



Lighting and Sustainable Building Certification Programs

Guardian Life Hudson Yards located in New York, NY designed by Perkins and Will and HDLC Architectural Lighting Design, LEED Gold Certified, photographed by Eric Laignel

Industry-standard building certification programs look to address the built environment, energy efficiency and now occupant health and well-being. Lighting can address many requirements in LEED® certification, WELL Building Standard™ and the Living Building Challenge™. Acuity Brands offers a number of lighting products, technologies, and services to help you address requirements in these building certifications.

1. What are some common building certification programs and how does lighting contribute?

LEED Certification

Leadership in Energy and Environmental Design (LEED) is a building certification program created by the U.S. Green Building Council (USGBC) and is defined as providing "a framework for healthy, efficient, carbon and cost-saving green buildings. LEED certification is a globally recognized symbol of sustainability achievement and leadership.¹" Lighting can contribute to the Energy and Atmosphere (EA), Sustainable Sites (SS), Environmental Quality (EQ) and Materials Resource (MR) sections².

WELL Building Standard

"WELL is a performance-based system for measuring, certifying, and monitoring features of the built environment that impact human health and well-being, through air, water, nourishment, light, fitness, comfort and mind. WELL is grounded in a body of medical research that explores the connection between the buildings where we spend more than 90 percent of our time, and the health and wellness impacts on us as occupants. WELL Certified™ spaces can help create a built environment that improves the nutrition, fitness, mood, sleep patterns and performance of its occupants." Lighting is one of 10 "Concepts" or categories in the WELL Building Standard. The Light concept promotes exposure to light and aims to create lighting environments that promote visual, mental, and biological health³." Lighting can also contribute points in the materials transparency concept.

Living Building Challenge

"The Living Building Challenge is an attempt to dramatically raise the bar from a paradigm of doing less harm to one in which we view our role as a steward and co-creator of a true Living Future. The Challenge defines the most advanced measure of sustainability in the built environment today and acts to rapidly diminish the gap between current limits and the end-game positive solutions we seek⁴."

There are 3 Certification levels within the Living Building Challenge:

- Core Green Building Certification- Requires meeting all the core imperatives
- Petal Certification - Requires the achievement of all the Core Imperatives, in addition to all Imperatives in either the Water, Energy, or Materials Petal
- Living Certification - attaining all the core Imperatives and all the imperatives in each of the Petals



2. What requirements of LEED v4 Interior Design + Construction can you help me to address?

Requirement	Description	How Acuity Brands can help you address this requirement
Sustainability and Site: Light Pollution Reduction	The intent is to increase night sky access, improve nighttime visibility, and reduce the consequences of development on wildlife and people	<p>For outdoor lighting solutions that address light pollution requirements, visit: https://www.acuitybrands.com/resources/industries/outdoor-environments</p> <p>Use photometry reports available for each product. For environments where wildlife could be present, refer to amber lighting solutions available here: https://www.acuitybrands.com/resources/trending-topics/turtle-friendly-lighting</p>
Energy and Atmosphere: Optimize Energy Performance	Points based either on achieved project percentage improvement using metrics of energy cost improvements and greenhouse gas emission reductions or Prescriptive improvements including 1-5 points for interior lighting power density reductions and additional 1-2 points for daylighting control.	<p>Lighting power density reductions are addressed with nLight embedded luminaires enabling lumen maintenance, over time, and resulting in energy savings.</p> <p>For daylight controls, refer to: https://nlight.acuitybrands.com/products/sensors</p>
Energy and Atmosphere: Advanced Energy Metering	Intent is to support energy management and identify opportunities for additional energy savings by tracking building-level and system-level energy use.	<p>Lighting power density reductions are addressed with nLight enabled luminaires enabling lumen maintenance, over time, and resulting in energy savings.</p> <p>For lighting system level energy usage monitoring, address with nLight ENVISION™. Additionally, nLight AIR provides for power monitoring solutions.</p>
Indoor Environmental Quality: Lighting Controls	Earn 1 point through providing occupant control of multiple lighting scenes that meet specific criteria	Address with graphical touchscreens and scene selectors .
Indoor Environmental Quality: Interior Lighting	<p>Option A. Luminaires with a luminance of less than 2,500 cd/m² between 45 and 90 degrees from nadir</p> <p>Option B. Light sources with a CRI of 80 or higher</p> <p>Option C. Light sources that have a rated life (or L₇₀ for LED sources) of at least 24,000 hours</p>	<p>Photometry reports available for each luminaire include luminance charts.</p> <p>Find luminaires meeting this criteria, by utilizing the CRI filter in your product search.</p> <p>Acuity Brands' long-life LEDs, coupled with high-efficiency drivers, provide superior quantity and quality of illumination for extended service life. Information regarding lumen maintenance and rated life is available on each luminaire's spec sheet.</p>
Materials and Resources: Material Ingredient Reporting	The project must 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) using one of several listed methods including Declare Labels, Health Product Declarations or a publicly available inventory of all ingredients identified by name and Chemical Abstract Service Registration Number.	<p>A growing number of luminaires from Acuity Brands have obtained a Declare label. This information is available on individual luminaire spec sheets. In addition, all products with a Declare label/status can be found on the Declare Database here.</p> <p>Note that while some manufacturers will submit a "Manufacturer's Letter" in lieu of a publicly available inventory of all ingredients, these generally are substantially incomplete and do not meet the program requirements.</p> <p>Acuity Brands understands that it is not possible to create an accurate and complete inventory without going through the detailed process required to obtain a Declare label or HPD, and thus refrains from providing manufacturer's letters.</p>

