes must have paired route service (service in opposite directions). · For each qualifying transit route, only trips in one direction are counted towards the threshold. · If a qualifying transit route has multiple stops within the required walking distance, only trips from one stop are counted towards the threshold.	Map showing project, project boundary, transit stop locations, and walking routes and distances to those stops Timetables or other service-level documentation If applicable, documentation of planned transit or restoration of temporarily rerouted service Option 2 - Map showing walkshed boundary	5	5	0	0
Bicycle Facilities	Design or locate the project such that a functional entry or bicycle storage is within a 200-yard (180-meter) walking distance or bicycling distance from a bicycle network that connects to at least one of the following: · at least 10 diverse uses (see Appendix 1); · a school or employment center, if the project total floor area is 50% or more residential; or · a bus rapid transit stop, light or heavy rail station, commuter rail station, or ferry terminal. All destinations must be within a 3-mile (4800-meter) bicycling distance of the project boundary. Planned bicycle trails or lanes may be counted if they are fully funded by the date of the certificate of occupancy and are scheduled for completion within one year of that date.	Vicinity map showing bicycle network and route and distance along network to eligible destination(s) Site plan showing bicycle storage locations Calculations for storage and shower facilities	1	0	0	0

	Bicycle Storage and Shower Rooms **Case 1. Commercial or Institutional Projects** Provide short-term bicycle storage for at least 2.5% of all peak visitors, but no fewer than four storage spaces per building. Provide long-term bicycle storage for at least 5% of all regular building occupants, but no fewer than four storage spaces per building in addition to the short-term bicycle storage spaces. Provide at least one on-site shower with changing facility for the first 100 regular building occupants and one additional shower for every 150 regular building occupants thereafter.					
Reduced Parking Footprint	Do not exceed the minimum local code requirements for parking capacity. Provide parking capacity that is a percentage reduction below the base ratios recommended. **Case 1. Baseline Location** Projects that have not earned points under LT Credit Surrounding Density and Diverse Uses or LT Credit Access to Quality Transit must achieve a 20% reduction from the base ratios. **Case 2. Dense and/or Transit-Served Location** Projects earning 1 or more points under either LT Credit Surrounding Density and Diverse Uses or LT Credit Access to Quality Transit must achieve a 40% reduction from the base ratios.	Site plan indicating parking areas and preferred parking spaces Calculations demonstrating threshold achievement Drawings or photographs of signage or pavement markings indicating reserved status of preferred parking areas	1	1	0	0

Green Vehicles	Install electrical vehicle supply equipment (EVSE) in 2% of all parking spaces used by the project. Clearly identify and reserve these spaces for the sole use by plug-in electric vehicles. EVSE parking spaces must be provided in addition to preferred parking spaces for green vehicles. The EVSE must: · Provide a Level 2 charging capacity (208 – 240 volts) or greater. · Comply with the relevant regional or local standard for electrical connectors, such as SAE Surface Vehicle Recommended Practice J1772, SAE Electric Vehicle Conductive Charge Coupler or IEC 62196 of the International Electrotechnical Commission for projects outside the U.S. · Be networked or internet addressable and be capable of participating in a demand-response program or timeof-use pricing to encourage off-peak charging.	Parking or site plan indicating main building entrance, preferred parking spaces, and alternative-fuel fueling stations; calculations based on total parking capacity For preferred parking spaces, photographs of signage or pavement marking For electric vehicle charging spaces, photographs of signage or pavement marking For discounted parking rate, copy of communication to building occupants or photograph of signage For electrical connectors, manufacturers' product specifications indicating charge level, compliance with relevant standard, and Internet addressability	1	1	0	0
Sustainable Sites						
Construction Activity Pollution Prevention - Prerequisite	Create and implement an erosion and sedimentation control plan for all construction activities associated with the project. The plan must conform to the erosion and sedimentation requirements of the 2012 U.S. Environmental Protection Agency (EPA) Construction General Permit (CGP) or local equivalent, whichever is more stringent. Projects must apply the CGP regardless of size. The plan must describe the measures implemented.	Description of compliance with EPA CGP For zero lot line projects and projects with minimal or no exterior work: Description of special conditions and compliance with any applicable ESC measures Comparison of local standards and codes with EPA CGP Description of how project complies with local standards and codes Drawings depicting erosion and sedimentation control measures implemented Written declaration from general contractor or builder who implemented plan OR Date-stamped photos OR A description of plan implementation.	**Prerequisite**			

Site Assessment	Complete and document a site survey or assessment1 that includes the following information: · Topography .Contour mapping, unique topographic features, slope stability risks. · Hydrology. Flood hazard areas, delineated wetlands, lakes, streams, shorelines, rainwater collection and reuse opportunities, TR-55 initial water storage capacity of the site (or local equivalent for projects outside the U.S.). · Climate. Solar exposure, heat island effect potential, seasonal sun angles, prevailing winds, monthly precipitation and temperature ranges. · Vegetation. Primary vegetation types, greenfield area, significant tree mapping, threatened or endangered species, unique habitat, invasive plant species. · Soils. Natural Resources Conservation Service soils delineation, U.S. Department of Agriculture prime farmland, healthy soils, previous development, disturbed soils (local equivalent standards may be used for projects outside the U.S.). · Human use. Views, adjacent transportation infrastructure, adjacent properties, construction materials with existing recycle or reuse potential. · Human health effects. Proximity of vulnerable populations, adjacent physical activity opportunities, proximity to major sources of air pollution. The survey or assessment should demonstrate the relationships between the site features and topics listed above and how these features influenced the project design; give the reasons for not addressing any of those topics.	Site survey or assessment plan or map Site assessment	1	0	0	1
Site Development - Protect or Restore Habitat	**Option 1: Not feasible due to BNG loss on site.** **Option 2. Financial Support (1 point)** Provide financial support equivalent to at least $0.40 per square foot (US$4 per square meter) for the total site area (including the building footprint). Financial support must be provided to a nationally or locally recognized land trust or conservation organization within the same EPA Level III ecoregion or the project's state (or within 100 miles of the project [160 kilometers] for projects outside the U.S.). For U.S. projects, the land trust must be accredited by the Land Trust Alliance.	**All projects** . Greenfield area calculations . Description of greenfield area protection (if applicable) **Option 2** . Financial support calculations . Agreement with land trust or conservation organization . U.S. projects: Confirmation that land trust is accredited by Land Trust Alliance . Projects outside U.S.: Verification that conservation organization is nationally or locally recognized; description of qualifications and mission of conservation organization	2	1	0	0

Open Space	Provide outdoor space greater than or equal to 30% of the total site area (including building footprint). A minimum of 25% of that outdoor space must be vegetated (turf grass does not count as vegetation) or have overhead vegetated canopy. The outdoor space must be physically accessible and be one or more of the following: · a pedestrian-oriented paving or turf area with physical site elements that accommodate outdoor social activities; · a recreation-oriented paving or turf area with physical site elements that encourage physical activity; · a garden space with a diversity of vegetation types and species that provide opportunities for year-round visual interest; · a garden space dedicated to community gardens or urban food production; · preserved or created habitat that meets the criteria of SS Credit Site Development—Protect or Restore Habitat and also includes elements of human interaction. For projects that achieve a density of 1.5 floor-area ratio (FAR), and are physically accessible, extensive or intensive vegetated roofs can be used toward the minimum 25% vegetation requirement, and qualifying roof-based physically accessible paving areas can be used toward credit compliance. Wetlands or naturally designed ponds may count as open space if the side slope gradients average 1:4 (vertical : horizontal) or less and are vegetated.	**All projects** . Site plan that indicates project boundary and campus or master plan boundary (if applicable), highlighting location and size of any open spaces, vegetated areas, plant species, wetlands or naturalistic man-made ponds (with side slopes noted), and vegetated roofs . Open space and vegetated area calculations . Description of how open space is physically accessible and meets area type criteria **Projects with vegetated roofs** **.** Floor-area ratio	1	0	0	0

Rain Water Management	**Option 1. Percentile of Rainfall Events Path 1. 95th Percentile (2 points except Healthcare, 1 point Healthcare)** In a manner best replicating natural site hydrology processes, manage on site the runoff from the developed site for the 95th percentile of regional or local rainfall events using low-impact development (LID) and green infrastructure. Use daily rainfall data and the methodology in the U.S. Environmental Protection Agency (EPA) Technical Guidance on Implementing the Stormwater Runoff Requirements for Federal Projects under Section 438 of the Energy Independence and Security Act to determine the 95th percentile amount. OR Path 2. 98th Percentile (3 points except Healthcare, 2 points Healthcare) Achieve Path 1 but for the 98th percentile of regional or local rainfall events, using LID and green infrastructure.	**All Projects** . Rainfall data . Rainfall events calculator or calculations for the chosen percentile storm . Runoff volume calculations X Plans, details, or cross sections depicting site conditions and GI or LID strategies, highlighting topography, direction of water flow, and area of site that each facility addresses . Narrative confirming measures qualifyas GI or LID . Calculations for volume of rainwater managed by GI or LID strategies . Explanation for why 10 years of historic rainfall data are not available for the project location (if applicable) . Multitenant complex projects only:summary of centralized approach and associated distributed techniques	3	2	0	0

