



LEED® - WHICH STANDS FOR LEADERSHIP IN ENERGY & ENVIRONMENTAL DESIGN (WWW.USGBC.ORG) - IS A VOLUNTARY POINT-BASED SYSTEM FOR BUILDINGS. WITH THIS LEED® CERTIFICATION, VALIDATION OF THE BUILDING'S PERFORMANCES AGAINST A SET OF SPECIFIC GREEN BUILDING CRITERIA IS SOUGHT BY THE ASSESSOR. THE BUILDING IS THEN AWARDED AN OVERALL SCORE. THE U.S. GREEN BUILDING COUNCIL (USGBC) DEVELOPS AND UPDATES SEVERAL LEED® RATING SYSTEMS TARGETING DIFFERENT CONSTRUCTION TYPES.

LEED® FOR NEW CONSTRUCTION AND MAJOR RENOVATION V3.0 IS DIVIDED INTO 7 MAIN CATEGORIES. THE LAST YEARS, AGC GLASS EUROPE COLLABORATED WITH THIRD-PARTY LEED CERTIFIED ASSESSORS TO HELP CUSTOMERS IMPROVE THEIR CERTIFICATION RATINGS. THESE ASSESSORS ANALYSED THE COMPANY'S GLASS PRODUCTS TO ASSESS THE NUMBER OF POINTS THEY COULD CONTRIBUTE UNDER THE CERTIFICATION SYSTEM. AS SHOWN BELOW, AGC GLASS SOLUTIONS HELP A BUILDING TO ACHIEVE A HIGHER LEVEL OF CERTIFICATION THROUGH SOME OF THESE CATEGORIES.

ENERGY AND ATMOSPHERE (EA)

INTENT

AGC PRODUCTS CONTRIBUTION

Minimum Energy Performance (EAp2)

To establish the minimum level of energy efficiency for the proposed building and systems to reduce environmental and economic impacts associated with excessive energy use.

No potential points (prerequisite)

In the field of energy performance optimization, AGC is at the forefront of the development of coated glass. This type of glass contributes directly to reducing energy consumption: super insulating glazings save energy used for heating, while solar control glazings save energy used for air conditioning.

Thermal Insulation: limiting heat losses through glazing has become a priority for AGC. AGC developed a wide range of super insulating coated glass, also called low emissivity ("low-e") glass, including **Planibel G**, **Planibel G fast**, **iplus range**.

Optimize Energy Performance (EAc1)

To achieve increasing levels of energy performance beyond the prerequisite standard to reduce environmental and economic impacts associated with excessive energy use.

Maximum potential points: 19

Solar control: AGC manufactures solar control glass (**Stopsol**, **Stopray**, **Sunergy**, **iplus Energy^N**, **iplus Energy^{NT}**) that allows sunlight to pass through a window or façade while radiating and reflecting away a lot of the heat of the sun, making indoor spaces much cooler and saving on air-conditioning.

These products are well suited to tertiary buildings with air conditioning to maintain a comfortable temperature while at the same time minimizing energy consumption and providing wide range of light-reflection and light-transmission levels. Some glass products such as **Stopray**, **Sunergy**, **iplus Energy^N**, **iplus Energy^{NT}** combine solar control and thermal insulation.

On-site Renewable Energy (EAc2)

To encourage and recognize increasing levels of on-site renewable energy self-supply to reduce environmental and economic impacts associated with fossil fuel energy use.

Maximum potential points: 17

As part of the world leader in glass production, AGC benefits from the latest glass technologies to make renewable energy a success. We produce glass solutions for three main solar applications: photovoltaic modules, thermal collectors and concentrating solar mirrors. For instance, **SunEwat XL** is a laminated safety glass with embedded photovoltaic cells and generates electricity while acting as a building material. **SunEwat XL** can be installed in double glazing to provide the necessary thermal insulation.

MATERIALS & RESOURCES (MR)

INTENT

AGC PRODUCTS CONTRIBUTION

Recycled Content (MRc4)

To increase demand for building products that incorporate recycled content materials, thereby reducing impacts resulting from extraction and processing of virgin materials.

Maximum potential points: 2

AGC conducts an environmental policy that encourages recycling. One of its objectives is to develop new products with better environmental performances throughout their entire lifetime, including the recycling stage.

AGC products contain an average value of at least 30% recycled glass. Pursuant to the definition of ISO 14021, pre-consumer recycled content does not include reutilized materials generated in a process and capable of being reused as a substitute for a raw material without being modified in any way. So cullet re-used in the same process cannot be considered to be "recycled" and is regarded as reutilized material.

AGC uses cullet from post-industrial plants, such as processing plants. The pre-consumer cullet content of our products accounts for between **0 to 21%**, depending on the production plant.

Regional Materials (MRc5)

To increase demand for building materials and products that are extracted and manufactured within the region, thereby supporting the use of indigenous resources and reducing the environmental impacts resulting from transportation.

Maximum potential points: 2

AGC and its baseline "Glass Unlimited" reflect the possibilities offered by its production network made up of 19 float glass plants and more than 100 processing units located throughout Europe, from Spain to Russia. With its network, AGC helps customers to locate a material source **within 500 miles** of their project site.

