

Maxgrow – Almaxco PVDF Coated Aluminium Composite Panel

Overview

Lightweight aluminium composite panel composed of two aluminium skins with recycled polyethylene plastic core and fluorocarbon surface coating. It is suitable for use in exterior and interior use in commercial and industrial applications for signage and cladding.



Product Description

Almaxco Aluminium Composite Panel (ACP) is used for cladding of buildings, canopies, pillar & column wraps, roofing and cladding of tunnel walls. It is flat, rigid, light weight and easily formable. *Almaxco Aluminium Composite Panel* has the following sub categories:

- 1) Almaxco Construction & Architectural Panels: the standard range of panels use in the buildings and construction.
- 2) Almaxco Signage / Digital Printing Panels: can be applied in an indoor or outdoor environment that allows Signage Industry players to design the panels.
- 3) Almaxco Nano Composite Panels: use a 4 coat system are mostly used for exterior facade and cladding of buildings.

Almaxco ACP is made of recycled polyethylene core sandwiched between two thin aluminium skins which also have recycled content. The fluorocarbon coating guarantees UV and corrosion resistance and also contributes in reducing urban heat island effect by reflecting sunlight.

Depending on the installation, *Almaxco ACP* may contribute in thermal and acoustic insulation.

PRODUCT SPECIFICATIONS

Options	<p>Almaxco Construction & Architectural Panels: mostly 4mm, 5mm and 6mm thickness with top and bottom skins of the aluminium in 0.50mm thickness</p> <p>For more information regarding the different options of Almaxco Construction & Architectural Panels, please click here.</p> <p>Almaxco Signage / Digital Printing Panels: mostly 2mm and 3mm and occasionally in 6mm, with top and bottom skins of the aluminium in 0.15mm, or 0.20mm or 0.30mm</p> <p>For more information regarding the different options of Almaxco Signage / Digital Printing Panels, please click here.</p>
Colours	50 standard solid and metallic colours custom colours available on request
Warranty	Please contact Maxgrow in regards to the terms and conditions of the warranty



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Expected Life	35 years
Indicative Costs	Contact supplier
Purchase Options	Contact supplier
Constituents	<ul style="list-style-type: none"> • 48.5% Aluminium skin, with 50% recycled content which is made up from 45% post-consumer and 55% post-industrial content • 50% PE core, which is made up from 60% post-consumer and 40% post-industrial recycled content • 1% Paint coating • 0.5% Adhesive <p>All materials are sourced from China.</p>
Technical Specifications	For technical specifications, please click here .
National & International Standards	ISO 14001, EN 13501, RoHS
Country of Origin	China
Projects	<p>Hudson Rd, Commercial Building (Brisbane Australia) KBRB WATPAC Project (Brisbane Australia) Eco Science WATPAC Project (Brisbane Australia) Serangoon & Marymount MRT Stations, (Singapore) Bishan & Toh Yi Lift Shafts for Lift Upgrading Programme (LUP) Raffles Junior College, Singapore Itihad Tower, Ajman, UAE Pear Continental Creek Hotel, Deira, Dubai, UAE A3 Tower Jumeirah Lake Residency Doha City Centre (Shangrila & Marriot Hotel Towers) Phase 1,2 & 3</p> <p>For more information, please visit Maxgrow's website.</p>
Preparation	Refer to Processing & Installation Methods

ECOSPECIFIER LIFE-CYCLE ASSESSMENT

INTEGRATED DESIGN AND POLICY ISSUES

Depending on the colour selected the total solar reflectance value of the finish may contribute to the reduction of energy requirements of the building.

Although *Almaxco ACP* is not an insulation panel, the still air layer composed between the wall and the panel may have insulation properties.

HUMAN HEALTH

Health

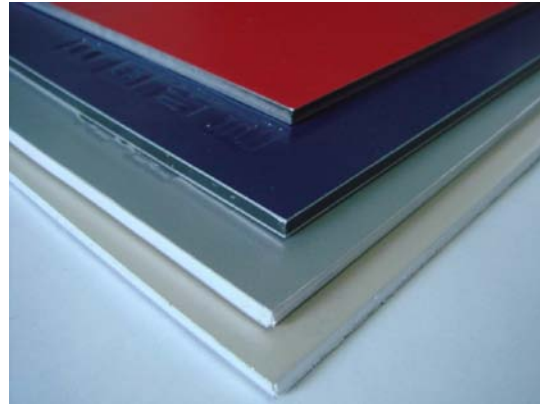


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Product does not have adverse effects on human health.