Heat Island Reduction	**Option 1. Nonroof and Roof (2 points except Healthcare, 1 point Healthcare)** Meet the following criterion: Alternatively, an SRI and SR weighted average approach may be used to calculate compliance. Use any combination of the following strategies. **Nonroof Measures** · Use the existing plant material or install plants that provide shade over paving areas (including playgrounds) on the site within 10 years of planting. Install vegetated planters. Plants must be in place at the time of occupancy permit and cannot include artificial turf. · Provide shade with structures covered by energy generation systems, such as solar thermal collectors, photovoltaics, and wind turbines. · Provide shade with architectural devices or structures that have a three-year aged solar reflectance (SR) value of at least 0.28. If three-year aged value information is not available, use materials with an initial SR of at least 0.33 at installation. · Provide shade with vegetated structures. · Use paving materials with a three-year aged solar reflectance (SR) value of at least 0.28. If three-year aged value information is not available, use materials with an initial SR of at least 0.33 at installation. · Use an open-grid pavement system (at least 50% unbound). **High-Reflectance Roof** Use roofing materials that have an SRI equal to or greater than the values in Table 1. Meet the three-year aged SRI value. If three-year aged value information is not available, use materials that meet the initial SRI value. **Vegetated Roof** Install a vegetated roof.	**Option 1** . Nonroof and roof area calculations . Site plan(s) with elements and measurements, including LEED project boundary, building footprint, roof and hardscape area, and area of each roof and nonroof measure . Manufacturer's documentation of SRI, SR, and paving permeability **Option 2** . Manufacturer's documentation of SRI, SR, and paving permeability . Parking space calculations	2	2	0	0
Light Pollution Reduction	Meet uplight and light trespass requirements, using either the backlight-uplight-glare (BUG) method (Option 1) or the calculation method (Option 2). Projects may use different options for uplight and light trespass. Meet these requirements for all exterior luminaires located inside the project boundary (except those listed under "Exemptions"), based on the following: · the photometric characteristics of each luminaire when mounted in the same orientation and tilt as specified in the project design; and · the lighting zone of the project property (at the time construction begins). Classify the project under one lighting zone using the lighting zones definitions provided in the Illuminating Engineering Society and International	**All projects** . Site lighting plan with boundaries, elements, location of fixtures, and applicable measurements . Projects with internally illuminated exterior signage only: provide maximum luminance data **Option 1: Uplight** . Luminaire schedule showing uplight ratings **Option 1 Light Traspass** . Luminaire schedule showing backlight and glare ratings and	1	1	0	0

	Dark Sky Association (IES/IDA) Model Lighting Ordinance (MLO) User Guide. Additionally, meet the internally illuminated signage requirement. **<u>Uplight</u>** **Option 1. BUG Rating Method** Do not exceed the following luminaire uplight ratings, based on the specific light source installed in the luminaire, as defined in IES TM-15-11, Addendum A. **Option 2. Calculation Method** Do not exceed the following percentages of total lumens emitted above horizontal. AND **<u>Light Trespass</u>** **Option 1. BUG Rating Method** Do not exceed the following luminaire backlight and glare ratings (based on the specific light source installed in the luminaire), as defined in IES TM-15-11, Addendum A, based on the mounting location and distance from the lighting boundary The lighting boundary is located at the property lines of the property, or properties, that the LEED project occupies. The lighting boundary can be modified under the following conditions: · When the property line is adjacent to a public area that is a walkway, bikeway, plaza, or parking lot, the lighting boundary may be moved to 5 feet (1.5 meters) beyond the property line. · When the property line is adjacent to a public street, alley, or transit corridor, the lighting boundary may be moved to the center line of that street, alley, or corridor. · When there are additional properties owned by the same entity that are contiguous to the property, or properties, that the LEED project is within and have the same or higher MLO lighting zone designation as the LEED project, the lighting boundary may be expanded to include those properties. Orient all luminaires less than two mounting heights from the lighting boundary such that the backlight points toward the nearest lighting boundary line. Building-mounted luminaires with the backlight oriented toward the	mounting heights **Option 2 Uplight** . Calculations for lumens per luminaire and lumens emitted above horizontal **Option 2 Tresspass** . Greatest vertical illuminance value for each vertical calculation plane at lighting boundary; calculation grid for one vertical plane with greatest vertical illuminance (worst-case scenario), highlighting point of greatest illuminance				

	building are exempt from the backlight rating requirement. OR **Option 2. Calculation Method** Do not exceed the following vertical illuminances at the lighting boundary (use the definition of lighting boundary in Option 1). Calculation points may be no more than 5 feet (1.5 meters) apart. Vertical illuminances must be calculated on vertical planes running parallel to the lighting boundary, with the normal to each plane oriented toward the property and perpendicular to the lighting boundary, extending from grade level to 33 feet (10 meters) above the height of the highest luminaire. AND Internally Illuminated Exterior Signage Do not exceed a luminance of 200 cd/m2 (nits) during nighttime hours and 2000 cd/m2 (nits) during daytime hours. Exemptions from Uplight and Light Trespass Requirements The following exterior lighting is exempt from the requirements, provided it is controlled separately from the nonexempt lighting: · specialized signal, directional, and marker lighting for transportation; · lighting that is used solely for façade and landscape lighting in MLO lighting zones 3 and 4, and is automatically turned off from midnight until 6 a.m.; · lighting for theatrical purposes for stage, film, and video performances; · government-mandated roadway lighting; · hospital emergency departments, including associated helipads; · lighting for the national flag in MLO lighting zones 2, 3, or 4; and · internally illuminated signage.					
Water Efficiency						

Outdoor Water Use Reduction - Prerequisite	**Option 1. No Irrigation Required** Show that the landscape does not require a permanent irrigation system beyond a maximum two-year establishment period. OR **Option 2. Reduced Irrigation** Reduce the project's landscape water requirement by at least 30% from the calculated baseline for the site's peak watering month. Reductions must be achieved through plant species selection and irrigation system efficiency, as calculated by the Environmental Protection Agency (EPA) WaterSense Water Budget Tool.	**Option 1** . Site plan showing vegetated areas . Narrative for plant species and water requirements **Option 2** . Site plan showing location and size of landscape zones . Water Budget Tool report	**Prerequisite**			
Indoor Water Use Reducation - Prerequisiste	For the fixtures and fittings listed in Table 1, as applicable to the project scope, reduce aggregate water consumption by 20% from the baseline. Base calculations on the volumes and flow rates shown in Table 1.	Product cutsheets, manufacturers' information Indoor water use calculator	**Prerequisite**			
Building-Level Water Metering - Prerequisite	Install permanent water meters that measure the total potable water use for the building and associated grounds. Meter data must be compiled into monthly and annual summaries; meter readings can be manual or automated. Commit to sharing with USGBC the resulting whole-project water usage data for a five-year period beginning on the date the project accepts LEED certification or typical occupancy, whichever comes first. This commitment must carry forward for five years or until the building changes ownership or lessee	Meter declaration Sharing commitment	**Prerequisite**			
Outdoor Water Use Reduction	Option 1. No Irrigation Required (2 points except Healthcare, 1 point Healthcare) Show that the landscape does not require a permanent irrigation system beyond a maximum two-year establishment period. OR Option 2. Reduced Irrigation (2 points except Healthcare, 1 point Healthcare) Reduce the project's landscape water requirement (LWR) by at least 50% from the calculated baseline for the site's peak watering month. Reductions must first be achieved through plant species selection and irrigation system efficiency as calculated in the Environmental Protection Agency (EPA) WaterSense Water Budget Tool. Additional reductions beyond 30% may be achieved using any combination of efficiency, alternative water sources, and smart scheduling technologies	Alternative water source calculations (if applicable) x Plumbing system design drawings (if applicable) x Alternative water narrative x Cutsheets, manufacturers' information x x x Indoor water use calculator	2	2	0	0

Indoor Water Use Reduction	Reduce water use 6 points are targeted this would need a 50% reduction	Product cutsheets, manufacturers' information Indoor water use calculator Tenant lease agreement Tenant scope of work narrative	6	6	0	0
Cooling Tower Water Use	For cooling towers and evaporative condensers, conduct a one-time potable water analysis, measuring at least the five control parameters listed in Table 1. For projects without cooling towers or evaporative condensers, projects may earn full credit if all conditions are met: } the baseline system designated for the building using ASHRAE 90.1-2016 Appendix G Table G3.1.1 includes a cooling tower (systems 7 & 8) } the project design case does not include a cooling tower } the design case mechanical system does not use the latent heat of the evaporative cooling of water. } the project does not receive any cooling from a District cooling system All other system types are ineligible for credi	**1 point** . Potable water analysis results . Potable water analysis narrative . Cycles of concentration calculations **2 points also requires the following in addition** . Nonpotable water calculations . Water treatment calculations . Nonpotable water analysis (if using 100% nonpotable water	2	2	0	0

