

PASSIVE HOUSE INSTITUTE U.S. (PHIUS) CERTIFICATION GUIDELINE

Despite the name, PHIUS can be used on commercial multi-story buildings and is based on passive design principles such as air tightness, continuous insulation, energy sources and resiliency. PHIUS is completely based on modeled performance and is pass/fail.

Review the guideline below to see how Kawneer products can contribute toward PHIUS certification.

SPACE-CONDITIONING	Requirements	Guidance	Kawneer Product + Service
Main Performance	The specific heating and cooling energy targets for the project will be determined by the location of the project.	To achieve such a high standard the first step is to reduce energy waste and increase efficiencies through design, then move on to technological solutions. 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 has shading systems to reduce solar heat gain through the glass and help to prevent glare.	High-Performance Thermal Systems 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.
Window Products	There is a "hard requirement" on window performance to avoid condensation risk. However, the space conditioning criteria are predicated on using windows better than that - with a low enough U-value to maintain at least 60 F interior surface temperature at the 12-hour mean minimum winter temperature.	To achieve this stringent energy performance Kawneer OptiQ™ Ultra Thermal Windows accommodate triple pane insulating glass that's combined with thermal breaks and spacers to maximize thermal performance.	Kawneer Window Systems Kawneer has high-performance thermal windows to increase energy efficiency specifically for use on Passive House projects.

AIRTIGHTNESS	Requirements	Guidance	Kawneer Product + Service
Airtightness	The certification requirement is as follows: For buildings of five stories and above that are also of noncombustible construction: q50 <= 0.080 CFM50/ft2 or q75 <= 0.100 CFM75/ft2 of gross envelope area For all other buildings: q50 <= 0.050 CFM50/ft2 or q75 <= 0.080 CFM75/ft2 of gross envelope area	All Kawneer products with proper installation can provide a strong and tight building envelope.	High-Performance Thermal 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.

PRIMARY ENERGY	Requirements	Guidance	Kawneer Product + Service
Residential Buildings - Low and High-rise.	The source energy (PE) limit for both low and high-rise residential buildings is 6200 kWh/yr/person. For purposes of the PE limit, the number of persons, the design occupancy, is taken to be the number of bedrooms+1, on a per unit or unit-by-unit basis (e.g., four two-bedroom units have a design occupancy of twelve, not nine.)	To achieve such a high standard the first step is to reduce energy waste and increase efficiencies through design, then move on to technological solutions. 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 has shading systems to reduce solar heat gain through the glass and help to prevent glare.	High-Performance Thermal Systems 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.
Mixed-Use Buildings.	The residential limit also applies if the building has common spaces and conditioned spaces that are not dwelling units, but that primarily serve the residents. Nonresident occupants of such common spaces (staff) are not included in the occupant count for determining the source energy allowance. If there are non-residential spaces designed to mainly serve non-resident customers/ clientele, an additional PE allowance may be calculated based on the iCFA of those spaces. The nonresident occupants of such spaces, the staff and customers, are not included in the occupant count for determining the per-person portion of the source energy allowance.	To achieve such a high standard the first step is to reduce energy waste and increase efficiencies through design, then move on to technological solutions. 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 has shading systems to reduce solar heat gain through the glass and help to prevent glare.	High-Performance Thermal Systems 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.
Renewables Credits.	An active solar thermal system or renewable energy systems (such as PV) is regarded as reducing the source energy demand associated with water heating and, if so configured, space heating as well. The system is not regarded as reducing the space heat demand itself.	Kawneer has shading systems to reduce solar heat gain through the glass and help to prevent glare. Kawneer has created the Solector® Sun Shading Estimator which is an energy savings estimating tool to compare shading performance of different scenarios of avoided solar heat gain. When it comes to renewable energy, Kawneer has that covered too. We have a sun shade system with building integrated photovoltaics (BIPV) to generate energy while conserving it at the same time. Kawneer has also made modifications within our curtainwall and overhead glazing systems to integrate thin film photovoltaic technology within the glass. We are able to work with a variety of glass manufacturers to make sure integration into each system is smooth and reliable.	1600 PowerShade™ Sun Shade System Photovoltaic (PV) cells in the 1600 PowerShade™ Sun Shade System convert light energy from the sun into electricity, which can be fed into the building's system. On-site renewable energy reduces the environmental impact associated with the use of fossil fuels.

MOISTURE DESIGN	Requirements	Guidance	Kawneer Product + Service
<p>Window Condensation Resistance.</p>	<p>ISO 13788 addresses assessment of condensation on “low thermal inertia” elements such as windows and doors, the goal is to avoid outright condensation (RH=100%), because windows and doors have impermeable surfaces that aren’t as subject to mold, but vulnerable to rot and corrosion if outright wet. But the outside design temperature is more severe – and calls for the lowest daily mean temperature of the whole year. The current passing criterion is that 1-D calculations on the surface temperatures or fRsi of the frame and the glass, or an AAMA CRF rating, should meet the ISO 13788 minimums at the ASHRAE 99.6% design temperature for the climate, with some safety margin, or that a CSA I-value meets it without a safety margin.</p>	<p>All Kawneer products are tested to ASTM standards for air, water and structural to prevent air leakage and water infiltration.</p>	<p>High-Performance Thermal Systems 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>

QUALITY RELATED PRESCRIPTIVE DESIGN	Requirements	Guidance	Kawneer Product + Service
Building Envelope.	Fenestration shall meet or exceed ENERGY STAR requirements. Where triple glazed window assemblies with thermal breaks/spacers between the panes are used, such windows are deemed to meet this requirement even in the absence of an ENERGY STAR certification.	Kawneer windows and curtain wall systems can accommodate triple pane insulating glass that's combined with thermal break and spacers to maximize thermal performance and reduce acoustic transmission. Also consider systems that leverage photovoltaics to produce electricity and help with the power needs of the entire building.	High-Performance Thermal Systems 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.
Indoor Air Quality.	Certified low-VOC or no-VOC interior paints and finishes used.	Kawneer has been working with its paint suppliers to learn more about VOC content and hazardous materials in the paint. Currently we are still working to better understand paint, we suggest using anodized finishes to help support indoor air equality.	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.
Water-Managed Wall Assembly.	Framing systems designed for water management.	All Kawneer products are design with moisture control and water management in mind. From condensation reduction to sill, sub-sill and flashing, Kawneer considers water draining solutions with all their product designs. Many products are tested to AAMA 1503-09: Voluntary Test Method for Thermal Transmittance and Condensation Resistance of Windows, Doors and Glazed Wall Sections.	High-Performance Thermal 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.