

LEED® V4 Contribution Analysis



LEED® v4 Contribution Analysis™

Section I	PRODUCT IDENTIFICATION
Product Name	Solatube Daylighting Systems
Manufacturer	Solatube International Inc 2110 Oak Ridge Way Vista, CA 92081
Section II	PRODUCT DESCRIPTION
	<p>Solatube Daylighting Systems utilize proprietary breakthrough technology, design and materials to capture the most daylight throughout the day to naturally illuminate any interior space.</p> <p>Product lines include:</p> <ul style="list-style-type: none"> > Brighten Up® Series (Solatube 160 DS and 290 DS Daylighting Systems) ideal for smaller spaces in both residential and commercial applications > SolaMaster® Series (Solatube 330 DS-C and DS-O Daylighting Systems and 750 DS-C and DS-O Systems) designed specifically for commercial buildings > SkyVault Series® (SkyVault M74 DS) designed for large volume spaces with high, open ceilings and the > Solatube SmartLED Daylighting System (160 SL) designed mostly for small and residential applications.
Section III	LEED CONTRIBUTION STATEMENT
	<p>While products are not awarded points by the LEED rating system, they can contribute to achievement of LEED credits. This LEED Analysis summarizes the contributions of Solatube Daylighting Systems and the Solatube Daylight Dimmer to the following LEED Rating Systems:</p> <ul style="list-style-type: none"> > LEED for Building Design and Construction (BD+C) > LEED for Operations and Maintenance (O+M) > LEED for Interior Design and Construction (ID+C)
Section IV	MARKET SECTOR ADAPTATIONS
	<p>LEED v4 represents five major rating system, supporting 21 different building types (or market sector adaptations) expanding the LEED rating systems to more diverse project applications. With the 2009 rating system, LEED began to address the unique needs of specific building types. LEED v4 expands upon previous work to address the specific and unique needs of particular space types. These needs might be driven by the occupants a facility serves, regulatory requirements or unique resource needs. By recognizing the unique need of specific space types, LEED removes barriers, moving us closer to market transformation.</p> <p>LEED v4 provides solutions for new and existing data centers, new and existing warehouses and distribution centers, hospitality, existing schools, existing retail, and midrise residential buildings.</p> <ul style="list-style-type: none"> > LEED BD+C: New Construction and Major Renovations, Core and Shell, Schools, Retail, Healthcare, Data Centers, Hospitality, Warehouse and Distribution Centers > LEED O+M: Existing Buildings, Data Centers, Warehouses and Distribution Centers, Hospitality, Schools, Retail > LEED ID+C: Commercial Interiors, Retail, Hospitality

Energy and Atmosphere

Minimum Energy Performance

Rating Systems:

BD+C v4

O+M v4

ID+C v4

NCv2009

HCv2009

SCHOOLSv2009

CSv2009

Retail Pilot v2009

EBOMv2009

Clv2009

Retail Clv2009

Prerequisite

Intent

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

Product Contribution Statement

Solatube Daylighting Systems reduce energy demand by enabling buildings to harvest free light: through daylight harvesting the electricity demand and cost for interior lighting are reduced. Unlike traditional skylights, Solatube Daylighting Systems effectively control solar heat gain, allowing occupants to benefit from natural lighting without sacrificing thermal comfort or increasing the buildings cooling load. Solatube Daylighting Systems' contribution to energy savings will be factored into a project's ability to meet the prerequisites for minimum energy performance.

Contribution Calculation

Information regarding U-values, Solar Heat Gain Coefficient (SHGC), and illuminance levels will be entered into the appropriate simulation software for new construction projects (all BD+C and ID+C adaptations). For existing buildings projects (all O+M adaptations) these factors will contribute to the lowered annual energy bills used to benchmark the buildings performance.

Example Calculation

Required calculations are performed by building simulation software or Energy Star Portfolio Manager. For prescriptive compliance paths, as in Options 2 and 3, no specific calculations are necessary.