Water Metering	Install permanent water meters for two or more of the following water subsystems, as applicable to the project: · **Irrigation**. Meter water systems serving at least 80% of the irrigated landscaped area. Calculate the percentage of irrigated landscape area served as the total metered irrigated landscape area divided by the total irrigated landscape area. Landscape areas fully covered with xeriscaping or native vegetation that requires no routine irrigation may be excluded from the calculation. · **Indoor plumbing fixtures and fittings**. Meter water systems serving at least 80% of the indoor fixtures and fitting described in WE Prerequisite Indoor Water Use Reduction, either directly or by deducting all other measured water use from the measured total water consumption of the building and grounds. · **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). · Boiler with aggregate projected annual water use of 100,000 gallons (378 500 liters) or more, or boiler of more than 500,000 BtuH (150 kW). A single makeup meter may record flows for multiple boilers. · **Reclaimed wate**r. Meter reclaimed water, regardless of rate. A reclaimed water system with a makeup water connection must also be metered so that the true reclaimed water component can be determined. · **Other process water**. Meter at least 80% of expected daily water consumption for process end uses, such as humidification systems, dishwashers, clothes washers, pools, and other subsystems using process water.	Water metering strategy narrative	1	1	0	0
Energy and Atmosphere						

Fundamental Comissioning and Verificaiton - **Prerequisite**	**Commissioning Process** Scope Complete the following commissioning (Cx) process activities for mechanical, electrical, plumbing, and renewable energy systems and assemblies, in accordance with ASHRAE Guideline 0-2005 and ASHRAE Guideline 1.1–2007 for HVAC&R Systems, as they relate to energy, water, indoor environmental quality, and durability. Requirements for exterior enclosures are limited to inclusion in the owner's project requirements (OPR) and basis of design (BOD), as well as the review of the OPR, BOD and project design. NIBS Guideline 3-2012 for Exterior Enclosures provides additional guidance. · Develop the OPR. · Develop a BOD. The commissioning authority (CxA) must do the following: · Review the OPR, BOD, and project design. · Develop and implement a Cx plan. · Confirm incorporation of Cx requirements into the construction documents. · Develop construction checklists. · Develop a system test procedure. · Verify system test execution. · Maintain an issues and benefits log throughouttheCx process. · Prepare a finalCx process report. · Document all findings and recommendations and report directly to the ownerthroughoutthe process. The reviewofthe exterior enclosure design may be performed by a qualified member ofthe design or construction team (or an employee ofthat firm)who is not directly responsible for design ofthe building envelope **Data Centers only** For small projects with computer room peak cooling loads less than 2,000,000 Btu/h (600 kW) or a total computer room peak cooling load less than 600,000 Btu/h (175 kW),theCxA may be a qualified employee ofthe design or construction team.	CxA previous experience Confirmation of OPR and BOD contents List of systems to be commissioned Verification of CxA activities and reviews Cx plan Documentation of testing and verification CFR, O&M plan Cx report	**Prerequisite**

Minimum Energy Performance - Prerequisite	**Data Centres** Whole-Building Energy Simulation Demonstrate a 5% improvement in the proposed performance rating over the baseline performance rating. To determine total energy cost savings, create two models, one for building energy cost and the other for IT equipment energy cost. Calculate the baseline building performance according to ANSI/ASHRAE/IESNA Standard 90.1–2010, Appendix G, with errata (or a USGBC-approved equivalent standard for projects outside the U.S.), using a simulation model for the whole building and data center modeling guidelines. Determine the power utilization effectiveness (PUE) value of the proposed design. For this prerequisite, a minimum of 2% of the 5% energy savings must come from building power and cooling infrastructure. Projects must meet the minimum percentage savings before taking credit for renewable energy systems. The proposed design must meet the following criteria: · compliance with the mandatory provisions of ANSI/ASHRAE/IESNA Standard 90.1–2010, with errata (or a USGBC-approved equivalent standard for projects outside the U.S.); · inclusion of all energy consumption and costs within and associated with the building project; and · comparison against a baseline building that complies with ANSI/ASHRAE/IESNA Standard 90.1–2010, Appendix G, with errata (or a USGBC-approved equivalent standard for projects outside the U.S.), and data center modeling guidelines. For data centers, regulated energy includes cooling units for computer and data processing rooms, critical power conditioning equipment, critical distribution equipment, heat rejection plants, and mechanical and electrical support rooms. Include in process loads both the unregulated load and the IT equipment load. The IT load comprises critical systems and electrical power transformation, which may include servers, storage and networking power use, and operations affecting monthly server CPU utilization percentages. Develop two sets of IT load models using two scenarios, one at the maximum estimated IT load rating and the second at the startup IT rating expected at the time of commissioning. Document the energy modeling input assumptions for unregulated loads. Unregulated loads should be modeled accurately to reflect the actual expected energy consumption of the building. If unregulated loads are not identical for both the baseline and the proposed building performance rating, and the simulation model cannot accurately model the savings, follow the exceptional calculation method (ANSI/ASHRAE/ IESNA Standard 90.1–2010, G2.5) to document measures that reduce unregulated load	Appendix G energy modeling inputs x Input-output reports from modeling software Exceptional calculations (if applicable) Energy consumption and demand for each building end use and fuel type Fuels rates AEDG compliance tables Target Finder results, summary x Confirmation that all aspects of CPG Sections 1 and 2 were met x Building configuration analysis Building loads and mechanical system design capacity x Insulation installation details x Building envelope details Domestic hot water efficiency x Narrative or calculations for CPG enhanced performance strategies x Data center calculator (if applicable)	**Prerequisite**

Building - Level Energy Metering - Prerequisite	Install new or use existing building-level energy meters, or submeters that can be aggregated to provide buildinglevel data representing total building energy consumption (electricity, natural gas, chilled water, steam, fuel oil, propane, biomass, etc). Utility-owned meters capable of aggregating building-level resource use are acceptable. Commit to sharing with USGBC the resulting energy consumption data and electrical demand data (if metered) for a five-year period beginning on the date the project accepts LEED certification. At a minimum, energy consumption must be tracked at one-month intervals. This commitment must carry forward for five years or until the building changes ownership or lessee.	Confirmation of permanently installed meters Letter of commitment Confirmation of data sharing source	**Prerequisite**			
Fundamental Refrigerant Management - Prerequisite	Do not use chlorofluorocarbon (CFC)-based refrigerants in new heating, ventilating, air-conditioning, and refrigeration (HVAC&R) systems. When reusing existing HVAC&R equipment, complete a comprehensive CFC phase-out conversion before project completion. Phase-out plans extending beyond the project completion date will be considered on their merits. Existing small HVAC&R units (defined as containing less than 0.5 pound [225 grams] of refrigerant) and other equipment, such as standard refrigerators, small water coolers, and any other equipment that contains less than 0.5 pound (225 grams) of refrigerant, are exempt.	Equipment type Refrigerant type CFC conversion or replacement plan Refrigerant leakage rate, quantity Phase-out completion date Confirmation that no new or existing equipment contains CFCs	**Prerequisite**			
Enhance Commissioning	Implement, or have in place a contract to implement, the following commissioning process activities in addition to those required under EA Prerequisite Fundamental Commissioning and Verification. **Path 1: Enhanced Commissioning (3 points)** Complete the following commissioning process (CxP) activities for mechanical, electrical, plumbing, and renewable energy systems and assemblies in accordance with ASHRAE Guideline 0–2005 and ASHRAE Guideline 1.1–2007 for HVAC&R systems, as they relate to energy, water, indoor environmental quality, and durability. The commissioning authority must do the following: · Review contractor submittals. · Verify inclusion of systems manual requirements in construction	List of all tasks completed as part of Cx activities Training outline and participation list Confirmation of systems manual delivery Ongoing Cx plan Inclusion of monitoring and tracking in Cx plan Inclusion of envelope in Cx plan Verification of additional reviews per Data Center requirements (data centers only)	6	3	0	1

	documents. · Verify inclusion of operator and occupant training requirements in construction documents. · Verify systems manual updates and delivery. · Verify operator and occupant training delivery and effectiveness. · Verify seasonal testing. · Review building operations 10 months after substantial completion. · Develop an on-going commissioning plan. Include all enhanced commissioning tasks in the OPR and BOD. OR **Path 2: Enhanced and Monitoring-Based Commissioning (4 points)** Achieve Path 1. AND Develop monitoring-based procedures and identify points to be measured and evaluated to assess performance of energy- and water-consuming systems. Include the procedures and measurement points in the commissioning plan. Address the following: · roles and responsibilities; · measurement requirements (meters, points, metering systems, data access); · the points to be tracked, with frequency and duration for trend monitoring; · the limits of acceptable values for tracked points and metered values (where appropriate, predictive algorithms may be used to compare ideal values with actual values); · the elements used to evaluate performance, including conflict between systems, out-of-sequence operation of systems components, and energy and water usage profiles; · an action plan for identifying and correcting operational errors and deficiencies; · training to prevent errors; · planning for repairs needed to maintain performance; and · the frequency of analyses in the first year of occupancy (at least quarterly). Update the systems manual with any modifications or new settings, and give the reason for any modifications from the original design. AND/OR **Option 2. Envelope Commissioning (2 points)** Fulfill the requirements in EA Prerequisite Fundamental Commissioning and Verification as they apply to the building's thermal envelope in addition to mechanical and electrical systems and assemblies.					

