

GREEN GLOBES® NEW CONSTRUCTION V1.4 GUIDELINE

Green Globes® is a North American building rating system that is flexible for all building types. It has a two stage assessment process – design and on-site. The main characteristic of Green Globes is that it starts as a self-assessment questionnaire using interactive online tools that shows how points are awarded and scored and provides guidance to help implement the integrated design process from start to finish. There are no pre-requisites and partial credit may be awarded in some areas.

The guideline below helps to outline how Kawneer products can contribute to Green Globes points and certification.

3.1 PROJECT MANAGEMENT	Potential Points	Requirements	Kawneer Product + Service
3.1.1.2 IDP Performance Goals		3.1.1.2.1: Were (qualitative) green design goals established at the pre-design phase for the following: 3.1.1.2.1.1: Site design? 3.1.1.2.1.2: envelope? 3.1.1.2.1.3: Materials efficiency? 3.1.1.2.1.4: Indoor environment?	Product Durability Kawneer framing systems provide a resilient building envelope that can withstand natural disasters (hurricane/tornado) and other damage which increases longevity and decreases the need for replacement.
3.1.2.3 Building Materials and Building Envelope	1	3.1.2.3.1.2: The building envelope will be weather-tight and permitted to dry before installation of interior walls, wood floors, ceilings, or HVAC systems?	Testing Standards All Kawneer products are tested to ASTM standards for air, water and structural to prevent air leakage and water infiltration.

3.2 SITE	Potential Points	Requirements	Kawneer Product + Service
3.2.2.5 Bird Collisions	2	Are the following measures required to help ensure that birds perceive windows as being a solid object: 3.2.2.5.1.1: Visual markers ? ToolTip: Features or patterns that are no more than 11 in. (28 cm) apart, up to at least 39 ft. (12 meters) above grade. Examples are mullions, fritted glass, decorative grilles and louvers or artwork. 3.2.2.5.1.2: Avoidance of reflections? ToolTip: Reflections can be avoided by internal screens, awnings, overhangs and sunshades or by angling the glass downward (minimum 20°).	Accomodate Bird Friendly Glass Kawneer products can accommodate bird friendly glass that has visual markers or screens. Kawneer sunshade products can also help reduce reflections.

3.3 ENERGY	Potential Points	Requirements	Kawneer Product + Service
3.3.1.1 Assessing Energy Performance	100 Max 50 bonus	<p>Path A: ENERGY STAR® Target Finder 3.3.1.1.1.1 Criteria: Input the energy performance as the ENERGY STAR® percentile score derived from the Target Finder program.</p> <p>Path B: ANSI/ASHRAE/IES Standard 90.1-2010, Appendix G 3.3.1.1.2.1 Criteria: Input the energy performance as the percentage value compared to the reference base building, per ANSI/ASHRAE/IES Standard 90.1-2010, Appendix G.</p> <p>Path C: ANSI/GBI 01-2010 Energy Performance Building Carbon Dioxide Equivalent Emissions 3.3.1.1.3.1 Criteria: Input the energy performance as a reduction of Carbon Dioxide Equivalent (CO₂e) Emissions based on the ANSI/GBI 01-2010 Energy Performance Building Carbon Dioxide Equivalent (CO₂e) Emissions protocol.</p> <p>Path D: ASHRAE Building Energy Quotient (bEQ) 3.3.1.1.4.1 Criteria:</p> <p>Input the energy performance as per the ASHRAE Building Energy Quotient (bEQ) rating program for an 'As Designed' assessment. Answers:</p> <ul style="list-style-type: none"> – Zero Net Energy: A+ (100 points + 25 bonus points) – High Performance: A (100 points) – Very Good: A- (60 points) – Efficient: B (30 points) 	<p>Natural Ventilation</p> <p>Kawneer's thermal, architectural grade operable windows allow for effective control of natural ventilation, helping to achieve compliance with ASHRAE 62.1-2013 requirements. Natural ventilation promotes good indoor air quality and is one benefit of Kawneer operable windows.</p>
3.3.2.1 Passive Demand Reduction	3	<p>3.3.2.1.1: Does a minimum of 20% of the building envelope gross wall area have either of the following:</p> <ul style="list-style-type: none"> – A minimum heat capacity of 7 Btu/ft² °F (143 kJ/m²K)? – A minimum heat capacity of 5 Btu/ft² °F (102 kJ m²K), provided the walls have a material unit weight equal to or less than 120 lb/ft³ (1920 kg/m³)? <p>3.3.2.1.2: Do mass walls that re used as interior partitions and constituting 20% of the building envelope gross area, have either of the following:</p> <ul style="list-style-type: none"> – A minimum heat capacity of 7 Btu/ft² °F (143 kJ/m²K)? – A minimum heat capacity of 5 Btu/ft² °F (102 kJ m²K), provided the walls have a material unit weight equal to or less than 120 lb/ft³ (1920 kg/m³)? 	<p>Passive Design Strategies</p> <p>Kawneer has a variety of thermal products that provide insulation to increase energy efficiency, as well as products that can accommodate triple pane glass to provide even more energy efficiency. Additionally, Kawneer offers various shading systems to reduce solar heat gain through the glass and help to prevent glare.</p>
3.3.4.3 Fenestration Systems	16	<p>3.3.4.3.1: Is the thermal transmittance (U-factor) of the building's fenestration system less than or equal to the values in Table 3.3.4.3: Building Envelope Requirements?</p> <p>3.3.4.3.2: Is the Solar Heat Gain Coefficient (SHGC) of the building's fenestration system less than or equal to the values in Table 3.3.4.3: Building Envelope Requirements?</p>	<p>Thermal Performance</p> <p>Our framing systems accomodate double pane and triple pane insulating glass to maximize thermal performance and provide a thermally efficient U-value and SHGC. A Thermal Performance Matrix is provided for all framing systems in the product's Architectural Detail Manual.</p>