Requirements

See usgbc.org/credits for more credit or prerequisite details and any addenda as applicable.

LEED BD+C: New Construction and Major Renovations, Core and Shell, Schools, Healthcare, Hospitality, Warehouse and Distribution Centers

OPTION 1 - WHOLE BUILDING SIMULATION

Demonstrate an improvement of 5% for new construction, 3% for major renovations, or 2% for core and shell projects in the proposed building performance rating compared with the baseline building performance rating.

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. Projects can also use a USGBC-approved equivalent to ASHRAE 90.1-2010, but must still meet all mandatory provisions from ASHRAE 90.1.

OPTION 2 - PRESCRIPTIVE COMPLIANCE: ASHRAE 50% ADVANCED ENERGY DESIGN GUIDE

Projects must demonstrate compliance with the mandatory and prescriptive measures in ASHRAE 90.1-2010, as well as comply with the HVAC and service water heating requirements, including equipment efficiency, economizers, ventilation, and ducts and dampers, in Chapter 4, Design Strategies and Recommendations by Climate Zone, for the appropriate ASHRAE 50% Advanced Energy Design Guide and climate zone.

OPTION 3 - PRESCRIPTIVE COMPLIANCE: ADVANCED BUILDINGS CORE PERFORMANCE GUIDE

Projects must demonstrate compliance with the mandatory and prescriptive measures in ASHRAE 90.1-2010, as well as comply with Sections 1, 2, 3.5, 3.9, and 3.10 of the Core Performance Guide. (Note - Healthcare, Warehouse, Laboratory, and projects over 100,000 sf cannot use Option 3 for compliance.)

LEED BD+C: Data Centers

Data Centers can only use the whole-building simulation option to demonstrate a 5% reduction in annual energy load from baseline. Additionally, for data centers, at least 2% of the 5% reduction must be attributed to the building's power and cooling infrastructure loads.

LEED O+M: Existing Buildings, Data Centers, Warehouses and Distribution Centers, Hospitality, Schools, Retail

Establishment

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

Performance

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

Case 1. ENERGY STAR Rating

For buildings eligible to receive an energy performance rating using the Environmental Protection Agency (EPA) ENERGY STAR® Portfolio Manager tool, achieve an energy performance rating of at least 75.

Case 2. Projects not eligible for ENERGY STAR Rating

Projects not eligible to use EPA's rating system must demonstrate that their buildings' energy performance is 25% less than that of comparable building: either using national averages, an average of three actual buildings similar in program or use, or with a 3-year baseline of historical energy-use at the project building.

LEED ID+C: Commercial Interiors, Retail, Hospitality

OPTION 1 - Tenant-level energy simulation

Demonstrate a 3% improvement in the proposed performance rating compared with the baseline performance rating for portions of the building within the tenant's scope of work. Calculate the baseline 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 all tenant project energy use. (Note - The baseline project envelope must be modeled according to Table G3.1(5) (baseline), Sections a-e, and not Section f.)

OPTION 2. Prescriptive compliance

Comply with the mandatory and prescriptive provisions of ANSI/ASHRAE/IESNA Standard 90.1-2010, with errata (or a USGBC-approved equivalent standard for projects outside the U.S.), as well as the following requirements:

- > Reduce connected lighting power density by 5% below ASHRAE 90.1-2010 using the space-by-space method or by applying the whole-building lighting power allowance to the entire tenant space.
- > Install ENERGY STAR appliances, office equipment, electronics, and commercial food service equipment (HVAC, lighting, and building envelope products are excluded) for 50% (by rated-power) of the total ENERGY STAR eligible products in the project. (Projects outside the U.S. may use a performance equivalent to ENERGY STAR.)

LEEDv2009 Rating Systems

LEED NC, CS, S, HC, Retail NC Pilot:

Same as above for New Construction, with 10% improvement over ASHRAE 90.1-2007 for Whole Building Simulation, or prescriptive measures using the ASHRAE Advanced Energy Design Guides or Advanced Buildings Core Performance Guide.