	Complete the following commissioning process (CxP) activities for the building's thermal envelope in accordance with ASHRAE Guideline 0–2005 and the National Institute of Building Sciences (NIBS) Guideline 3–2012, Exterior Enclosure Technical Requirements for the Commissioning Process, as they relate to energy, water, indoor environmental quality, and durability. Commissioning authority must complete the following: · Review contractor submittals. · Verify inclusion of systems manual requirements in construction documents. · Verify inclusion of operator and occupant training requirements in construction documents. · Verify systems manual updates and delivery. · Verify operator and occupant training delivery and effectiveness. · Verify seasonal testing. · Review building operations 10 months after substantial completion. · Develop an on-going commissioning plan. **Data Centers only** Projects that select Option 1 must complete the following commissioning process. For small projects with peak cooling loads less than 2,000,000 Btu/h (600 kW), or a total computer room peak cooling load less than 600,000 Btu/h (175 kW), the CxA must perform the following activities: · conduct at least one commissioning verification review of the owner's project requirements, basis of design, and design documents before mid-construction documents development; · back-check the review comments in all subsequent design submissions; and · conduct an additional full verification review at 95% completion of the design documents and basis of design.					
Optimise Energy Performance	Establish an energy performance target no later than the schematic design phase. The target must be established as kBtu per square foot-year (kW per square meter-year) of source energy use. **Option 1. Whole-Building Energy Simulation (1–18 points)** Analyze efficiency measures during the design process and account for the results in design decision making. Use energy simulation of efficiency opportunities, past energy simulation analyses for similar buildings, or published data (e.g., Advanced Energy Design Guides) from analyses for similar buildings.	Appendix G energy modeling inputs Input and output reports from modeling software Renewable energy (if applicable) Exceptional calculations (if applicable) Target Finder results and summary Energy consumption and demand for each building end use and fuel	18	12	0	2

	Analyze efficiency measures, focusing on load reduction and HVAC-related strategies (passive measures are acceptable) appropriate for the facility. Project potential energy savings and holistic project cost implications related to all affected systems. Energy and atmosphere credit Optimize Energy Performance This credit applies to: New Construction (1–18 points) Core and Shell (1–18 points) Schools (1–16 points) Retail (1–18 points) Data Centers (1–18 points) Warehouses and Distribution Centers (1–18 points) Hospitality (1–18 points) Healthcare (1–20 points) 406LEED Reference Guide for BUILDING Design AND Construction EA Project teams pursuing the Integrative Process credit must complete the basic energy analysis for that credit before conducting the energy simulation. Follow the criteria in EA Prerequisite Minimum Energy Performance to demonstrate a percentage improvement in the proposed building performance rating compared with the baseline. Points are awarded according to Table 1. **Data Centres** Whole-Building Energy Simulation Analyze efficiency measures focused on IT load reduction and HVAC-related strategies (air-side economizers, hot aisle–cold aisle, etc.). Project the potential energy savings and cost implications for all affected systems. Follow the criteria in EA Prerequisite Minimum Energy Performance to demonstrate a percentage improvement in the proposed performance rating compared with the baseline. Use energy cost savings from both the building and IT to determine the total percentage reduction	type Fuels rates AEDG compliance tables				

Advance Energy Metering	Install advanced energy metering for the following: · all whole-building energy sources used by the building; and · any individual energy end uses that represent 10% or more of the total annual consumption of the building. The advanced energy metering must have the following characteristics. · Meters must be permanently installed, record at intervals of one hour or less, and transmit data to a remote location. · Electricity meters must record both consumption and demand. Whole-building electricity meters should record the power factor, if appropriate. · The data collection system must use a local area network, building automation system, wireless network, or comparable communication infrastructure. · The system must be capable of storing all meter data for at least 36 months. · The data must be remotely accessible. · All meters in the system must be capable of reporting hourly, daily, monthly, and annual energy use. **Data Centers** IT energy consumption, as measured from an uninterruptible power supply (UPS) output meter, should be metered separately from non-IT equipment, such as HVAC, plug loads, and lighting. If the UPS system supports non-IT loads that amount to more than 10% of its load, such as lighting or cooling, this non-IT load should also be submetered. This guidance is derived from ENERGY STAR and applies to data center buildings as well as commercial buildings that contain large data centers.	List of all advanced meters to be installed, including type, energy source metered Manufacturers' cutsheets	1	1	0	0

Demand Response	Design building and equipment for participation in demand response programs through load shedding or shifting. On-site electricity generation does not meet the intent of this credit. **Case 1. Demand Response Program Available (2 points)** · Participate in an existing demand response (DR) program and complete the following activities. Design a system with the capability for real-time, fully-automated DR based on external initiation by a DR Program Provider. Semi-automated DR may be utilized in practice. · Enroll in a minimum one-year DR participation amount contractual commitment with a qualified DR program provider, with the intention of multiyear renewal, for at least 10% of the estimated peak electricity demand. Peak demand is determined under EA Prerequisite Minimum Energy Performance. · Develop a comprehensive plan for meeting the contractual commitment during a Demand Response event. · Include the DR processes in the scope of work for the commissioning authority, including participation in at least one full test of the DR plan **Case 2. Demand Response Program Not Available (1 point)** Provide infrastructure to take advantage of future demand response programs or dynamic, real-time pricing programs and complete the following activities. · Install interval recording meters with communications and ability for the building automation system to accept an external price or control signal. · Develop a comprehensive plan for shedding at least 10% of building estimated peak electricity demand. Peak demand is determined under EA Prerequisite Minimum Energy Performance. · Include the DR processes in the scope of work for the commissioning authority, including participation in at least one full test of the DR plan. · Contact local utility representatives to discuss participation in future DR programs.	Proof of enrollment in DR program Evidence of ability to shed 10% of peak demand Confirmation that system is capable of receiving and acting on external signal Action plan for meeting reduction requirement during event Inclusion of DR in CxA systems testing plan	2	1	0	1

Renewable Energy Production	Use renewable energy systems to offset building energy costs. Calculate the percentage of renewable energy with the following equation: % renewable energy = Equivalent cost of usable energy produced by the renewable energy system/ Total building annual energy cost Use the building's annual energy cost, calculated in EA Prerequisite Minimum Energy Performance, if Option 1 was pursued; otherwise use the U.S. Department of Energy's Commercial Buildings Energy Consumption Survey (CBECS) database to estimate energy use and cost. The use of solar gardens or community renewable energy systems is allowed if both of the following requirements are met. · The project owns the system or has signed a lease agreement for a period of at least 10 years. · The system is located with the same utility service area as the facility claiming the use. Credit is based on the percentage of ownership or percentage of use assigned in the lease agreement. Points are awarded according to Table 1.	Renewable system rated capacity Calculations to determine energy generated Equivalent cost of renewable energy produced Documentation of annual energy costs Contract indicating duration Documentation indicating percentage owned or leased of community system	5	4	0	1
Enhance Refrigerant Management	**Option 1. No Refrigerants or Low-Impact Refrigerants (1 point)** Do not use refrigerants, or use only refrigerants (naturally occurring or synthetic) that have an ozone depletion potential (ODP) of zero and a global warming potential (GWP) of less than 50. OR **Option 2. Calculation of Refrigerant Impact (1 point)** Select refrigerants that are used in heating, ventilating, 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	**Option 1** . Confirmation that only no or low-impact refrigerants are used **Option 2** . Equipment type Refrigerant charge calculations (for VRF systems only) . Equipment cooling capacity . Provide refrigerant equipment schedule or GreenChill certification (commercial refrigeration systems) . Equipment quantity . Refrigerant type . Refrigerant charge (plus supporting documentation, if applicable) . Equipment life (plus supporting documentation, if applicable) . Leak test results (commercial refrigeration systems only)	1	1	0	0
Materials and Resources						

Storage and Collection of Recyclables - Prerequisite	Provide dedicated areas accessible to waste haulers and building occupants for the collection and storage of recyclable materials for the entire building. Collection and storage areas may be separate locations. Recyclable materials must include mixed paper, corrugated cardboard, glass, plastics, and metals. Take appropriate measures for the safe collection, storage, and disposal of two of the following: batteries, mercury-containing lamps, and electronic waste.	Verification of recycled material types Narrative describing recycling storage and collection strategies Floor plans indicating recycling storage and collection areas Methodology and results of waste stream study	**Prerequisite**
Construction and Demoliton Waste Management Planning - Prerequisite	Develop and implement a construction and demolition waste management plan: · Establish waste diversion goals for the project by identifying at least five materials (both structural and nonstructural) targeted for diversion. Approximate a percentage of the overall project waste that these materials represent. · Specify whether materials will be separated or commingled and describe the diversion strategies planned for the project. Describe where the material will be taken and how the recycling facility will process the material. Provide a final report detailing all major waste streams generated, including disposal and diversion rates. Alternative daily cover (ADC) does not qualify as material diverted from disposal. Land-clearing debris is not considered construction, demolition, or renovation waste that can contribute to waste diversion.	Construction waste management plan Total construction waste	**Prerequisite**