3.3 ENERGY	Potential Points	Requirements	Kawneer Product + Service
3.3.5.4 Daylighting	8	<p>3.3.5.4.1: Are the regularly occupied side-lit daylighted areas (vertical fenestration) and the top-lit daylighted areas (skylights) equal to at least 10% of the net building area?</p> <p>3.3.5.4.2: Is the effective aperture for vertical fenestration (EAVF) equal to or greater than:</p> <ul style="list-style-type: none"> - 0.10 EAVF for climate zones (CZ) 1, 2, 3A, or 3B? - 0.15 EAVF for climate zones 3C, 4, 5, 6, 7, or 8? <p>3.3.5.4.3: What percentage of the roof consists of skylights?</p> <p>Answers:</p> <ul style="list-style-type: none"> - ≥ 5% (2 points) - 4 - < 5% (1.5 points) - 3 - < 4% (1 point) - 2 - < 3% (0.5 points) 	<p>Daylighting Kawneer products are a great way to provide daylight into the building. Also, Kawneer sunshades help to reduce glare and the Kawneer light shelf helps to reflect daylight deeper into the interior occupied space enhancing natural light.</p>

3.5 MATERIALS AND RESOURCE	Potential Points	Requirements	Kawneer Product + Service
3.5.1 Building Core and Shell	33	<p>3.5.1.1 Path A: Performance Path for Building Core and Shell</p> <p>3.5.1.1.1: Was the Athena Impact Estimator for Buildings (Version 4.2 or later) used during design to evaluate a minimum of two different core and shell designs, based on life cycle assessment (LCA) in compliance with the assessment guidance and resulting in selection of the building core and shell with the least anticipated environmental impact?</p> <p>or</p> <p>Was another LCA tool used during design to evaluate a minimum of two different core and shell designs, based on life cycle assessment (LCA) in compliance with the assessment guidance and resulting in selection of the building core and shell with the least anticipated environmental impact?</p> <p>3.5.1.2 Path B: Prescriptive Path for Building Core and Shell</p> <p>3.5.1.2.1: Based upon the appropriate application and specification of comparable materials and products, what percentage of products selected for the building core and shell (based upon cost) have:</p> <p>3.5.1.2.1.1:</p> <ul style="list-style-type: none"> - Environmental Product Declarations (EPDs) that utilize recognized Product Category Rules, conform to ISO standards, and minimally includes cradle-to-gate scope: - Industry Wide (Generic) EPD: Products specified for the interior fit-out shall include Type III Environmental Product Declaration (EPD)? <p>and/or</p> <p>Brand Specific EPD: Products specified for the building core and shell shall include Type III Environmental Product Declaration (EPD), where the EPDs are specific to particular products from identified manufacturers?</p> <p>and/or</p> <ul style="list-style-type: none"> - Third-party certifications that are based upon a multiple attribute standard(s) developed by a consensus based process from an approved standard development organization? Examples include NSF sustainability assessment standards, UL Environment sustainability standards, Sustainable Minds Transparency Report™ Framework, and other consensus based assessment standards that are multiple attribute-based. <p>and/or</p> <ul style="list-style-type: none"> - Third-party verified product life cycle assessment based upon ISO 14040:2006 and ISO 14044:2006, and minimally covers cradle-to-gate scope? <p>and/or</p> <ul style="list-style-type: none"> - Third-party sustainable forestry certifications? - ToolTip: Examples of third-party sustainable forestry certifications include American Tree Farm System (ATFS), Forest Stewardship Council Standard (FSC), and the Sustainable Forestry Initiative Standard (SFI), amongst others. 	<p>Kawneer Product Specific EPDs</p> <p>Kawneer worked with leading third-party verifiers to create product-specific EPDs for the product entire portfolio.</p>