Comfort

Product itself does not impact on passive or active thermal comfort strategies, however, if applied as sun louvers, shade screens or canopy claddings, it may contribute to thermal comfort.



Indoor Environment Quality

All coatings are factory applied using a coating line with an in line regenerative thermal oxidizer which eliminates the majority of release of the VOC content of the coating. As *Almaxco ACP* is already pre-coated in the factory, it eliminates the need for field painting and thus the accompanying VOC's that would be released in the field, improving indoor environment quality if applied in interiors.

Independent test result shows *Almaxco ACP* emits 0.04 mg/m³/hrs after 24 hours which is considered as 'very low level'. See [Glossary](#) for more information about VOCs.

Electromagnetic Radiation

Not applicable.

Safety

ACPs are lighter than solid aluminium panels with the same strength, therefore easier and safer to handle at installation and demolition.

Accessibility

Not applicable.

ECOLOGICAL QUALITY

Considering the high recycled content of product, the adverse effects listed below are reduced significantly compared to similar products made from virgin material.

Terrestrial

Emissions – Product contains aluminium. The production of alumina from bauxite ores uses a chemical treatment, known as the Bayer Process (see [Glossary](#)). The alkaline mist associated with this process may have adverse land and vegetation impacts. Recycled content reduces those impacts.

Product also contains petrochemical products. The extraction of oil results in the release of toxic drilling by-products. The production of plastics and elastomers also has associated emissions to terrestrial environments. Recycled content reduces those emissions.

Physical – Mineral extraction of bauxite will disrupt landscapes and alter ecosystems. Because bauxite deposits are found near the Earth's surface, mining requires removal of topsoil and overburden before deeper excavation occurs. Recycled content reduces adverse effects of mining.

The extraction of oil is responsible for the deforestation, degradation, and destruction of lands across the globe. In addition, the construction of roads for accessing remote oil sites opens wild lands to colonists and land developers.



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Recycled content reduces adverse effects of oil extraction.

Aquatic

Emissions – The oil extraction process and the production of plastics and elastomers have associated emissions to aquatic environments that have localised impacts around production facilities. Recycled content reduces those impacts.

Some Fluorocarbons (HFC-134a and HCFC-123) will break down readily in the lower atmosphere to form simple inorganic species already present in the environment. A few HFCs can be expected to form some trifluoroacetic acid (TFA).

The environmental impact of TFA has been investigated and, at the concentrations possible from their use, HFCs do not pose a threat to the environment and a wide range of organisms.

There is a very large quantity of trifluoroacetic acid in the sea; (probably 100 to 200 million tonnes), this is natural, although the exact origin has yet to be found.

Physical – Bauxite residues of red mud are disposed of in dams. The excess alumina-rich water is discharged into marine environments. Recycled content reduces the adverse effects of discharge.

Atmosphere

Greenhouse (GHG) – *Almaxco ACP* achieves the same strength as solid aluminium panels by using approximately the half amount of aluminium. Energy used for production of *Almaxco ACP* is therefore significantly lower than energy used producing solid aluminium panels. Alumina processing requires high-energy consumption and therefore greenhouse gas emissions are associated with the production of refined alumina. Recycled content reduces greenhouse gas emissions.

Greenhouse intensity – The *Almaxco ACP* weighs about 3.5 – 5.5 kg per m². A 4mm thick *Almaxco ACP* weighs 5.5 kg per m² and has a GHG intensity of 13.79 kgCO₂e/m²*

Provide calculations of GHG intensity in the following table:

Material	Mass per unit (kg / functional unit)	Material GHG (kgCO ₂ e / kg)	GHG reference	Total GHG (kgCO ₂ e / functional unit)
Recycled Aluminium	3	1.81	Bath University Version 2.0	5.43
General Plastic	2.35	3.31	Bath University Version 2.0	7.78



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Paint	0.1	2.91	Bath University Version 2.0	0.29
Adhesive	0.05	5.7	Bath University Version 2.0	0.29

Transport intensity – Product is manufactured in China. GHG intensities for shipping product are shown below. Shipping port from country of origin is Shanghai. Destination port is Sydney.

Product Weight	Energy Intensity – Container Shipping	GHG Intensity – Container Shipping
4mm thick panel: 5.5 kg / functional unit	0.000135 MJ/ kg.km	0.000011kgCO _{2e} / kg.km

- Greenhouse Intensity for Container Shipping of *Almaxco ACP* – 0.56 kgCO_{2e} / panel

Table below provides land transportation greenhouse intensity figures to help calculate the greenhouse gas intensity of land transportation from shipping port.