LEED EBOM:

Same as above, minimum EnergyStar or equivalent percentile of 69.

LEED CI and LEED RETAIL CI:

Design portions of the building as covered by the tenant's scope of work to comply with ANSI/ASHRAE/IESNA Standard 90.1-2007 (w/ errata but w/out addenda). Projects in California may use Title 24-2005, Part 6 in place of ANSI/ASHRAE/IESNA Standard 90.1-2007.

Energy and Atmosphere

Optimize Energy Performance

Rating Systems:

BD+C v4

O+M v4

ID+C v4

NCv2009

HCv2009

SCHOOLSv2009

CSv2009

Retail Pilot v2009

EBOMv2009

Clv2009

Retail Clv2009

Available Points: 1-30

Intent

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

Product Contribution Statement

Solatube Daylighting Systems reduce energy demand by enabling buildings to harvest free light: through daylight harvesting the electricity demand and electricity cost for interior lighting are reduced. Additionally, Solatube Daylighting Systems effectively control solar heat gain, allowing occupants to benefit from natural lighting without sacrificing thermal comfort or increasing the buildings cooling load. Solatube Daylighting Systems' contribution to energy savings will be factored into a project's ability to meet energy performance and efficiency goals.

Contribution Calculation

Information regarding U-values, Solar Heat Gain Coefficient (SHGC), and illuminance levels will be entered into the appropriate simulation software for new construction projects (all BD+C and ID+C adaptations). For existing buildings projects (all O+M adaptations) these factors will contribute to the lowered annual energy bills used to benchmark the buildings performance.

Example Calculation

Required calculations are performed by building simulation software or EnergyStar Portfolio Manager. For prescriptive compliance paths, no calculations are required. For simulation software or energy models, final outputs will include all assumptions and design attributes entered into the software, as well as an annual energy cost reduction percentage. For EnergyStar Portfolio Manager, final outputs will include all building operating characteristics, as well as an energy percentile ranking or weather-normalized source Energy Use Intensity (EUI).

Requirements

See usgbc.org/credits for more credit or prerequisite details and any addenda as applicable.

[LEED BD+C: New Construction and Major Renovations, Core and Shell, Schools, Retail, Healthcare, Data Centers, Hospitality, Warehouse and Distribution Centers](#)

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.

Note - As with the prerequisite for Minimum Energy Performance, Data Centers can only comply with the whole-building simulation option.

Option 1 - Whole-building energy simulation (1–18 points except Schools and Healthcare, 1–16 points Schools, 1–20 points Healthcare)

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. 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 for exceeding the baseline anywhere from 6-50% for New Construction, 4-48% for Major Renovations, and 3-47% for Core and Shell projects.

Option 2 - Prescriptive compliance: ASHRAE Advanced Energy Design Guide (1–6 points)

(To be eligible for Option 2, projects must use Option 2 in EA Prerequisite Minimum Energy Performance) Implement and document compliance with the applicable recommendations and standards in Chapter 4, Design Strategies and Recommendations by Climate Zone, for the appropriate ASHRAE 50% Advanced Energy Design Guide and climate zone. 1 point is available for meeting requirements for the appropriate energy end-using systems as defined in each Advanced Energy Design Guide.

LEED O+M: Existing Buildings, Data Centers, Warehouses and Distribution Centers, Hospitality, Schools, Retail:

Establishment

None

Performance

Case 1 - Buildings eligible for an EnergyStar score can achieve anywhere from 3-20 points for demonstrating performance between the 76th - 95th percentile per building type.

Case 2 - Options 1 and 3 - Buildings compared against a national average per building type, or comparing against three similar buildings can achieve 1-20 points for demonstrating performance at 26-45% below average or median.

Case 2 - Option 2 - The project can achieve between 2-14 points for demonstrating between 27-45% reduction below historical consumption data.

LEED ID+C: Commercial Interiors, Retail, Hospitality

Option 1 - Tenant-Level Simulation

Projects must demonstrate an increased energy savings using tenant-level simulation, and can be awarded between 4-25 points for achieving reductions between 4% - 28% below baseline.