3.5 MATERIALS AND RESOURCE	Potential Points	Requirements	Kawneer Product + Service
3.5.4.1 Construction Waste	6	What percentage of the construction waste, including building demolition waste, will be diverted from the landfill?	<p>Aluminum is 100% Recyclable Post-fabricated aluminum excess can be recycled into the metal waste stream.</p> <p>Unitized Curtain Walls Pre-fabricated aluminum minimizes excess waste on the construction site.</p>
3.5.5 Building Service Life Plan	6	<p>3.5.5.1: Is there a preliminary Building Service Life Plan that includes the expected service life estimates for the following:</p> <p>3.5.5.1.2: The structural systems, building envelope, and hardscape materials that will need to be replaced during the life of the building?</p>	<p>Product Durability Kawneer framing systems provide a resilient building envelope that can withstand natural disasters (hurricane/tornado) and other damage which increases longevity and decreases the need for replacement.</p>
3.5.6.1 Minimized Use of Raw Materials	3	<p>3.5.6.1.1: Does the design specify the use of prefabricated, preassembled, and/or modular products?</p> <p>3.5.6.1.2: Does the building design use materials efficiently and/or minimizes the use of raw materials as compared with typical construction practices?</p>	<p>Unitized Curtain Walls Pre-fabricated aluminum minimizes excess waste on the construction site.</p> <p>Pre-Glazed 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>
3.5.6.2 Multi-Functional Assemblies	3	<p>3.5.6.2.1: Does the design incorporate assemblies that perform multiple functions?</p> <p>ToolTip: For example, a curtain wall that serves multiple functions of day lighting, insulation, and vapor barrier; systems</p>	<p>Multi-Functional Kawneer products serve multiple functions such as daylighting, high thermal performance, reduction in acoustic transmission, and protection from hazards.</p>

3.5 MATERIALS AND RESOURCE	Potential Points	Requirements	Kawneer Product + Service
3.5.7.3 Roof and Wall Openings	4	<p>3.5.7.3.1: Is there a requirement that all products for roof and wall openings (doors, windows, skylights etc.) are to:</p> <ul style="list-style-type: none"> - 3.5.7.3.1.1: Comprise moisture management design that meets industry prescribed performance requirements? - ToolTip: "Prescribed performance requirements" for design pressure should be in accordance with AAMA/WDMA/CSA 101/I.S.2/A440-08 (or more recent version). Mark "N/A" only where there are no newly installed roof and wall openings, as in the case of a retrofit. - 3.5.7.3.1.2: Be installed as per prescribed industry best practice? - ToolTip: "Prescribed industry best practice" is ASTM E2112-07 (or more recent version) or CMHC Flashings: Best Practice Guide. Mark "N/A" only where there are no newly installed roof and wall openings, as in the case of a retrofit. - 3.5.7.3.1.3: Be inspected as per the prescribed industry protocol, including field testing with respect to water penetration? - ToolTip: Final Verification at the post-construction Phase. "Prescribed industry protocol" is NIBS Guideline 3-2006: Annex M.1 Construction & Industry checklists M.1-7 for Windows and M.1-8 Skylights (or more recent version). Field testing for water penetration should consist of a minimum of 3 units per 100 of each type (doors, windows, skylights, in accordance with the following: ASTM E1105-2000; and by applying the same test pressures required to determine compliance with specified requirements of AAMA/WDMA/CSA 101/I.S.2/A440-08 field testing. "Design Pressure" means the wind load pressure a product is rated to withstand. Mark "N/A" only where there are no newly installed roof and wall openings, as in the case of a retrofit. 	<p>Installation Instructions Kawneer products and installation instructions comply with industry standards and support best practices for wall openings. Installation instructions are available for all Kawneer products for proper installation.</p>
3.5.9.1 Exterior Wall Cladding Systems	2	<p>3.5.9.1.1: Is there a requirement to install cladding systems as per industry best practices for one of the following:</p> <ul style="list-style-type: none"> - Aluminum framed glazing systems installed in accordance with the manufacturer's requirements and warranted by the manufacturer for the intended purpose? <p>3.5.9.1.2: Is there a requirement to inspect the cladding installation as per the appropriate prescribed industry protocols for one of the following:</p> <ul style="list-style-type: none"> - Aluminum framed glazing systems? <p>ToolTip: Aluminum framed glazing systems: NIBS Guideline 3-2006: Annex M.1 Construction & Industry Checklist M.1-6 for Entrances and Storefronts and M 1-10 for Glazed Curtain Walls (or more recent version).</p>	<p>Installation Instructions Kawneer products and installation instructions comply with industry standards and support best practices for wall openings. Installation instructions are available for all Kawneer products for proper installation.</p>