Light commercial vehicle	Rigid Truck	Articulated Truck
0.001451kgCO _{2e} / kg.km	0.000195kgCO _{2e} / kg.km	0.000069kgCO _{2e} / kg.km

Transport intensity figures sourced from Australian National Greenhouse Gas Inventory 1990, 1995 and 1999 and WWF International, Inland Navigations and Emissions, 2005.

Operational efficiency – Product may increase the energy/greenhouse efficiency of building, depending on the installation method.

Re-use Efficiency – Product is capable of reuse- although it is unlikely to be re-used

Toxics and Pollutants – Considering the high recycled content of product emissions are significantly lower compared to similar products made from virgin aluminium. The process of alumina refinement generates plant emissions, including coal dust, fugitive lime dust, alumina dust and aerosol generated from plant process liquor including fluorine/fluoride emissions that are known toxins. Recycled content reduces adverse effects of alumina refining.



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Ozone Depletion – The product do not contain Ozone Depletion Substances.

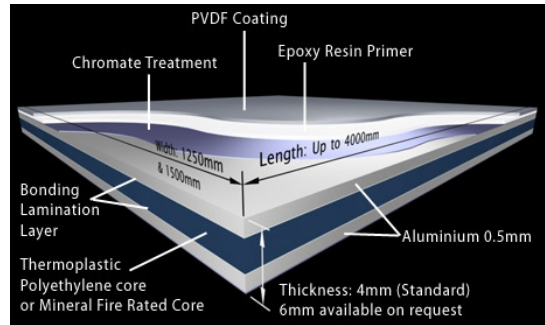
Urban Heat Island Effects – Depending on the installation and colour/coating product may result in reduced urban heat build up.

Noise – Product has some acoustic properties.

Biodiversity

Considering the high recycled content of product the effects written below are less severe than that of similar products made from virgin materials.

Bauxite mining leads to modified soil profiles, topography and drainage which impacts natural vegetation and biodiversity. The oil extraction process results in the release of toxic drilling by-products into local rivers, while broken pipelines and leakage result in persistent oil spillage.



RESOURCE DEPLETION

Resource Efficiency

The polyethylene core is made from 100% recycled material, while the aluminium skin contains approximately 50% recycled metal improving resource efficiency.

A further feature of product is that because of the sandwich structure it needs approximately the half amount of aluminium to achieve the same strength as solid aluminium panels, making the product more resource efficient than solid panels.

However, bauxite is a non-renewable mineral resource with an estimated 200 year supply. Crude oil is also a finite resource and although reserve estimates vary all agree that supply is rapidly dwindling and most predict that the world has less than 100 years supply of easily accessible crude oil. Recycled content reduces the consumption of raw resources.

Embodied Fossil Fuel Energy

A 4mm thick *Almaxco ACP* has an embodied energy of 290 MJ/m²

Provide calculations of EE in the following table:

Material	Mass per unit (kg/m ²)	Material EE (MJ/kg)	EE reference	Total EE (MJ/m ²)
Recycled Aluminium	3	29	Bath University Version 2.0	87
General Plastic	2.35	80.5	Bath University Version 2.0	189



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Paint	0.1	70	Bath University 7 Version 2.0
Adhesive	0.05	137	Bath University 7 Version 2.0

Transport intensity – Product is manufactured in China. Shipping port from country of origin is Shanghai. Destination port is Sydney.

- Energy Intensity for Container Shipping of *Almaxco ACP* – 6.9 MJ / panel

Embodied Water

Water for degreasing and coil cleaning process is re-used up to 10 times before being disposed off properly. Manufacturer claims 350 litres of water is used in the manufacturing process of 100,000 m² panels.

Durability

PVDF coating improves durability. Expected life time of PVDF coated *Almaxco ACP* is 35 years. Click here to see a comparison of weathering of different type of coatings in a 14 years timeframe. The PVDF coating used for *Almaxco ACP* is made from Kynar 500.

Reusability

Product is suitable for re-use but is unlikely to be re-used rather it is likely to be recycled.

Repairability

Panels are not suitable to be repaired. Small scratches should be left untouched.

Design for Dematerialisation

Because of the sandwich structure *Almaxco ACP* needs approximately the half amount of aluminium to achieve the same strength as solid aluminium panels.