3. What requirements in the Lighting Concept of WELL Building Standard can you help me to address?

Requirement	Description	How Acuity Brands can help you address this requirement
Light Concept: LO2. Visual Lighting Design	Meet Illuminance thresholds per IES (or another recognized standard) taking into account age requirements OR select predetermined light levels where 50% of occupants are under the age of 65	Address these requirements by utilizing Visual Lighting to calculate illuminance outputs. Get your 30-day free trial of Visual Lighting.
Light Concept: LO3. Circadian Lighting Design	Achieve minimum EML(or EDI D65) levels on vertical planes at eye level for four hours, beginning at noon the latest: Tier 1: At least 150 EML [136 M-EDI(D65)] (1 Point) Tier 2: At least 275 EML [250 lux M-EDI(D65)] (3 points) The above thresholds are lowered when the lighting design is combined with an enhanced daylight strategy.	Data required to calculate EML is available from the melanopic ratio, provided on spectral data sheets for each luminaire.
Light Concept: LO4. Electric Light Glare Controls	Each Luminaire, except decorative, concealed & wall washers, meets one of these criteria: 100% indirect, UGR </=16, Luminance <6000cd/m2 between 45 and 90 degrees from nadir OR Regularly occupied spaces designed w/ UGR </=16	Photometry reports available for each luminaire include luminance charts, as well as UGR tables. Easily find products with a low UGR
Light Concept: LO6. Daylight Simulation	Computer simulations that demonstrate minimum daylight levels or target illuminances are met for a target percent of occupied floor area	Visual Lighting software provides daylighting calculations for a specific date and time, and provides for simulation of multiple dates and times to obtain combined results over a date/time range. Get your 30-day free trial of Visual Lighting.
Light Concept: LO7. Visual Balance	Meet specific parameters for vertical luminance contrast ratios & uniformity or lighting designed by a professional	Address these requirements by utilizing Visual Lighting to obtain results. Get your 30-day free trial of Visual Lighting.
Light Concept: LO8. Electric Light Quality	Enhanced Color Rendering 1 Point: For all spaces except circulation areas 90CRI, 80CRI/R9 50 or Rf78/Rg100 Manage Flicker 2 Points: Meet flicker requirements of T24, IEEE 1789-2015LED or NEMA 77-2017	Find luminaires meeting this criteria, by utilizing the CRI filter in your product search . R9 values are available from spectral data sheets. Acuity Brands luminaires with eLdooLED® drivers meet these flicker requirements.
Light Concept: LO9. Occupant Lighting Controls	Lighting Zones, 1-2 Points: One zone per specified square feet or number of occupants AND Lighting Control System with set scenes Supplemental (Task) Lighting, 1 Point	Address zone requirements with nLight lighting controls, and provide access to scene configurations with: • nLight® UNITOUCH • nLight nPODM xS Family
Materials Concept: X09. Material Transparency	Part 1: Select Products with Disclosed Ingredients (1 Point) For at least 50% by count or 25 distinct, permanently installed products ingredients are disclosed by the manufacturer, a disclosure organization or a third party through one of several approved formats including a Declare label, Health Product Declaration (HPD) or a manufacturer's inventory containing CAS numbers of all individual compounds down to 1,000 ppm (0.1%). Part 2: Select Products with Enhanced Ingredient Disclosure (1 Point) Part 3: For at least 15 distinct permanently installed products all ingredients are disclosed down to 100 ppm (.01%) using a Declare label, Health product declaration or Manufacturer's disclosure.	A growing number of luminaires from Acuity Brands have obtained a Declare label. This information is available on individual luminaire spec sheets. In addition, all products with a Declare label/status can be found on the Declare Database here . Note that while some manufacturers will submit a "Manufacturer's Letter" in lieu of a publicly available inventory of all ingredients, these generally are substantially incomplete and do not meet the program requirements. Acuity Brands understands that it is not possible to create an accurate and complete inventory without going through the detailed process required to obtain a Declare label or HPD, and thus refrains from providing manufacturer's letters.