3.7 INDOOR ENVIRONMENT	Potential Points	Requirements	Kawneer Product + Service
3.7.1.2 Air Exchange	8	<p>3.7.1.2.2: Path B: Natural Ventilation Only</p> <p>3.7.1.2.2.1: Are the following conditions met as per ANSI/ASHRAE Standard 62.1-2010, Section 5.1:</p> <ul style="list-style-type: none"> - 3.7.1.2.2.1.1: All points within habitable spaces considered to be naturally ventilated are within 25 ft. (7.6 m) of a permanent or operable wall, window or roof opening to the outdoors? - 3.7.1.2.2.1.2: The unobstructed area of the opening measures at least 4% of the net floor area that is being naturally ventilated? - 3.7.1.2.2.1.3: Where interior spaces are naturally ventilated through adjoining (perimeter) rooms, the openings between the spaces were designed to have a minimum area of 8% of the net floor area of the interior room and were at least 25 ft2 (2.3 m2)? - 3.7.1.2.2.1.4: All operable openings are readily accessible to building occupants? <p>If Path B: Natural Ventilation Only is selected, Path A and Path C and their associated points cannot also be selected and awarded – only one path will be awarded points.</p> <p>3.7.1.2.3: Path C: Combination of Mechanical & Natural Ventilation</p> <p>3.7.1.2.3.2: Where natural ventilation is employed, are the following conditions met as per ANSI/ASHRAE Standard 62.1-2010, Section 5.1:</p> <ul style="list-style-type: none"> - 3.7.1.2.3.2.1: All points within habitable spaces considered to be naturally ventilated are within 25 ft. (7.6 m) of a permanent or operable wall, window or roof opening to the outdoors? - 3.7.1.2.3.2.2: The unobstructed area of the opening measures at least 4% of the net floor area that is being naturally ventilated? - 3.7.1.2.3.2.3: Where interior spaces are naturally ventilated through adjoining (perimeter) rooms, the openings between the spaces were designed to have a minimum area of 8% of the net floor area of the interior room and were at least 25 ft2 (2.3 m2)? - 3.7.1.2.3.2.4: All operable openings are readily accessible to building occupants? <p>If Path C: Combination of Mechanical & Natural Ventilation is selected, Path A and Path B</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>
3.7.2.1 Volatile Organic Compounds	2.5	<p>3.7.2.1.3: is there a requirement that paints will comply with prescribed limits of VOCs and/or be certified?</p>	<p>Anodized Aluminum Kawneer offers multiple anodized aluminum finishes. Anodized aluminum finishes inherently do not release VOC emissions and is the recommended coating for indoor healthy spaces.</p>