Using as a cladding, *Almaxco ACP* eliminates the application of paints or other surface treatments. Within the expected lifetime of 35 years *Almaxco ACP* can save on material of many coats.

Design for Disassembly

Almaxco ACP itself is not designed for disassembly. However, as a component of a structure it may contribute in easy disassembly depending on the installation method.

Recyclability

Both aluminium and polyethylene are recyclable, however the recycled materials have lower quality. Both recycled aluminium and polyethylene can be used in production of new *Almaxco ACP*.



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Maintenance

Almaxco ACP panels should be cleaned in certain intervals using water and pH neutral cleaning agent.

Product Takeback Scheme

No.

Extended Producer Responsibility (EPR)

No.

CORPORATE AND SOCIAL SUSTAINABILITY

Audits and Environmental Reporting

No.

Convictions

No.

Environmental Policy

Yes.

Social Enhancement Programs

No.

Technology Transfer Programs

No.

Environmental Management Systems (EMS)

The supplier operates ISO 14001 compliant EMS, however it is not third party certified. Supplier is committed to certify its EMS in the second half of 2010.

ECOSPECIFIER ISSUES OF CONCERN / RED LIGHT

Maxgrow consumes a large range of colour pigments from PPG. Ecospecifier has assessed all materials and the most common colour ranges used in the products. After conducting the toxicity assessment for Almaxco, the results show that no issues of concerns or red light comments are recorded from documentations supplied.

ECOSPECIFIER GREENRATE GREEN BUILDING SCHEME PRE-ASSESSMENT

The Pearls Design System for ESTIDAMA

LIVEABLE BUILDINGS

LBo: Liveable Outdoors

<p>LBo-r1: Outdoor Thermal Comfort Strategy (if used for shading) Product may assist in a project obtaining this requirement by reducing heat in urban open space through passive cooling strategies such as shading, high-</p>	<p><i>Required</i></p>
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albedo surfaces, ventilation, evaporative cooling, radiative cooling, and thermal mass. Shading elements must have a minimum Solar Reflectance Index (SRI) of 29.	
LBo-1 Improved Outdoor Thermal Comfort (if used for shading, and depending on colour and reflectance) Product may assist in a project obtaining credit points by reducing heat in urban space through shading. Shading elements must have a minimum SRI of 29. Number of points awarded is determined by the percentage of shading over open space, car parking, walkways, and cycle tracks.	<i>Points Available</i> 2

LBi: Liveable Indoors

LBi-9: Indoor Noise Pollution (depending on the function and design) Product may assist in a project obtaining this credit by improving the noise isolation of normally occupied premises/rooms to reduce impact of unwanted noise. Credit point is achieved if internal ambient noise levels do not exceed 50 dBa or the prescribed level for the nominated areas.	<i>Points Available</i> 1
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RESOURCEFUL ENERGY

RE-r1: Minimum Energy Performance (depending on the function and design) Product may assist in a project obtaining this requirement if the building meets the prescribed percentage performance improvement compared to the baseline.	<i>Required</i>
RE-1: Improved Energy Performance (depending on the function and design) Product may assist in a project obtaining this credit for reduced energy consumption and carbon emissions during building operation compared to the baseline building consumption determined in RE-r1. Number of points awarded is determined by the percentage reduction from the baseline.	<i>Points Available</i> 15
RE-2: Cool Building Strategies (depending on the function and design) Product may assist in a project obtaining this requirement by reducing external heat gain through the use of high solar reflective materials. Number of points awarded is determined by the percentage reduction in annual heat gain from the baseline. One point is awarded for the use of roofing materials with a Solar Reflectance Index (SRI) of at least 78.	<i>Points Available</i> 6

STEWARDSHIP MATERIALS

SM-1: Non-Polluting Materials Product may assist in a project obtaining this credit for non-polluting materials to eliminate long-term negative impacts on human health and pollution of natural systems. 1 Credit point is awarded when all thermal insulation materials and blowing agents used in manufacture have an ODP of zero and a GWP less than 5. 1 Credit point is awarded for replacing of chlorine-based materials including PVC, in accordance with the prescribed proportions. 1 Credit point is awarded for elimination of products containing the following R-Phrases: 20-29, 31-33, 36-39, 41, 43, 45-46, 48-65.	<i>Points Available</i> 3
SM-10: Recycled Materials: Other Materials Product may assist in a project obtaining credit points through the use of recycled materials with a minimum of 30% post-consumer recycled content, a minimum of 80% post industrial recycled content, or 50% agricultural waste by-product.	<i>Points Available</i> 1

