

MATERIALS AND RESOURCES	Potential Points	Requirements	Kawneer Product + Service
<p>Building Product Disclosure and Optimization - Environmental Product Declarations Encourage the use of products and materials for which life-cycle information is available and that have environmentally, economically, and socially preferable life-cycle impacts and to reward project teams for selecting products from manufacturers who have verified improved environmental life-cycle impacts.</p>	<p>1-2</p> <p>(1)</p> <p>(1)</p>	<p>Achieve one or more of the options below, for a maximum of 2 points.</p> <p>OPTION 1: ENVIRONMENTAL PRODUCT DECLARATION (EPD) Use at least 20 different permanently installed products sourced from at least five different manufacturers that meet one of the disclosure criteria below.</p> <ul style="list-style-type: none"> Product-specific declaration of 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. Environmental Product Declarations (Type III) which conform to ISO 14025, 14040, 14044, and EN 15804 or ISO 21930 and have at least a cradle to gate scope for either an Industry-wide (generic) EPD or a Product-specific EPD. Industry-wide (generic) EPD are products with third-party certification (Type III), including external verification, in which the manufacturer is explicitly recognized as a participant by the program operator and are valued as one half (1/2) of a product for purposes of credit achievement calculation. Product-specific EPD are products with third-party certification (Type III), including external verification in which the manufacturer is explicitly recognized as the participant by the program operator and are valued as one whole product for purposes of credit achievement calculation. <p>OPTION 2: MULTI-ATTRIBUTE OPTIMIZATION Use products that demonstrate impact reduction below industry average in at least three of the categories below (third party certified) for 50%, by cost, of the total value of permanently installed products in the project. the categories include: global warming potential (greenhouse gases), depletion of the stratospheric ozone layer, acidification of land and water sources, eutrophication, formation of tropospheric ozone and depletion of nonrenewable energy resources.</p>	<p>Kawneer Product-Specific EPDs Kawneer worked with leading third-party verifiers to create product-specific EPDs for the product entire portfolio.</p>

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<p>Building Product Disclosure and Optimization - Sourcing of Raw Materials Encourage the use of products and materials for which life cycle information is available and that have environmentally, economically, and socially preferable life cycle impacts. To reward project teams for selecting products verified to have been extracted or sourced in a responsible manner.</p>	<p>1-2</p> <p>(1)</p> <p>(1)</p>	<p>Achieve one or more of the options below, for a maximum of 2 points.</p> <p>OPTION 1: RAW MATERIAL SOURCE AND EXTRACTION REPORTING 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.</p> <ul style="list-style-type: none"> • 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: <ul style="list-style-type: none"> • Global Reporting Initiative (GRI) Sustainability Report. • Organisation for Economic Co-operation and Development (OECD) Guidelines for Multinational Enterprises. • U.N. Global Compact: Communication of Progress. • ISO 26000: 2010 Guidance on Social Responsibility. <p>OPTION 2: LEADERSHIP EXTRACTION PRACTICES 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.</p> <ul style="list-style-type: none"> • 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. <p>Continued on next page...</p>	<p>Use of Recycled Aluminum - all Kawneer products Upon request, aluminium extrusions can contain pre- and post-consumer recycled content. We provide Recycled Content Pre-Submittal SAMPLE documentation that outlines recycled content information.</p> <p>Arconic Annual Sustainability Report The annual self-declared Arconic sustainability report addresses responsible sourcing practices and demonstrates our commitment to the full transparency of our sustainability efforts and provides a framework for reporting our sustainability performance.</p>