Option 2 - Prescriptive Compliance

Projects can achieve up to 12 points by complying with prescriptive requirements for Base Building Systems, Fenestration, Lighting Power Density, and Lighting Controls.

LEEDv2009 Rating Systems

LEED NC, CS, S, HC, Retail NC Pilot:

Same as above for New Construction, with baseline measured using ASHRAE 90.1-2007 for Whole Building Simulation, or prescriptive measures using the ASHRAE Advanced Energy Design Guides or Advanced Buildings Core Performance Guide.

LEED EBOM:

Same as above, awarded for EnergyStar or equivalent score from 71 - 95 (1-18 points)

LEED CI and LEED RETAIL CI:

Design portions of the building as covered by the tenant's scope of work to comply with ANSI/ASHRAE/IESNA Standard 90.1-2007 (w/ errata but w/out addenda). Projects in California may use Title 24-2005, Part 6 in place of ANSI/ASHRAE/IESNA Standard 90.1-2007.

Indoor Environmental Quality

Interior Lighting - Lighting Control

Rating Systems:
BD+C v4
O+M v4
ID+C v4

Same for v2009 rating
systems

Available Points: 1

Intent

To provide a high level of lighting system control by individual occupants or groups in multioccupant spaces (e.g., classrooms and conference areas) and promote their productivity, comfort and well-being.

Product Contribution Statement

Solatube Daylighting Systems that use the Solatube Daylight Dimmer to adjust the light output allow occupants to adjust daylight levels to their needs and preferences. Solatube Daylight Dimmers that are installed to be individually controlled by 90% of building occupants will contribute to a project's ability to earn the 1 point available for Indoor Environmental Quality Interior Lighting - Lighting Control.

Contribution Calculation

There are no calculations associated with this credit.

Requirements

See usgbc.org/credits for more credit or prerequisite details and any addenda as applicable.

LEED BD+C: New Construction and Major Renovations, Core and Shell, Schools, Retail, Healthcare, Data Centers, Hospitality, Warehouse and Distribution Centers and LEED ID+C: Commercial Interiors, Retail, Hospitality

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 multi-occupant spaces, meet all of the following requirements:

- > Have in place multi-mode 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.

LEED O+M: Existing Buildings, Data Centers, Warehouses and Distribution Centers, Hospitality, Schools, Retail

For at least 50% 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 multi-occupant spaces, meet all of the following requirements.

- > Have in place multi-zone control systems that enable occupants to adjust the lighting to meet group needs and preferences, with at least three lighting levels or scenes (on, off, 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.

Indoor Environmental Quality

Daylight

Rating Systems:
 BD+C v4
 O+M v4
 ID+C v4

NCv2009
 HCv2009
 SCHOOLSv2009
 CSv2009
 Retail Pilot v2009
 EBOMv2009
 Clv2009
 Retail Clv2009

Available Points: 1-3

Intent

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

Product Contribution Statement

Solatube Daylighting Systems are expressly designed to bring daylight into interior spaces and therefore contribute to a project's ability to earn the 1-3 total points available for Indoor Environmental Quality: Daylight. The tubular daylighting systems can additionally, with the design of collection throughout the day including low-angle sunlight, significantly increase a project's ability to increase annual spatial daylight autonomy.

Contribution Calculation

The calculation for this credit requires understanding a percentage of daytime operating hours throughout a year that can be operated with no artificial lighting, otherwise known as Spatial Daylight Autonomy (sDA). This is calculated by using a simulation software using regional climate data and performance assumptions, outputting a percentage factor for sDA.

Example Calculation

This calculation is completed using a software tool. Please contact your Solatube team member for assistance with this calculation.

Requirements

See usgbc.org/credits for more credit or prerequisite details and any addenda as applicable.