Building Life-Cycle Impact Reduction	Demonstrate reduced environmental effects during initial project decision-making by reusing existing building resources or demonstrating a reduction in materials use through life-cycle assessment. Achieve one of the following options. **Option 4. Whole-Building Life-Cycle Assessment (3 points)** For new construction (buildings or portions of buildings), conduct a life-cycle assessment of the project's structure and enclosure that demonstrates a minimum of 10% reduction, compared with a baseline building, in at least three of the six impact categories listed below, one of which must be global warming potential. No impact category assessed as part of the life-cycle assessment may increase by more than 5% compared with the baseline building. The baseline and proposed buildings must be of comparable size, function, orientation, and operating energy performance as defined in EA Prerequisite Minimum Energy Performance. The service life of the baseline and proposed buildings must be the same and at least 60 years to fully account for maintenance and replacement. Use the same life-cycle assessment software tools and data sets to evaluate both the baseline building and the proposed building, and report all listed impact categories. Data sets must be compliant with ISO 14044. Select at least three of the following impact categories for reduction: · global warming potential (greenhouse gases), in CO2e; · depletion of the stratospheric ozone layer, in kg CFC-11; · acidification of land and water sources, in moles H+ or kg SO2; · eutrophication, in kg nitrogen or kg phosphate; · formation of tropospheric ozone, in kg NOx or kg ethene; and · depletion of nonrenewable energy resources, in MJ.	Description of LCA assumptions, scope, and analysis process for baseline building and proposed building Life-cycle impact assessment summary showing outputs of proposed building with percentage change from baseline building for all impact indicators	3	3	0	0
Building Product Disclosure and Optimisations - EPDs	Achieve one or more of the options below, for a maximum of 2 points. Option 1. Environmental Product Declaration (EPD) (1 point) Use at least 20 different permanently installed products sourced from at least five different manufacturers that meet one of the disclosure criteria below. · Product-specific declaration. ° Products with a publicly available, critically reviewed life-cycle assessment conforming to ISO 14044 that have at least a cradle to gate scope are valued as one quarter (1/4) of a product for the purposes of credit achievement calculation.	MR building product disclosure and optimization calculator or equivalent tracking tool EPD and LCA reports or compliant summary documents for 100% of products contributing toward credit Documentation of compliance with USGBC-approved program	2	1	0	1

	· Environmental Product Declarations which conform to ISO 14025, 14040, 14044, and EN 15804 or ISO 21930 and have at least a cradle to gate scope. ° Industry-wide (generic) EPD -- Products with third-party certification (Type III), including external verification, in which the manufacturer is explicitly recognized as a participant by the program operator are valued as one half (1/2) of a product for purposes of credit achievement calculation. ° Product-specific Type III EPD -- Products with third-party certification (Type III), including external verification in which the manufacturer is explicitly recognized as the participant by the program operator are valued as one whole product for purposes of credit achievement calculation. · USGBC approved program – Products that comply with other USGBC approved environmental product declaration frameworks. Option 2. Multi-Attribute Optimization (1 point) Use products that comply with one of the criteria below for 50%, by cost, of the total value of permanently installed products in the project. Products will be valued as below. · Third party certified products that demonstrate impact reduction below industry average in at least three of the following categories are valued at 100% of their cost for credit achievement calculations. ° global warming potential (greenhouse gases), in CO2e; ° depletion of the stratospheric ozone layer, in kg CFC-11; ° acidification of land and water sources, in moles H+ or kg SO2; ° eutrophication, in kg nitrogen or kg phosphate; ° formation of tropospheric ozone, in kg NOx or kg ethene; and depletion of nonrenewable energy resources, in MJ. · USGBC approved program -- Products that comply with other USGBC approved multi-attribute frameworks. For credit achievement calculation, products sourced (extracted, manufactured, purchased) within 100 miles (160 km) of the project site are valued at 200% of their base contributing cost. Structure and enclosure materials may not constitute more than 30% of the value of compliant building products.					

Building Product and Disclosure and Optimisation - Sourcing of Raw Materials	**Option 1. Raw Material Source and Extraction Reporting (1 point)** Use at least 20 different permanently installed products from at least five different manufacturers that have publicly released a report from their raw material suppliers which include raw material supplier extraction locations, a commitment to long-term ecologically responsible land use, a commitment to reducing environmental harms from extraction and/or manufacturing processes, and a commitment to meeting applicable standards or programs voluntarily that address responsible sourcing criteria. · Products sourced from manufacturers with self-declared reports are valued as one half (1/2) of a product for credit achievement. · Third-party verified corporate sustainability reports (CSR) which include environmental impacts of extraction operations and activities associated with the manufacturer's product and the product's supply chain, are valued as one whole product for credit achievement calculation. Acceptable CSR frameworks include the following: · Global Reporting Initiative (GRI) Sustainability Report · Organisation for Economic Co-operation and Develoment (OECD) Guidelines for Multinational Enterprises · U.N. Global Compact: Communication of Progress · ISO 26000: 2010 Guidance on Social Responsibility · USGBC approved program: Other USGBC approved programs meeting the CSR criteria. **Option 2. Leadership Extraction Practices (1 point)** Use products that meet at least one of the responsible extraction criteria below for at least 25%, by cost, of the total value of permanently installed building products in the project. · Extended producer responsibility. Products purchased from a manufacturer (producer) that participates in an extended producer responsibility program or is directly responsible for extended producer responsibility. Products meeting extended producer responsibility criteria are valued at 50% of their cost for the purposes of credit achievement calculation. · Bio-based materials. Bio-based products must meet the Sustainable Agriculture Network's Sustainable Agriculture Standard. Bio-based raw materials must be tested using ASTM Test Method D6866 and be legally harvested, as defined by the exporting and receiving country. Exclude hide products, such as leather and other animal skin material. Products meeting bio-based materials criteria are valued at 100% of their cost for the	MR building product disclosure and optimization calculator or equivalent tracking tool Corporate sustainability reports for 100% of products contributing toward credit Documentation of product claims for credit requirements or other USGBC-approved program	2	0	0	2

	purposes of credit achievement calculation. · Wood products. Wood products must be certified by the Forest Stewardship Council or USGBC-approved equivalent. Products meeting wood products criteria are valued at 100% of their cost for the purposes of credit achievement calculation. · Materials reuse. Reuse includes salvaged, refurbished, or reused products. Products meeting materials reuse criteria are valued at 100% of their cost for the purposes of credit achievement calculation. · Recycled content. Recycled content is the sum of postconsumer recycled content plus one-half the preconsumer recycled content, based on cost. Products meeting recycled content criteria are valued at 100% of their cost for the purposes of credit achievement calculation · USGBC approved program. Other USGBC approved programs meeting leadership extraction criteria					
Building Product Disclosure and Optimisation - Material Ingredients	**Option 1. Material Ingredient Reporting (1 point)** Use at least 20 different permanently installed products from at least five different manufacturers that use any of the following programs to demonstrate the chemical inventory of the product to at least 0.1% (1000 ppm). · Manufacturer Inventory. The manufacturer has published complete content inventory for the product following these guidelines: ° A publicly available inventory of all ingredients identified by name and Chemical Abstract Service Registration Number (CASRN) ° Materials defined as trade secret or intellectual property may withhold the name and/or CASRN but must disclose role, amount and GreenScreen benchmark, as defined in GreenScreen v1.2. · Health Product Declaration. The end use product has a published, complete Health Product Declaration with full disclosure of known hazards in compliance with the Health Product Declaration open Standard. · Cradle to Cradle. The end use product has been certified at the Cradle to Cradle v2 Basic level or Cradle to Cradle v3 Bronze level. · USGBC approved program. Other USGBC approved programs meeting the material ingredient reporting criteria. and/or **Option 2. Material Ingredient Optimization (1 point)** Use products that document their material ingredient optimization using the	**Option 1 and 2** MR building product disclosure and optimization calculator or equivalent tracking tool **Option 2** Documentation of chemical inventory through Health Product Declaration, Cradle to Cradle certification labels, manufacturers' lists of ingredients with GreenScreen assessment reports for confidential ingredients, or USGBC-approved programs (if applicable) **Option 2** Verification of ingredient optimization through Cradle to Cradle certification labels, manufacturers' lists of ingredients with GreenScreen benchmarks listed for all ingredients, or manufacturers' declaration (for REACH), or USGBC-approved programs (if applicable) **Option 3** Documentation of supply chain optimization	2	0	0	2

