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Earning LEED™ Credits with CPI Daylighting Inc.

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The U.S. Building Council was formed several years ago by a coalition of building industry leaders from across the nation. Their goal and intent was to promote building designs that are environmentally responsible, profitable and healthy places to work and live. These building environments have been proven to boost worker productivity, reduce absenteeism, help students learn and increase worker satisfaction. The LEED point concept was developed by the USGBC to establish a numeric point system that would present an objective method of grading architectural projects as to their adherence to sustainability.

LEED™ (Leadership in Energy and Environmental Design) has become a cornerstone of sustainable design among building owners, architects, engineers and contractors. Many municipalities across the country have mandated that all new public buildings, if not actually submitted for LEED certification, must at least be designed and built with the goal of achieving certification.

One of the easiest ways to gather LEED points revolves around natural light design. CPI Daylighting translucent skylight and wall systems are uniquely suited to achieve the desired results.

Possible LEED credit contributions as a result of incorporating CPI into your design include:

I. Sustainable Sites — Possible Points 14

Credit 7.2 – Landscape & Exterior Design to Reduce Heat Islands, Roof (1 point)

"Use … high emissivity roofing (emissivity of at least 0.9 when tested in accordance with ASTM 408) for a minimum of 75% of the roof surface."

CPI's panel has an emissivity rating in accordance with ASTM 408.

Credit 8 – Light Pollution Reduction (1 point)

" … design interior and exterior lighting such that zero direct-beam illumination leaves the building site. Demonstrate that the design will use diffused or muted light … and not create glare or direct lighting onto neighboring property, streets or night sky."

CPI's light-diffusing characteristics prevent direct-beam illumination from leaving the building interior.

II. Energy & Atmosphere — Possible Points 17

Prerequisite 2 – Minimum Energy Performance (prerequisite) "Design to meet building energy efficiency and performance as required by ASHRAE/IESNA 90.1-1999 or the local energy code, whichever is more stringent."

Quadwall, Pentaglas16, Pentaglas12, and ControLite are the most highly insulating, diffused-light transmitting systems available. With insulating values up to and exceeding .10 U, conductive winter heat loss is minimized. Additionally CPI's low solar heat gain coefficient (SHGC) significantly reduces summer heat gain.

Credit 1 – Optimize Energy Performance (1 point each, up to 10 points)

"Reduce design energy cost compared to the energy cost budget for regulated components described in the requirements of ASHRAE/IESNA Standard 90.1-1999. Regulated energy components include HVAC (heating, cooling, fans and pumps), service hot water and interior lighting."

Performance compares annual energy costs in dollars between the base and designed building using accepted building modeling and analysis techniques. (1-10 points)

1. Calculate the annual energy costs of the designed building model (DB)
2. Calculate the annual energy costs of Energy Cost Budget Building (ECB)
3. Calculate (ECB-DB)/(ECB) =% of optimization

points are determined by the % of optimization.

*The **CPI ControLite System** presents the greatest advantage to the Green designer in that our system delivers up-front savings on the direct cost of the HVAC system. Our energy conservation during peak loads has demonstrated savings of up to $10 per square foot.*

Credit 2.1-2.3 - On-Site Renewable Energy (1-3 points)

"Encourage and recognize increasing levels of on-site renewable energy self-supply in order to reduce environmental and economic impacts associated with fossil fuel energy use".

Use the building annual energy cost calculated in EA Credit 1or use the Department of Energy (DOE) Commercial Buildings Energy Consumption Survey (CBECS) database to determine the estimated electricity use.

III. Materials & Resources Possible Points: 13

Credit 4.1 – Recycled Content, Specify 5% (1 point each)

"Use materials with recycled content such that the sum of post-consumer recycled content plus one-half of the post-industrial content constitutes at least **5%** of the total value of the materials in the project."

Credit 4.2 – Recycled Content, Specify 10% (1 point each)

"Specify an additional 5% (**10% total**) of building materials that contain recycled materials as explained above."

*Our polycarbonate glazing systems satisfy these two criteria in that our glazing is comprised of at least **10% total value** of recycled material according to the LEED guidelines.*

Credit 5.1 – Local/Regional Materials, 20% Manufactured Locally (1 point)

"Specify a minimum of 20% of building materials that are manufactured regionally within a radius of 500 miles."

CPI manufactures all of its products in Lake Forest, IL, and serves a 500 mile radius that consists of almost half of the United States including: Arkansas, Illinois, Indiana, Kansas, Kentucky, Michigan, Minnesota, Missouri, Nebraska, New York, North Carolina, Ohio, Pennsylvania, South Dakota, Virginia, and Wisconsin.

Indoor Environmental Quality Possible Points: 15

Credits 6.1 – Controllability of Systems: Lighting (1 Point)

"Provide a minimum of one operable window … per 200 square feet for all occupied areas within 15 feet of the perimeter wall."

CPI Litewall panels can have project-in, project-out and casement windows for fresh air ventilation.

Credits 6.2 – Controllability of Systems: Thermal Comfort (1 Point)

"Provide a high level of thermal comfort system control by individual occupants or by specific groups in multi-occupant spaces to promote the productivity, comfort and well-being of building occupants".

Credit 8.1 – Daylight & Views, Daylight 75% of Spaces (1 point)

"Achieve a minimum Daylight Factor of 2% (excluding all direct sunlight penetration) in 75% of all space occupied for critical, visual tasks."

CPI translucent systems provide soft, diffused daylight without glare. This is accomplished through our patented tight cell technology without the use of interior light shelves, exterior shading devices, baffles, louvers or blinds.

Credit 8.2 – Daylight and Views, Views for 90% of Spaces (1 point)

"Provide direct line of sight to vision glazing from 90% of all regularly occupied spaces…"

CPI Litewall and window replacement systems can easily and effectively integrate fixed and operable windows glazed with glass for views to the outdoors.

Requirements: Provide at least an average of one operable window AND
-One lighting control zone per 200 s.f. of all regularly occupied areas within 15 ft. of the perimeter wall. (1 point)

Provide controls for each individual for airflow, temperature AND lighting for at least 50% of the occupants in a non-perimeter, regularly occupied areas. (1 point)

*The CPI **ControLite System** is the only natural daylighting system on the market that offers automatic or manual controls which monitor and adjust the amount of natural daylight into a specific area either through a perimeter application or an interior application.*

Innovation & Design Process Possible Points: 5

Credits 1.1–1.4– Innovations in Design (1 point each)

Identify the intent of the proposed innovation credit, with supporting documents for each innovative measure, not specifically addressed by the LEED Green Building Rating System, such as acoustic performance, well being of occupants, etc.

CPI ControLite can provide self-adjustable light that offers any comfortable light or heat in the building, which someone may choose throughout the year. This will improve productivity as well as both leading and training results.