LEED BD+C: New Construction and Major Renovations, Core and Shell, Schools, Retail, Healthcare, Data Centers, Hospitality, Warehouse and Distribution Centers and LEED ID+C: Commercial Interiors, Retail, Hospitality

Demonstrate through annual computer simulations that spatial daylight autonomy300/50% (sDA300/50%) of at least 55%, 75%, or 90% is achieved. Use regularly occupied floor area - AND - Demonstrate through annual computer simulations that annual sunlight exposure 1000, 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.

Alternative options include either simulation or measurement of Illuminance levels throughout the day in any regularly occupied floor area.

LEED O+M: Existing Buildings, Data Centers, Warehouses and Distribution Centers, Hospitality, Schools, Retail

Establishment: (2 POINTS)

Achieve illuminance levels between 300 lux and 3,000 lux for at least 50% of the regularly occupied floor area.

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 1.
- > 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 millimeter) square grid.

Performance: There are no performance requirements for this credit.

LEEDv2009 Rating Systems:

Option 1 - Simulation:

Demonstrate through computer simulations that 75% or more of all regularly occupied spaces areas achieve daylight illuminance levels of ≥ 10 footcandles (fc) and a maximum of 500 fc in a clear sky condition on Sept 21 at 9 a.m. and 3 p.m. Solatube International offers an extensive library of photometric data files for every product configuration for over 130 site locations. Please contact a Solatube Representative to get the files most appropriate for your lighting design.

Option 2 - Prescriptive:

Use a combination of side-lighting and/or top-lighting to achieve a total daylighting zone that is $\geq 75\%$ of all the regularly occupied spaces.

Option 3 - Measurement:

Demonstrate through records of indoor light measurements that a minimum daylight illumination level of 25 fc has been achieved in at least 75% of all regularly occupied areas. Measurements must be taken on a 10-ft grid for all occupied spaces and recorded on floor plans. Only the square footage associated with the portions of rooms or spaces meeting the minimum illumination requirements may be counted in the calculations.

Option 4 - Combination:

Any of the above calculation methods may be combined to document the minimum daylight illumination in at least 75% of all regularly occupied spaces. The methods used in each space must be clearly recorded on all building plans. Only the square footage associated with the portions of rooms or spaces meeting the requirements may be applied toward the 75% of total area calculation. In all cases, provide glare control devices to avoid high-contrast situations that could impede visual tasks.

Innovation

Innovation	<p>Intent To encourage exceptional performance for current credits and promote innovative performance in pioneering areas.</p>
<p>Rating Systems: BD+C v4 O+M v4 ID+C v4 Same for all v2009 rating systems</p>	<p>Product Contribution Statement The use of Solatube Daylighting Systems can contribute to innovation credits in several ways: by contributing to exemplary performance thresholds for existing credits, contributing to pilot credits or as educational tool in a curriculum designed around green building strategies.</p>
<p>Available Points: 1-5</p>	<p>Contribution Calculation There are no calculations associated with this credit.</p>
	<p>Requirements See usgbc.org/credits for more credit or prerequisite details and any addenda as applicable.</p>
	<p>Option 1: Innovation (1-3 points) Achieve significant, measurable environmental performance using a strategy not addressed in the LEED green building rating system. An approach to this credit can include a comprehensive educational program designed around green building strategies.</p> <p>Identify the following:</p> <ul style="list-style-type: none"> > the intent of the proposed innovation credit > proposed requirements for compliance > proposed submittals to demonstrate compliance > the design approach or strategies used to meet the requirements
	<p>Option 2: Pilot Credits (1-3 points) See http://www.usgbc.org/pilotcredits/all/v4 for a list of pilot credits applicable to each rating system. At this time, only pilot credits related to Energy Performance will be impacted by the use of Solatube Daylighting Systems.</p>
	<p>Option 3: Additional Strategies (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.</p>

Regional Priority

Regional Priority Credits

Rating Systems:
 BD+C v4
 O+M v4
 ID+C v4

Same for all v2009 rating systems

Available Points: 1-4

Intent

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

Product Contribution Statement

The use of Solatube Daylighting Systems can contribute to regional priority credits if the "Impact" credits from above are listed as Regional Priority Credits (RPCs) for your project.