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<p>Building Product Disclosure and Optimization - Material Ingredients Encourage the use of products and materials for which life-cycle information is available and that have environmentally, economically, and socially preferable life-cycle impacts. To reward project teams for selecting products for which the chemical ingredients in the product are inventoried using an accepted methodology and for selecting products verified to minimize the use and generation of harmful substances. To reward raw material manufacturers who produce products verified to have improved life-cycle impacts.</p>	1-2 (1)	<p>Achieve one or more of the options below, for a maximum of 2 points.</p> <p>OPTION 1: MATERIAL INGREDIENT REPORTING 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).</p> <ul style="list-style-type: none"> Manufacturer Inventory. The manufacturer has published complete content inventory for the product following these guidelines: <ul style="list-style-type: none"> 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. <p>Continued on next page...</p>	<p>Kawneer Material Transparency Summary (MTS) Kawneer has created a complete manufacturer's material ingredient inventory known as the Material Transparency Summary (MTS). Kawneer MTSs provide a chemical inventory of all substances above 100ppm.</p> <p>Cradle to Cradle Certified™ Products Kawneer's 1600 Wall System™ 1 and 2 Curtain Walls and Versoleil™ SunShade systems have both been achieved the rigorous Cradle to Cradle standard and are Cradle to Cradle Certified™ v3.1 Bronze and hold a Silver Level Material Health Certificate.</p> <p>Kawneer Product DECLARE labels Kawneer's most popular products have been vetted for the LBC Red List and have DECLARE labels that are Red List Free with disclosure down to 100 ppm.</p>

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<p>PBT Source Reduction—Lead, Cadmium, and Copper Reduce the release of persistent, bioaccumulative, and toxic (PBT) chemicals associated with the life cycle of building materials.</p>	<p>2 (HC Only)</p>	<p>Specify that interior or exterior paints used do not contain lead or intentionally added cadmium.</p>	<p>No PBT - Anodized Aluminum Kawneer offers multiple anodized aluminum finishes all which do not contain PBT.</p>

INDOOR ENVIRONMENT QUALITY	Potential Points	Requirements	Kawneer Product + Service
<p>Thermal Comfort To promote occupants' productivity, comfort, and well-being by providing quality thermal comfort.</p>	<p>1</p>	<p>Meet the requirements for both thermal comfort design and thermal comfort control.</p> <p>THERMAL COMFORT DESIGN</p> <p>OPTION 1: ASHRAE STANDARD 55-2010 Design heating, ventilating, and air-conditioning (HVAC) systems and the building envelope to meet the requirements of ASHRAE Standard 55-2010, Thermal Comfort Conditions for Human Occupancy, with errata or a local equivalent including Section 5.3, Optional Method for Determining Acceptable Thermal Conditions in Naturally Conditioned Spaces for operable windows. For natatoriums, demonstrate compliance with ASHRAE HVAC Applications Handbook, 2011 edition, Chapter 5, Places of Assembly, Typical Natatorium Design Conditions, with errata.</p> <p>OPTION 2: ISO AND CEN STANDARDS Design HVAC systems and the building envelope to meet the requirements of the applicable standards ISO 7730:2005 (Ergonomics of the Thermal Environment - 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 Section A2) including natural conditioning using operable windows.</p> <p>THERMAL COMFORT CONTROL Provide individual thermal comfort controls for at least 50% of individual occupant spaces with the ability to adjust at least one of the following in their local environment: air temperature, radiant temperature, air speed, and humidity. Provide group thermal comfort controls for all shared multioccupant spaces.</p>	<p>Thermal, Architectural-Grade Operable Windows Provide controllable natural ventilation with architectural grade windows to increase thermal comfort. Reduce waste on the construction site with pre-assembled and factory glazed operable windows.</p> <p>512 Ventrow Thermal Ventilator A modular insert ventilator adds natural, concealed air circulation in fixed frames.</p>
<p>Daylight Provide building occupants with a connection to the outdoors, reinforce circadian rhythms, and reduce the use of electrical lighting by introducing daylight into the space.</p>	<p>1-3</p> <p>(2-3) (1-2 HC)</p> <p>(1-2)</p> <p>(2-3) (1-2 HC)</p>	<p>Provide manual or automatic (with manual override) glare-control devices for all regularly occupied spaces. Select one of the following options.</p> <p>OPTION 1: SIMULATION: SPATIAL DAYLIGHT AUTONOMY AND ANNUAL SUNLIGHT EXPOSURE Demonstrate through annual computer simulations that spatial daylight autonomy of at least 55%, 75%, or 90% is achieved for regularly occupied floor area. AND Demonstrate through annual computer simulations that annual sunlight exposure of no more than 10% is achieved for regularly occupied floor area that is daylit per the sDA300/50% simulations. Include any permanent interior obstructions.</p> <p>OPTION 2: SIMULATION: ILLUMINANCE CALCULATIONS Demonstrate through computer modeling that illuminance levels will be between 300 lux and 3,000 lux for 9 a.m. and 3 p.m. for regularly occupied floor area.</p> <p>OPTION 3: MEASUREMENT Achieve illuminance levels between 300 lux and 3,000 lux for the floor area of at least 75% for regularly occupied floor area.</p>	<p>Sun Control Kawneer sun control products combined with framing systems can reduce the amount of solar radiation when installed over a glazed opening on the exterior of the building or reflect natural light deeper into occupied spaces when installed over a glazed opening on the interior of the building.</p> <p>All Kawneer Framing Systems From our core products like Framing Systems and Windows to specialty products like Overhead Glazing and InFram™ Interior Framing, Kawneer offers strong and versatile solutions that maximize daylight autonomy and sunlight exposure.</p>