3.7 INDOOR ENVIRONMENT	Potential Points	Requirements	Kawneer Product + Service
3.7.3.1 Daylighting	13	<p>3.7.3.1.1: What percent of floor area occupied for critical visual tasks achieves a minimum daylight factor (DF) of 2 (excluding all direct sunlight penetration)?</p> <ul style="list-style-type: none"> - ≥ 75% (7 points) - 50 - 74% (5 points) - 25 - 49% (3 points) <p>ToolTip: "Daylight factor" means the ratio of internal light level to external light level. Levels between 2 and 5 indicate adequate daylighting and possibly the need for artificial lighting for part of the time. Levels greater than 5 indicate a well daylit area, but glare and solar gain may cause problems. Consult the Whole Building Design Guide (WBDG) for recommended DF for various types of spaces.</p> <p>Daylight Factor Calculation: $DF = (E_i / E_o) \times \%$ where, E_i = illuminance due to daylight at a point on the indoors working plane; and E_o = simultaneous outdoor illuminance on a horizontal plane from an unobstructed hemisphere of overcast sky.</p> <p>In order to calculate E_i, one must establish the amount of light received from the outside to the inside of a building.</p> <p>A simple rule of thumb to estimate the daylight factor for a daylit space that has vertical windows is: $DF = 0.1 \times PG$, where: DF = daylight factor PG = percentage of glass to floor area (area of the windows/floor area)</p> <p>3.7.3.1.2: What percentage of task areas were designed to have views to the exterior or atria within 25 ft. (7.6 m) from a window?</p> <ul style="list-style-type: none"> - ≥ 60% of occupied space (5 points) - 31 - 59% (3 points) - 10 - 30% (1 point) <p>ToolTip: The percentage is based on the number of task areas that have a view to the building exterior over the total number of task areas in the building.</p> <p>3.7.3.1.3: Are there shading devices on southern, western, and eastern exposures?</p> <ul style="list-style-type: none"> - Yes (1 points) - Partially (0.5 points) <p>3.7.3.1.4: Are there shading devices to eliminate direct sunlight from reaching task areas?</p> <p>3.7.3.1.5: What percentage of daylit areas are there photo-sensors to maintain consistent lighting levels throughout the day using both daylighting and artificial lighting?</p> <ul style="list-style-type: none"> - > 75% of spaces (3 points) - 50 - 75% of spaces (2 points) - 25 - 49% of spaces (1 point) <p>ToolTip: This applies to areas with a Daylight Factor of at least 2.</p>	<p>All Kawneer Framing Systems</p> <p>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>

3.7 INDOOR ENVIRONMENT	Potential Points	Requirements	Kawneer Product + Service
3.7.5.1 Acoustic Comfort Design	5-7	<p>3.7.5.1.3: Has an Acoustical Consultant or Acoustician signed off on a design that complies with minimum Sound Transmission Class (STC) ratings of floor/ceiling assemblies, walls and doors between acoustically separated areas (e.g. learning spaces), and adjacent spaces as follows and as applicable:</p> <ul style="list-style-type: none"> – 3.7.5.1.3.1: STC-45 where the adjacent space is a corridor, stair, office, or conference room? – 3.7.5.1.3.2: STC-50 where the adjacent space is a quiet area, speech clinic, health clinic, classroom, or an exterior wall? – 3.7.5.1.3.3: STC-50 for doors to quiet areas? – 3.7.5.1.3.4: STC-40 for doors to music rooms, cafeterias, natatoria (e.g. swimming pool), or gymnasias? – 3.7.5.1.3.5: STC-35 for exterior windows? <p>ToolTip: Verify that construction documents include measures to mitigate sound transmission through the building envelope from external sources such as traffic, air traffic, car alarms etc., and that ambient sound levels in enclosed, occupied spaces fall within specified STC ratings. Review the acoustical analysis prepared by an Acoustical Consultant or Acoustician and the design and construction drawings showing the details required for optimum acoustic performance.</p> <p>3.7.5.1.4: Does the Impact Insulation Class (IIC) design of all floor-ceiling assemblies have a minimum rating of IIC-50?</p> <p>ToolTip: Verify that sound transmission from the outside and between rooms and floors will be attenuated, and that primary spaces will be effectively insulated from undesirable impact noise (stairways, mechanical transportation, etc.) when adjacent spaces are fully occupied and being used normally. Check that the appropriate Impact Insulation Class (IIC) values have been specified. Check that engineering design calculations and drawings by an Acoustical Consultant or Acoustician are included.</p>	<p>Acoustics and STC Rating</p> <p>For every setting within a project, Kawneer offers solutions with acoustical performance and STC ratings. Contact your Kawneer Sales Rep to further explore acoustic options.</p>