	paths below for at least 25%, by cost, of the total value of permanently installed products in the project. · GreenScreen v1.2 Benchmark. Products that have fully inventoried chemical ingredients to 100 ppm that have no Benchmark 1 hazards: ° If any ingredients are assessed with the GreenScreen List Translator, value these products at 100% of cost. ° If all ingredients are have undergone a full GreenScreen Assessment, value these products at 150% of cost. · Cradle to Cradle Certified. End use products are certified Cradle to Cradle. Products will be valued as follows: ° Cradle to Cradle v2 Gold: 100% of cost ° Cradle to Cradle v2 Platinum: 150% of cost ° Cradle to Cradle v3 Silver: 100% of cost ° Cradle to Cradle v3 Gold or Platinum: 150% of cost · International Alternative Compliance Path – REACH Optimization. End use products and materials that do not contain substances that meet REACH criteria for substances of very high concern. If the product contains no ingredients listed on the REACH Authorization or Candidate list, value at 100% of cost. · USGBC approved program. Products that comply with USGGBC approved building product optimization criteria. **Option 3. Product Manufacturer Supply Chain Optimization (1 point)** Use building products for at least 25%, by cost, of the total value of permanently installed products in the project that: · Are sourced from product manufacturers who engage in validated and robust safety, health, hazard, and risk programs which at a minimum document at least 99% (by weight) of the ingredients used to make the building product or building material, and · Are sourced from product manufacturers with independent third party verification of their supply chain that at a minimum verifies: ° Processes are in place to communicate and transparently prioritize chemical ingredients along the supply chain according to available hazard, exposure and use information to identify those that require more detailed evaluation ° Processes are in place to identify, document, and communicate					

	information on health, safety and environmental characteristics of chemical ingredients ° Processes are in place to implement measures to manage the health, safety and environmental hazard and risk of chemical ingredients ° Processes are in place to optimize health, safety and environmental impacts when designing and improving chemical ingredients ° Processes are in place to communicate, receive and evaluate chemical ingredient safety and stewardship information along the supply chain ° Safety and stewardship information about the chemical ingredients is publicly available from all points along the supply chain					
Construction and Demolition Waste Management	**Option 1. Diversion (1–2 points)** Path 1. Divert 50% and Three Material Streams (1 point) Divert at least 50% of the total construction and demolition material; diverted materials must include at least three material streams. INTENT To reduce construction and demolition waste disposed of in landfills and incineration facilities by recovering, reusing, and recycling materials. Materials and Resources credit Construction and Demolition Waste Management or **Path 2. Divert 75% and Four Material Streams (2 points)** Divert at least 75% of the total construction and demolition material; diverted materials must include at least four material streams. or **Option 2. Reduction of Total Waste Material (2 points)** Do not generate more than 2.5 pounds of construction waste per square foot (12.2 kilograms of waste per square meter) of the building's floor area.	**Option 1** MR Construction and Demolition Waste Management calculator or equivalent tool, tracking total and diverted waste amounts and material streams Documentation of recycling rates for commingled facilities (if applicable) Justification narrative for use of waste-to-energy strategy (if applicable) **Option 2** Documentation of waste-to-energy facilities adhering to relevant EN standards (if applicable) Total waste per area	2	2	0	0
Indoor Environmental Quality						

Minimum Indoor Air Quality Performance - Prerequisite	Meet the requirements for both ventilation and monitoring Mechanically Ventilated Spaces For mechanically ventilated spaces (and for mixed-mode systems when the mechanical ventilation is activated), meet the requirements for both ventilation (option 1 or option 2) and monitoring. Mechanical Ventilation Option 1. ASHRAE Standard 62.1–2016 Meet the requirements of ASHRAE Standard 62.1–2016, Sections 4, 5, 6.2, 6.5, and 7, or a local equivalent, whichever is more stringent. OR Option 2. ISO 17772-1:2017 and EN 16798-3: 2017 and Projects outside the U.S. may instead meet the requirements of ISO Standard 17772-1:2017, Section 6.3, using Method 1—Perceived air quality with Category I or II and local standard for ventilation system design such as EN Standard 16798-3: 2017, Sections 7-10. Monitoring for mechanical ventilation systems Provide outdoor air monitors for all mechanical ventilation systems with outdoor air intake flow greater than 1000 cfm (472 L/s). The monitoring device must be capable of measuring the minimum outdoor air intake flow and be capable of measuring the design minimum outdoor air intake flow with an accuracy of +/–10%. An alarm must indicate when the outdoor airflow value varies by 15% or more from the setpoint. Alternatively, for constant-volume systems that do not employ demand control ventilation, provide an indicator capable of confirming the intake damper is open to the position needed to maintain the design minimum outdoor airflow as determined during the system startup and balancing. Naturally Ventilated Spaces For naturally ventilated spaces (and for mixed-mode systems when the mechanical ventilation is inactivated), confirm that natural ventilation is an effective strategy for the project by following the flow	Confirmation that project meets minimum requirements of ASHRAE 62.1–2010, Sections 4–7, or CEN Standard 13779–2007 Confirmation that project has MERV 11 or higher filters (if project is in nonattainment area for PM2.5) Ventilation rate procedure or CEN calculations and documentation of assumptions for calculation variables Confirmation that project meets minimum requirements of ASHRAE Standard 62.1–2010, Section 7, and exhaust ventilation requirements of Section 6.5 Documentation of CIBSE flow diagram process for project Natural ventilation procedure calculations and ventilation opening information Any natural ventilation exception from mechanical ventilation system (ASHRAE 62.1–2010, Section 6.4) Any exception from authority having jurisdiction x Controls drawing showing monitoring devices (outdoor airflow measuring device, current transducer, airflow switch, or similar monitor, automatic indication device, CO2 sensor)	**Prerequisite**

	diagram in the Chartered Institution of Building Services Engineers (CIBSE) Applications Manual AM10, March 2005, Natural Ventilation in Nondomestic Buildings, Figure 2.8 and meet the requirements for both ventilation (option 1, option 2, or option 3) and monitoring Natural Ventilation } Option 1. ASHRAE Standard 62.1-2016 Meet the requirements of ASHRAE 62.1-2016, Sections 4, 6.4, and 6.5. OR } Option 2. Engineered natural ventilation system Meet the requirements of ASHRAE 62.1-2016, Sections 4 and 6.5, and have an engineered natural ventilation system approved by the authority having jurisdiction (per exception 1 of ASHRAE 62.1-2016 section 6.4). OR } Option 3. Historic building This option is available to projects located in a building registered as a local or national historic building. Meet the requirements of ASHRAE 62.1-2016, Sections 4, 6.4.1, 6.4.2, 6.4.3, and 6.5. Monitoring for natural ventilation systems Comply with at least one of the following strategies. } Provide a direct exhaust airflow measurement device capable of measuring the exhaust airflow. This device must measure the exhaust airflow with an accuracy of +/–10% of the design minimum exhaust airflow rate. An alarm must indicate when airflow values vary by 15% or more from the exhaust airflow setpoint. This strategy is not allowed for projects using Natural Ventilation Option 3. Historic building. } Provide automatic indication devices on all natural ventilation openings intended to meet the minimum opening requirements. An alarm must indicate when any one of the openings is closed during occupied hours. } Monitor carbon dioxide (CO2) concentrations within each thermal zone. CO2 monitors must be between 3 and 6 feet (900 and 1 800 millimeters) above the floor and within the thermal zone. CO2 monitors must have an audible or visual indicator or alert the building		

	automation system if the sensed CO2 concentration exceeds the setpoint by more than 10%. Calculate appropriate CO2 setpoints using the methods in ASHRAE 62.1–2016, Appendix D. All Spaces The indoor air quality procedure defined in ASHRAE Standard 62.1–2016, Section 6.3 may not be used to comply with this prerequisite.		

Environmental Tobacco Smoke Control - Prerequisite	Prohibit smoking inside the building. Prohibit smoking outside the building except in designated smoking areas located at least 25 feet (7.5 meters) from all entries, outdoor air intakes, and operable windows. Also prohibit smoking outside the property line in spaces used for business purposes. If the requirement to prohibit smoking within 25 feet (7.5 meters) cannot be implemented because of code, provide documentation of these regulations. Signage must be posted within 10 feet (3 meters) of all building entrances indicating the no-smoking policy. **Compartmentalization of Smoking Areas** Prohibit smoking inside all common areas of the building. The prohibition must be communicated in building rental or lease agreements or condo or coop association covenants and restrictions. Make provisions for enforcement. Prohibit smoking outside the building except in designated smoking areas located at least 25 feet (7.5 meters) from all entries, outdoor air intakes, and operable windows. The no-smoking policy also applies to spaces outside the property line used for business purposes. If the requirement to prohibit smoking within 25 feet (7.5 meters) cannot be implemented because of code, provide documentation of these regulations. Signage must be posted within 10 feet (3 meters) of all building entrances indicating the no-smoking policy. Each unit must be compartmentalized to prevent excessive leakage between units: · Weather-strip all exterior doors and operable windows in the residential units to minimize leakage from outdoors. · Weather-strip all doors leading from residential units into common hallways. · Minimize uncontrolled pathways for the transfer of smoke 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. · Demonstrate a maximum leakage of 0.23 cubic feet per minute per square foot (1.17 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).	Description of project's no-smoking policy, including information on how policy is communicated to building occupants and enforced Copy of no-smoking policy, signed letter from owner describing project's no-smoking policy and enforcement, or copy of any legally binding covenants or restrictions to verify status of residential units as nonsmoking Scaled site plan or map showing the location of designated outdoor smoking and no-smoking areas, location of property line, and site boundary and indicating 25-foot (7.5-meter) distance from building openings Drawings, photos, or other evidence of signage communicating no-smoking policy Any code or landlord restrictions that prevent establishment of no-smoking requirements	**Prerequisite**