Contribution Calculation

There are no calculations associated with this credit.

Requirements

Document credit compliance for any credit thresholds listed as RPC's for your project.

Earn up to four of the six Regional Priority credits. These credits have been identified by the USGBC regional councils and chapters as having additional regional importance for the project's region. A database of Regional Priority credits and their geographic applicability is available on the USGBC website, www.usgbc.org/rpc.

One point is awarded for each Regional Priority credit achieved, up to a maximum of four.

Integrative Process

<p>Integrative Process</p>	<p>Intent To support high-performance, cost-effective project outcomes through an early analysis of the interrelationships among systems.</p>
	<p>Product Contribution Statement The inclusion of Solatube Daylighting Systems in a project's early Discovery and Schematic Design phases can contribute to the integrated planning and design in order to optimize the performance and interrelatedness of a building's systems.</p>
<p>Rating Systems: BD+C v4 ID+C v4 Not applicable for v2009 rating systems except as a Pilot credit under Innovation</p>	<p>Contribution Calculation There are no calculations associated with documenting the Integrative Process credit.</p>
<p>Available Points: 1-2</p>	<p>Requirements See usgbc.org/credits for more credit or prerequisite details and any addenda as applicable.</p>
	<p><u>LEED BD+C: New Construction and Major Renovations, Core and Shell, Schools, Retail, Healthcare, Data Centers, Hospitality, Warehouse and Distribution Centers</u> 1 POINT - Beginning in pre-design and continuing throughout the design phases, identify and use opportunities to achieve synergies across disciplines and building systems. Use the analyses described below to inform the owner's project requirements (OPR), basis of design (BOD), design documents, and construction documents as they pertain to Energy-Related and Water-Related Systems.</p> <p>For Energy-Related Systems, requirements are described below:</p> <p>DISCOVERY: Perform a preliminary "simple box" energy modeling analysis before the completion of schematic design that explores how to reduce energy loads in the building and accomplish related sustainability goals by questioning default assumptions. Assess at least two potential strategies associated with the following:</p> <ul style="list-style-type: none"> > Site conditions > Massing and orientation > Basic envelope attributes > Lighting levels > Thermal comfort ranges > Plug and process load needs > Programmatic and operational parameters <p>IMPLEMENTATION: Document how the above analysis informed design and building form decisions in the project's OPR and BOD and the eventual design of the project, including the following, as applicable: building and site program, building form and geometry, building envelope and façade treatments on different orientations, elimination and/or significant downsizing of building systems (e.g., HVAC, lighting, controls, exterior materials, interior finishes, and functional program elements); and other systems.</p> <p><u>LEED ID+C: Commercial Interiors, Retail, Hospitality</u> Site Selection and Energy-Related Systems (1 point) Starting in predesign and continuing throughout the design phases, identify and use opportunities to achieve synergies across disciplines and building systems. Use the analyses described below to inform the owner's project requirements (OPR), basis of design (BOD), design documents, and construction documents. Conduct analyses in site selection and energy-related systems (1 point). An additional point is available for including water-related systems in early planning. For Energy-Related Systems, requirements are described below:</p>

DISCOVERY: Perform a preliminary energy analysis before the completion of schematic design that explores how to reduce energy loads for the interior design project and accomplish related sustainability goals by questioning default assumptions and testing options. Assess at least two potential options associated with each of the following in terms of project and human performance:

- > Basic envelope attributes
- > Programmatic and operational parameters
- > Lighting levels
- > Thermal comfort ranges
- > Plug and process load needs

IMPLEMENTATION: Document how the above analysis informed interior design decisions in the project's OPR and BOD and the interior design of the project, including the following, as applicable: building envelope and façade conditions, elimination and/or significant downsizing of building systems (e.g., HVAC, lighting, controls, exterior materials, interior finishes, functional program elements), methods planned to gather feedback on energy performance and occupants' satisfaction during operations.