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ENERGY & ATMOSPHERE



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<p>EA Prerequisite 2: Minimum Energy Performance (depending on the function and design)</p> <p>Product may assist a project to comply with the ANSI/ASHRAE/IESNA Standard 90.1-2007 for the tenant's scope or works, when appropriately included in combination with other elements, to establish the minimum energy efficiency of a tenant space in accordance with prescribed requirements.</p>	<p><i>Required</i></p>
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MATERIALS & RESOURCES

<p>MR Credit 4: Recycled Content</p> <p>Product is likely to assist in a project obtaining this credit. The project must incorporate post-consumer and pre-consumer recycled content of at least 10% or 20% based on the total value (cost) of materials used in the project, in accordance with the prescribed requirements.</p>	<p><i>Points Available</i> 2</p>
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LEED® for Commercial Interiors - Version 3 (see disclaimer below)

LEED® for New Construction & Major Renovations - Version 3

SUSTAINABLE SITES

<p>SS Credit 7.1: Heat Island Effect: Non-Roof (depending on the function and design)</p> <p>Product is likely to assist in a project obtaining this credit as it reduces heat island effects to minimize impacts on microclimates and human and wildlife habitats. Credit point is achieved when the requirements for one of the two following options are met;</p> <p>Option 1: Use a combination of the following (within 5 years of landscape installation) for 50% of hardscapes, provide shade from existing tree canopy, provide shade structures covered from solar panels, architectural devices or structures with a Solar Reflectance Index (SRI) of at least 29 and an open-grid pavement system (at least 50% pervious) in accordance with prescribed requirements.</p> <p>Option 2: Includes placing a minimum of 50% of parking spaces under cover (any roof used to shade or cover parking must have a SRI of at least 29 or be covered with solar panels).</p> <p>Exemplary Performance: Innovation in Design & Process: Heat Island Effect: Non-Roof (additional 1 point)</p> <p>Possible achievement when either of the following options are met;</p> <p>Option 1 includes demonstrating that 100% of non-roof impervious surfaces have been constructed with high-albedo materials and/or open grid paving and/or will shade within 5 years, or</p> <p>Option 2 includes demonstrating of the on-site parking spaces have been located under cover.</p>	<p><i>Points Available</i> 1</p>
<p>SS Credit 7.2: Heat Island Effect: Roof (depending on the function and design)</p> <p>Product is likely to assist in a project obtaining this credit as it reduces heat island effects to minimize impacts on microclimates and human and wildlife habitats. Credit point is achieved when the requirements for one of the following options are met;</p>	<p><i>Points Available</i> 1</p>



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<p>Option 1: Includes using roofing materials with a high Solar Reflective Index (SRI), for 75% of the roof surface in accordance with prescribed values.</p> <p>Option 2: Includes installing a vegetated roof that covers at least 50% of the roof area, and</p> <p>Option 3: Includes installing high albedo and vegetated roof surfaces that complies with the prescribed criteria.</p> <p>Exemplary Performance: Innovation in Design & Process: Heat Island Effect: Roof (additional 1 point)</p> <p>Possible achievement when 100% of the projects roof area (excluding mechanical equipment, photovoltaic panels, and skylights) is comprised of a green roof.</p>	
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ENERGY & ATMOSPHERE

<p>EA Prerequisite 2: Minimum Energy Performance (depending on the function and design)</p> <p>Product may assist in combination with other systems in a project meeting the energy performance rating goal established using the EPA's Target Finder Rating Tool through a variety of options.</p>	<i>Required</i>
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MATERIALS & RESOURCES

<p>MR Credit 4.1: Recycled Content</p> <p>Product is likely to assist in a project obtaining this credit. The project must incorporate materials with recycled content such that the sum of postconsumer recycled content plus 1/2 of the preconsumer content constitutes recycled content of at least 10% or 20% based on the total value (cost) of materials used in the project.</p>	<i>Points Available</i> 2
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BREEAM Issue 3