Enhance Indoor Air Quality Strategies	**Option 1. Enhanced IAQ Strategies (1 point)** Comply with the following requirements, as applicable. **Mechanically ventilated spaces**: A. entryway systems; B. interior cross-contamination prevention; and C. filtration. **Naturally ventilated spaces**: A. entryway systems; and B. natural ventilation design calculations. Mixed-mode systems: A. entryway systems; B. interior cross-contamination prevention; C. filtration; D. natural ventilation design calculations; and E. mixed-mode design calculations. **Data Centers only** The above filtration media requirements are required only for ventilation systems serving regularly occupied spaces. **Option 2. Additional Enhanced IAQ Strategies (1 point)** Comply with the following requirements, as applicable. **Mechanically ventilated spaces (select one):** A. exterior contamination prevention; B. increased ventilation; C. carbon dioxide monitoring; or D. additional source control and monitoring. **Naturally ventilated spaces (select one):** A. exterior contamination prevention; B. additional source control and monitoring; or C. natural ventilation room by room calculations. **Mixed-mode systems (select one)**: A. exterior contamination prevention; B. increased ventilation; C. additional source control and monitoring; or D. natural ventilation room-by-room calculations.	**Option 1:** . Entryway systems: scaled floor plans showing locations and measurements . Interior cross-contamination prevention: list of rooms, areas, exhaust rate, separation method. . Filtration: mechanical schedules highlighting MERV or class ratings for all units that supply outdoor air . Natural ventilation design: calculations and narrative demonstrating appropriate strategies per referenced standard . Mixed mode design: calculations and narrative demonstrating appropriate strategies per referenced standard **Option 2:** . Exterior contamination prevention: narrative describing type of modeling; model output reports highlighting contaminant levels and required thresholds . Increased ventilation: confirmation (calculations are documented under EQ Prerequisite Minimum Indoor Air Quality Performance) . Carbon dioxide monitoring: list of densely occupied spaces, space type, design CO2 concentrations, floor plan showing sensor locations, narrative describing CO2 setpoints . Additional source control and monitoring: description of likely air contaminants and how they were identified, description of materials handling plan, plans showing installed monitoring system . Natural ventilation: room-by-room calculations, narrative, and diagrams demonstrating effective natural ventilation per referenced standard	2	2	0	0

Low-Emitting Materials	This credit includes requirements for product manufacturing as well as project teams. It covers volatile organic compound (VOC) emissions into indoor air and the VOC content of materials, as well as the testing methods by which indoor VOC emissions are determined. Different materials must meet different requirements to be considered compliant for this credit. The building interior and exterior are organized in seven categories, each with different thresholds of compliance. The building interior is defined as everything within the waterproofing membrane. The building exterior is defined as everything outside and inclusive of the primary and secondary weatherproofing system, such as waterproofing membranes and air- and water-resistive barrier materials. Option 1. Product Category Calculations Achieve the threshold level of compliance with emissions and content standards for the number of product categories listed in Table 2. Option 2. Budget Calculation Method If some products in a category do not meet the criteria, project teams may use the budget calculation method (Table 3).	USGBC low-emitting materials calculator Product information (e.g., MSDS, third-party certifications, testing reports)	3	3	0	0
Construction Indoor Air Quality Management Plan	Develop and implement an indoor air quality (IAQ) management plan for the construction and preoccupancy phases of the building. The plan must address all of the following. During construction, meet or exceed all applicable 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 absorptive materials stored on-site and installed from moisture damage. Do not operate permanently installed air-handling equipment during construction unless filtration media with a minimum efficiency reporting value (MERV) of 8, as determined by ASHRAE 52.2–2007, with errata (or equivalent filtration media class of F5 or higher, as defined by CEN Standard EN 779–2002, Particulate Air Filters for General Ventilation, Determination of the Filtration Performance), are installed at each return air grille and return or transfer duct inlet opening such that there is no bypass around the filtration media. Immediately before occupancy, replace all filtration media with the final design filtration media, installed in accordance with the manufacturer's recommendations.	IAQ management plan or detailed checklist, highlighting nonsmoking policy Narrative describing protection measures for absorbent materials Annotated photographs of indoor air and environmental quality measures Record of filtration media	1	1	0	0

Indoor Air Quality Assessment	**Option 1. Flush-Out (1 point)** **Path 1. Before Occupancy** Install new filtration media and perform a building flush-out by supplying a total air volume of 14,000 cubic feet of outdoor air per square foot (4 267 140 liters per second of outdoor air per square meter) of gross floor area while maintaining an internal temperature of at least 60°F (15°C) and no higher than 80°F (27°C) and relative humidity no higher than 60%. OR **Path 2. During Occupancy** If occupancy is desired before the flush-out is completed, the space may be occupied only after delivery of a minimum of 3,500 cubic feet of outdoor air per square foot (1 066 260 liters per second of outdoor air per square meter) of gross floor area while maintaining an internal temperature of at least 60°F (15°C) and no higher than 80°F (27°C) and relative humidity no higher than 60%. Once the space is occupied, it must be ventilated at a minimum rate of 0.30 cubic foot per minute (cfm) per square foot of outdoor air (1.5 liters of outside air per second per square meter) or the design minimum outdoor air rate determined in EQ Prerequisite Minimum Indoor Air Quality Performance, whichever is greater. During each day of the flush-out period, ventilation must begin at least three hours before occupancy and continue during occupancy. These conditions must be maintained until a total of 14,000 cubic feet per square foot of outdoor air (4 270 cubic meters of outdoor air per square meter) has been delivered to the space. OR **Option 2. Air Testing (2 points)** After construction ends and before occupancy, but under ventilation conditions typical for occupancy, conduct baseline IAQ testing using protocols consistent with the methods listed in Table 1 for all occupied spaces. Use current versions of ASTM standard methods, EPA compendium methods, or ISO methods, as indicated. Laboratories that conduct the tests for chemical analysis of formaldehyde and volatile organic compounds must be accredited under ISO/IEC 17025 for the test methods they use. Retail projects may conduct the testing within 14 days of occupancy. Demonstrate that contaminants do not exceed the concentration levels listed in Table 1.	Flush-out report IAQ testing report	2	1	0	1

Thermal Comfort	Option 2. ISO and CEN Standards Design HVAC systems and the building envelope to meet the requirements of the applicable standard: · ISO 7730:2005, 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 15251:2007, Indoor Environmental Input Parameters for Design and Assessment of Energy Performance of Buildings, addressing indoor air quality, thermal environment, lighting, and acoustics, Section A2. Data Centers only Meet the above requirements for regularly occupied spaces. Provide individual thermal comfort controls for at least 50% of individual occupant spaces. Provide group thermal comfort controls for all shared multioccupant spaces. Thermal comfort controls allow occupants, whether in individual spaces or shared multioccupant spaces, to adjust at least one of the following in their local environment: air temperature, radiant temperature, air speed, and humidity.	Description of weather data used to determine operative temperatures, relative humidity, outdoor temperatures Plots or calculation results verifying that design parameters meet ASHRAE Standard 55–2010 for 80% acceptability (e.g., psychometric chart; PMV or PPD calculations; ASHRAE Thermal Comfort Tool results; copy of ASHRAE 55–2010, Figure 5.2.4.1, Figure 5.2.4.3, or Figure 5.2.4.4; or predicted worst-case indoor conditions for each month on copy of Figure 5.3) Documentation to verify thermally conditioned spaces meet ISO 7730 or EN 15251, as applicable (e.g., for ISO, calculations based on Sections 4.1 and 6 or Annex H, computer program results based on Annex D, tables based on Annex E, or copy of Figures 2, 3, 4, A.1, A.2; for EN, documentation of worst-case indoor conditions for each month on copy of Figure A1) List of spaces by type, quantity, and controls	1	1	0	0
Interior Lighting	**Option 1. Lighting Control (1 point)** For at least 90% of individual occupant spaces, provide 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, midlevel). Midlevel is 30% to 70% of the maximum illumination level (not including daylight contributions). For all shared multioccupant spaces, meet all of the following requirements. · Have in place multizone 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, midlevel). · Lighting for any presentation or projection wall must be separately controlled. · Switches or manual controls must be located in the same space as the controlled luminaires. A person operating the controls must have a direct line of sight to the controlled luminaires. AND/OR **Option 2. Lighting Quality (1 point)** Choose four of the following strategies. A. For all regularly occupied spaces, use light fixtures with a luminance of less than 2,500 cd/m2 between 45 and	**Option 1** Table of individual occupant and multioccupant spaces and lighting controls in each space **Option 2** A - Table of regularly occupied spaces and associated lighting details and Lighting details, including manufacturer and model, results of estimations, or in situ or laboratory photometric tests B - Lighting details, including manufacturer and model, results of estimations, or in situ or laboratory photometric tests C - Calculations of total connected lighting load and Lighting details, including manufacturer and model, results of estimations, or in situ or laboratory photometric tests D - Table of regularly occupied spaces and associated lighting details and Lighting details, including manufacturer and model, results of estimations, or in situ or laboratory photometric tests and Calculations of total connected lighting load E - List of ceiling, wall, and floor surfaces and their associated surface reflectance values and Average surface reflectance calculations F - List of work surfaces and movable partitions and their associated surface reflectance values and Average surface reflectance	2	2	0	0