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<p>Quality Views Provide building occupants a connection to the natural outdoor environment by providing quality views.</p>	1-2	<p>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:</p> <ul style="list-style-type: none"> 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. 	<p>All Kawneer Framing Systems From our core products like Framing Systems and Windows to specialty products like Overhead Glazing and InFrame™ Interior Framing, Kawneer offers strong and versatile solutions that maximize daylight autonomy and sunlight exposure.</p>
<p>Acoustic Performance Provide workspaces and classrooms that promote occupants' wellbeing, productivity, and communications through effective acoustic design.</p>	1-2	<p>Meet the composite sound transmission class (STC) ratings of 45-60 depending on the type of space, or local building code, whichever is more stringent.</p>	<p>High-Performance Thermal Products High-performance thermal systems provide optimum performance leading to greater energy conservation. Kawneer systems accommodate double pane and triple pane insulating glass to maximize thermal performance and reduce acoustic transmission.</p>

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<p>Low-Emitting Materials To establish better quality indoor air in the building after construction and during occupancy.</p>	1-3	<p>Emissions and Content Requirements</p> <p>To demonstrate compliance, a product or layer must meet all of the following requirements, as applicable. Inherently nonemitting sources. Products that are inherently nonemitting sources of VOCs (stone, ceramic, powder-coated metals, plated or anodized metal, glass, concrete, clay brick, and unfinished or untreated solid wood flooring) are considered fully compliant without any VOC emissions testing if they do not include integral organicbased surface coatings, binders, or sealants. General emissions evaluation. Building products must be tested and determined compliant in accordance with California Department of Public Health (CDPH) Standard Method v1.1–2010, using the applicable exposure scenario. The default scenario is the private office scenario. The manufacturer's or third-party certification must state the exposure scenario used to determine compliance. Claims of compliance for wet-applied products must state the amount applied in mass per surface area. Manufacturers' claims of compliance with the above requirements must also state the range of total VOCs after 14 days (336 hours), measured as specified in the CDPH Standard Method v1.1:</p> <ul style="list-style-type: none"> · 0.5 mg/m³ or less; · between 0.5 and 5.0 mg/m³; or · 5.0 mg/m³ or more. 	<p>Low-Emitting Materials Kawneer offers multiple colors in anodized finish that are inherently non-VOC emitting.</p>

If you are looking for product applications or need technical assistance with your LEED project, contact Kawneer's Architectural Services Team (AST) at our toll-free numbers: (tel) 1.877.767.9107 or (fax) 1.877.767.9102.