Transport by ship or rail involves a lower level of emissions of CO₂, NO_x, SO₂ and dust than transport by truck. An increasing volume of our raw materials is transported by ship and train. Currently, about **71% of all raw materials (including heavy fuel) is transported by ship or train**, taking about 86,000 trucks per year off the road.

REGIONAL PRIORITY (RP)

INTENT

AGC PRODUCTS CONTRIBUTION

Regional Priority (RPc1)

To provide an incentive for the achievement of credits that address geographically-specific environmental priorities.

Maximum potential points: 4

Priority credits are identified by the U.S. GBC regional councils and chapters as having an environmental importance for a project's region. LEED recognizes that different regions have their own specific energy challenges and hence reward project that address pre-defined local needs. Regional Priority Credits (RPC) are existing credits that have been emphasized as critical local needs and can also earn bonus points. For example, in Belgium, the applicable credits include EAc1 for which our glass products are eligible.

INNOVATION IN DESIGN (ID)

INTENT

AGC PRODUCTS CONTRIBUTION

Innovation in Design (IDc1)

To provide design teams and projects the opportunity to achieve exceptional performance above the requirements set by the LEED Green Building Rating System and/or innovative performance in Green Building categories not specifically addressed by the LEED Green Building Rating System.

Maximum potential points: 5

AGC provides glass products that boost exceptional levels of thermal insulation, solar control, light transmission and health protection in its wide range of glass products:

- Noise Control: **Stratobel, Stratophone**
- Hygiene: glass with antibacterial effect - **AntiBacterial glass™**
- Safety & Security: **Stratobel, Stratophone, tempered glass, Pyrobel, etc.**
- Photovoltaic cells integrated in glass: **SunEwat XL**
- Additionally, the Cradle to Cradle products' certification can contribute to achieve points under this category. A wide range of our float, soft coating and decorative interior glass are **Cradle to Cradle certified at the Silver level**.

INDOOR ENVIRONMENTAL QUALITY (IEQ)

INTENT

AGC PRODUCTS CONTRIBUTION

Low-Emitting Materials - Paints & Coatings (IEQc4)

To reduce the quantity of indoor air contaminants that are odorous, irritating and/or harmful to the comfort and well-being of installers and occupants.

Maximum potential points: 1

LEED requires that paints and coatings applied on the interior of the building comply with low Volatile Organic Compounds (VOC) emissions. AGC developed a wide range of decorative painted glass products that contribute to maintaining a high level quality of indoor air. The paints of our **Mirox**, **Lacobel** and **Matelac** products are applied on the glass in our factories. The tests conducted according to the ISO 16000 standard on VOC emissions potential release on these products showed very level of VOC and formaldehyde emissions.

Controllability of Systems - Thermal Comfort (IEQc6.2)

To provide a high level of thermal comfort system control by individual occupants or groups in multi-occupant spaces (e.g., classrooms or conference areas) and promote their productivity, comfort and well-being.

Maximum potential points: 1

LEED is intended to "provide for 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". Openable windows can be used instead of comfort controls for occupants and, in combination with other requirements. Our Vision & façades products used in openable window strategy help to achieve a point for this credit.

Thermal Comfort – Design (IEQc7.1)

To provide a comfortable thermal environment that promotes occupant productivity and well-being.

Maximum potential points: 1

A building can receive a point if the design heating, ventilating and air conditioning systems and the building envelope meet the requirements of ASHRAE Standard 55-2004 on Thermal Comfort Conditions for Human Occupancy. An additional point is foreseen if a permanent monitoring system is implemented to ensure that building performance meets the desired comfort criteria as determined.

Thermal Comfort – Verification (IEQc7.2)

To provide for the assessment of building occupant thermal comfort over time.

Maximum potential points: 1

When seated by the windows, occupants of the building may experience thermal discomfort due to coldness coming from the window or direct solar radiation. AGC provides a wide range of coated glass with low solar factors and high thermal insulation that will limit these discomfort effects (e.g., **iplus Energy^N**, **Stopray & Ipasol ranges**, **Thermobel ranges**).

Daylight & Views – Daylight (IEQc 8.1)

To provide building occupants with a connection between indoor spaces and the outdoors through the introduction of daylight and views into the regularly occupied areas of the building.

Maximum potential points: 1

For Credit 8.1, a building project can receive 1 point if this building "achieves day lighting in at least 75% of all regularly occupied areas".

For Credit 8.2, a building project earns 1 point if it "achieves direct line of sight to the outdoor environment via vision glazing between 30 inches and 90 inches above the finish floor for building occupants in 90% of all regularly occupied areas".

Daylight & Views – Views (IEQc 8.2)

To provide building occupants a connection to the outdoors through the introduction of daylight and views into the regularly occupied areas of the building.

Maximum potential points: 1

AGC manufactures glass products with low emissivity and excellent visible light transmission, involving outstanding solar control. This can help to maximize natural light and views by optimizing energy performance (e.g., **iplus Top 1.1**, **iplus Advanced**).

Glass offer an uncompered way to view out the countryside with a wide range of vision and façades products, including our **iplus Anti-Fog** glass to suit all needs.

 This credit is only influenced by glass products.

 Glass products in combination with other building materials can contribute to influence this credit.