	90 degrees from nadir. Exceptions include wallwash fixtures properly aimed at walls, as specified by manufacturer's data, indirect uplighting fixtures, provided there is no view down into these uplights from a regularly occupied space above, and any other specific applications (i.e. adjustable fixtures). B. For the entire project, use light sources with a CRI of 80 or higher. Exceptions include lamps or fixtures specifically designed to provide colored lighting for effect, site lighting, or other special use. C. For at least 75% of the total connected lighting load, use light sources that have a rated life (or L70 for LED sources) of at least 24,000 hours (at 3-hour per start, if applicable). D. Use direct-only overhead lighting for 25% or less of the total connected lighting load for all regularly occupied spaces. E. For at least 90% of the regularly occupied floor area, meet or exceed the following thresholds for areaweighted average surface reflectance: 85% for ceilings, 60% for walls, and 25% for floors. F. If furniture is included in the scope of work, select furniture finishes to meet or exceed the following thresholds for area-weighted average surface reflectance: 45% for work surfaces, and 50% for movable partitions. G. For at least 75% of the regularly occupied floor area, meet a ratio of average wall surface illuminance (excluding fenestration) to average work plane (or surface, if defined) illuminance that does not exceed 1:10. Must also meet strategy E, strategy F, or demonstrate area-weighted surface reflectance of at least 60% for walls. H. For at least 75% of the regularly occupied floor area, meet a ratio of average ceiling illuminance (excluding fenestration) to work surface illuminance that does not exceed 1:10. Must also meet option E, option F, or demonstrate area-weighted surface reflectance of at least 85% for ceilings.	calculations G - List of work surfaces and illuminance values (lux) and Illuminance ratio calculations H - List of wall or ceiling surfaces with illuminance values (lux) and Illuminance ratio calculations				
Daylight	Provide manual or automatic (with manual override) glare-control devices for all regularly occupied spaces. Select one of the following three options. **Option 1: Simulation:Spatial Daylight Autonomy and Annual Sunlight Exposures (2-3 points)** Demonstrate through annual computer simulations that spatial daylight autonomy300/50% (sDA300/50%) of at least	All Projects . Floor plans highlighting regularly occupied spaces (for Healthcare, regularly occupied perimeter area) . List of glare-control devices for all windows with their control mechanism Option 1 . List of compliant spaces with their annual summary values for sDA	3	2	0	1

	55%, 75%, or 90% is achieved. Use regularly occupied floor area. AND Demonstrate through annual computer simulations that annual sunlight exposure1000,250 (ASE1000,250) of no more than 10% is achieved. Use the regularly occupied floor area that is daylit per the sDA300/50% simulations. The sDA and ASE calculation grids should be no more than 2 feet (600 millimeters) square and laid out across the regularly occupied area at a work plane height of 30 inches (76 millimeters) above finished floor (unless otherwise defined). Use an hourly time-step analysis based on typical meteorological year data, or an equivalent, for the nearest available weather station. Include any permanent interior obstructions. Moveable furniture and partitions may be excluded. OR **Option 2. Simulation: Illuminance Calculations (1–2 points)** Demonstrate through computer modeling that illuminance levels will be between 300 lux and 3,000 lux for 9 a.m. and 3 p.m., both on a clear-sky day at the equinox, for the floor area indicated in Table 2. Use regularly occupied floor area. Healthcare projects should use the perimeter area determined under EQ Credit Quality Views. Calculate illuminance intensity for sun (direct component) and sky (diffuse component) for clear-sky conditions as follows: · Use typical meteorological year data, or an equivalent, for the nearest available weather station. · Select one day within 15 days of September 21 and one day within 15 days of March 21 that represent the clearest sky condition. · Use the average of the hourly value for the two selected days. Exclude blinds or shades from the model. Include any permanent interior obstructions. Moveable furniture and partitions may be excluded. OR Achieve illuminance levels between 300 lux and 3,000 lux for the floor area	and ASE . Geometric plots from simulations. . Narrative or output file describing daylight simulation program, simulation inputs, and weather file Option 2 . Geometric plots from simulations. . Narrative or output file describing daylight simulation program, simulation inputs, and weather file . List of compliant spaces with their calculated illuminance values Option 3 . Floor plans or list of compliant spaces with measured illuminance values for each node . Calculations demonstrating percentage of compliant space between 300 lux and 3,000 lux				

	indicated in Table 3 With furniture, fixtures, and equipment in place, measure illuminance levels as follows: · Measure at appropriate work plane height during any hour between 9 a.m. and 3 p.m. · Take one measurement in any regularly occupied month, and take a second as indicated in Table 4. · For spaces larger than 150 square feet (14 square meters), take measurements on a maximum 10 foot (3 meter) square grid. · For spaces 150 square feet (14 square meters) or smaller, take measurements on a maximum 3 foot (900 millimeters) square grid.					
Quality Views	Achieve a direct line of sight to the outdoors via vision glazing for 75% of all regularly occupied floor area. View glazing in the contributing area must provide a clear image of the exterior, not obstructed by frits, fibers, patterned glazing, or added tints that distort color balance. Additionally, 75% of all regularly occupied floor area must have at least two of the following four kinds of views: · multiple lines of sight to vision glazing in different directions at least 90 degrees apart; · views that include at least two of the following: (1) flora, fauna, or sky; (2) movement; and (3) objects at least 25 feet (7.5 meters) from the exterior of the glazing; · unobstructed views located within the distance of three times the head height of the vision glazing; and · views with a view factor of 3 or greater, as defined in "Windows and Offices; A Study of Office Worker Performance and the Indoor Environment." Include in the calculations any permanent interior obstructions. Movable furniture and partitions may be excluded. Views into interior atria may be used to meet up to 30% of the required area	**All projects** List of all regularly occupied spaces, qualifying floor area in each space, and view features Sections, elevations, diagrams, renderings, or photos indicating sight lines to glazing do not encounter permanent interior obstructions. Floor plans or diagrams identifying regularly occupied spaces and the following: **View Types (must achieve at least 2 of the following)** . Multiple lines of sight - Multiple sight lines for each regularly occupied space . Exterior features - Sight lines and exterior features labeled; provide multiple floor plans if view features change at varying building heights . Unonstructured views within 3H - Sight lines and area indicating three times head height . View factor - Area with view factor of 3 or greater x Sections, interior elevations, or other documentation that demonstrates the view factor assessment for the areas with a view factor of three or greater. Method for determining view factor for each typical occupant location	1	1	0	0

Acoustic Performance	For all occupied spaces, meet the following requirements, as applicable, for HVAC background noise, sound isolation, reverberation time, and sound reinforcement and masking. **HVAC Background Noise** Achieve maximum background noise levels from heating, ventilating, and air conditioning (HVAC) systems per 2011 ASHRAE Handbook, HVAC Applications, Chapter 48, Table 1; AHRI Standard 885-2008, Table 15; or a local equivalent. Calculate or measure sound levels. For measurements, use a sound level meter that conforms to ANSI S1.4 for type 1 (precision) or type 2 (general purpose) sound measurement instrumentation, or a local equivalent. Comply with design criteria for HVAC noise levels resulting from the sound transmission paths listed in ASHRAE 2011 Applications Handbook, Table 6; or a local equivalent. **Sound Transmission** Meet the composite sound transmission class (STCC) ratings listed in Table 1, or local building code, whichever is more stringent.	**HVAC background noise** Occupied spaces' sound level values Calculation, measurement narrative, or manufacturers' data Noise reduction narrative **Sound isolation** STC ratings for space adjacencies Calculation, measurement narrative, or manufacturers' data **Reverberation time** Reverberation time criteria for each room Calculation, measurement narrative, or manufacturers' data Sound reinforcement and masking systems **Sound reinforcement and masking systems** List of all large conference rooms and auditoriums Explanation of sound reinforcement methodology (if installed) Explanation of sound reinforcement system components and specifications (if installed) Explanation of masking system components and specifications narrative (if installed)	1	1	0	0
Innovation		**Evidence Required**				
Innovation	**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: · the intent of the proposed innovation credit; · proposed requirements for compliance; · proposed submittals to demonstrate compliance; and · the design approach or strategies used to meet the requirements. AND/OR **Option 2. Pilot (1 point)** Achieve one pilot credit from USGBC's LEED Pilot Credit Library	**Innovation** . Innovation narrative . Supporting documentation **Pilot Credit** . Pilot credit registration . Pilot credit survey **Exemplary Performance** . Pilot credit specific submittals . Exemplary performance credit and level	5	3	0	0

	AND/OR **Option 3. Additional Strategies Innovation (1-3 points)** · Defined in Option 1 above. Pilot (1–3 points) · Meet the requirements of Option 2. **Exemplary Performance (1–2 points)** · Achieve exemplary performance in an existing LEED v4 prerequisite or credit that allows exemplary performance, as specified in the LEED Reference Guide, v4 edition. An exemplary performance point is typically earned for achieving double the credit requirements or the next incremental percentage threshold.					
LEED AP	At least one principal participant of the project team must be a LEED Accredited Professional (AP) with a specialty appropriate for the project.	Full name and speciality of the LEED AP	1	0	0	1