4. What requirements in the Living Building Challenge can you help me to address?

Requirement	Description	How Acuity Brands can help you address this requirement
Section 07. Energy + Carbon Reduction	<p>1) a reduction in total net annual energy compared to an equivalent baseline building (70% for new buildings, 50% for existing buildings, 35% for interiors) and be metered to verify performance</p> <p>2) Use on-site renewable energy</p> <p>3) Use materials that reduce embodied carbon by 20%.</p>	<p>The DesignLights Consortium (DLC) has provided independent verification of energy optimization with networked controls, resulting in an energy reduction of nearly half compared to LED lighting installed without controls. The energy reduction increases to a significant 63% when each luminaire has the capability of individual control. Find nLight and nLight AIR luminaires here</p> <p>For lighting system level energy usage monitoring, address with nLight ENVISION™. Additionally, nLight AIR provides for power monitoring solutions.</p>
Section 12. Responsible Materials	<p>The project must contain one Declare label product per 200 sq m of gross building area, or project area, whichever is smaller, up to twenty distinct products from five manufacturers.</p> <p>All other product manufacturers not currently in Declare must, at a minimum, receive a letter requesting they disclose their ingredients and identify any Red List content</p> <p>20% or more of the materials construction budget must come from within 500 kilometers (310 miles) of construction site</p>	<p>A growing number of luminaires from Acuity Brands have obtained a Declare label. This information is available on individual luminaire spec sheets. In addition, all products with a Declare label/status can be found on the Declare Database here.</p> <p>Note that while some manufacturers will submit a "Manufacturer's Letter" in lieu of a publicly available inventory of all ingredients, these generally are substantially incomplete and do not meet the program requirements.</p> <p>Acuity Brands understands that it is not possible to create an accurate and complete inventory without going through the detailed process required to obtain a Declare label or HPD, and thus refrains from providing manufacturer's letters.</p>
Section 13. Red List	No red list ingredients in 90% of the project by cost.	Section 13 requires red-list products to count toward the requirement. Luminaire Declare labels are not red list free.
Section 14. Responsible Sourcing	Doubles the number of Declare labeled products used on the project vs. Core Certification.	<p>A growing number of luminaires from Acuity Brands have obtained a Declare label. This information is available on individual luminaire spec sheets. In addition, all products with a Declare label/status can be found on the Declare Database here.</p> <p>Note that while some manufacturers will submit a "Manufacturer's Letter" in lieu of a publicly available inventory of all ingredients, these generally are substantially incomplete and do not meet the program requirements.</p> <p>Acuity Brands understands that it is not possible to create an accurate and complete inventory without going through the detailed process required to obtain a Declare label or HPD, and thus refrains from providing manufacturer's letters.</p>
Section 15. Living Sourcing Economy	75% of construction budget must be from products sourced within a specified distance from the construction site: 20% 500 Kilometers (311 miles), 30% 1000 Kilometers (6214 Miles), 25% 5000 Kilometers (3107 miles)	Acuity Brands counts multiple manufacturing locations. Reach out to your local agency for information on how we may meet these project specific requirements.

5. What are Some Common Misconceptions?

Myth - Luminaires must have Declare labels or Health Product Declarations that disclose their chemical contents to be used on projects requiring a sustainability certification.

Reality - Only 20 different permanently installed products in a building require material content disclosure to earn MR points in LEED. In addition, priority is often placed on products, such as carpeting, fabrics, wall coverings, plumbing and composite wood, which are more likely to be in direct physical contact with occupants.

Myth - A product such as a luminaire can achieve LEED certification / WELL Building Standard / Living Building Challenge

Reality - Only buildings can receive LEED certification / WELL Building Standard / Living Building Challenge

Myth - Luminaires are included in the VOC (Volatile Organic Compound) emissions limits in the Low Emitting Materials section under LEED Environmental Quality Credits.

Reality - Luminaires are excluded from this. This section is meant for products that are identified as likely to emit chemical contaminants into the air, such as site-applied paints, coatings, sealants and adhesives, flooring materials, wall & ceiling panels, insulation or furniture.

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1 <https://www.usgbc.org/leed/benefits-leed>

2 https://www.usgbc.org/sites/default/files/LEED%20v4%20BDC_07.25.19_current.pdf Pg. 129

3 <https://standard.wellcertified.com/well>

4 <https://img.acuitybrands.com/general-site-storage/Building%20Certification/Living%20Building%20Challenge.pdf> Pg. 4



Hickok Cole Headquarters located in Washington, D.C., designed by Hickok Cole Architects and Sarah Richter Design with Federated Lighting, LEED Gold Certified, photographed by Garrett Rowland Photography

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