HEALTH & WELLBEING

<p>Hea 9 - Volatile Organic Compounds: Wall-coverings</p> <p>Product is likely to assist in a project obtaining credits as it meets the prescribed standards for VOCs, heavy metals, formaldehyde and Vinyl chloride for wall-coverings. Products that are within the BS EN standard for the material are compliant with this credit. To achieve credit point all material types under credit Hea 9 specified for the project must be in accordance with the prescribed requirements.</p> <p>NOTE- this credit relates to interior use only</p>	<i>Points Available</i> 1
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<p>Hea 13 – Acoustic performance (depending on the function and design)</p> <p>Product is likely to assist in a project obtaining credits by providing acoustic insulation so that the building meets the appropriate acoustic performance standards for its purpose and meets the required sound insulation between acoustically sensitive rooms. The second point can be independently awarded when areas used for speech achieve reverberation times compliant with the prescribed standard.</p>	<p><i>Points Available</i></p> <p>2</p>
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ENERGY

<p>Ene 1 – Reduction of CO₂ emissions (depending on the function and design)</p> <p>Product is likely to assist in a project obtaining credits as it demonstrates an improvement in the energy efficiency of a building's systems and therefore achieves lower operational related CO₂ emissions. Number of points awarded is dependent on percentage improvement over the established baseline.</p>	<p><i>Points Available</i></p> <p>15</p>
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MATERIALS

<p>Mat 5 – Responsible Sourcing of Materials (this credit is available when the manufacturer's EMS becomes certified)</p> <p>Product is likely to assist in a project obtaining credits as it contributes to the responsible sourcing of materials for major building elements. Credit points are achieved where 80% of assessed materials for building elements (roof, frame, external walls, ground and upper floors, foundations/substructure, doors and windows) are responsibly sourced. 100% of timber used for these elements must have 3rd party chain of custody certification.</p>	<p><i>Points Available</i></p> <p>4</p>
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BCA Greenmark Landed Houses v1 (see disclaimer below)

ENERGY EFFICIENCY

<p>1-3 Shading Device Design (depending on the function and design)</p> <p>Product is likely to assist in a project obtaining credit points by providing an external shading device over openings to reduce heat gain to the building. Number of points awarded determined by the percentage of shading over openings.</p>	<p><i>Points Available</i></p> <p>7</p>
<p>1-4 Maximum Permissible Wall U-Value (depending on the function and design)</p> <p>Product is likely to assist in a project obtaining credit points as it reduces the thermal transmittance value of external walls. Two points are awarded where the maximum U-value of wall is 1.5 W/m²K, three points where maximum is 1 W/m²K, and four points are awarded for finishes or external wall surface with an SRI of 70 or more.</p>	<p><i>Points Available</i></p> <p>4</p>



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ENVIRONMENTAL PROTECTION

<p>3-1(c)(ii) Sustainable Products: Recycled Content</p> <p>Product is likely to assist in a project obtaining credit points as it has a recycled content of at least 30% by weight or volume. Number of points awarded is determined by the level of impact of the item(s).</p>	<p><i>Points Available</i></p> <p>2</p>
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BCA Greenmark Non-Residential Buildings v3 (see disclaimer below)

MANDATORY REQUIREMENTS

<p>M1 Building Envelope – ETTV (depending on the function and design)</p> <p>Product is likely to assist in a project complying with mandatory requirement by reducing heat conduction and radiation through walls and fenestrations. In order to comply, the envelope thermal transfer value (ETTV) of the building shall not exceed 50 W/m².</p>	<p><i>Required</i></p>
<p>M3 Roof – U Value (depending on the function and design)</p> <p>Product is likely to assist in a project complying with mandatory requirement by reducing the thermal transmittance of a roof without skylights and assisting in achieving an average U-value below the prescribed levels.</p>	<p><i>Required</i></p>

ENERGY EFFICIENCY

<p>1-1 Building Envelope - ETTV (depending on the function and design)</p> <p>Product is likely to assist in a project obtaining credit points by improving the overall thermal performance of the building envelope by reducing the envelope thermal transfer value (ETTV). Two points are awarded for every reduction of 1 W/m² from the 50 W/m² baseline.</p>	<p><i>Points Available</i></p> <p>15</p>
<p>1-3(b)(ii) Building Envelope – Design / Thermal Parameters: Sunshading (depending on the function and design)</p> <p>Product is likely to assist in a project obtaining credit points by providing sunshading devices for windows. Number of points awarded is determined by the percentage of west facing window areas with sunshading devices.</p>	<p><i>Points Available</i></p> <p>10</p>

ENVIRONMENTAL PROTECTION

<p>3-1(c)(ii) Sustainable Construction: Sustainable Materials</p> <p>Product is likely to assist in a project obtaining credit points as it contains at least 30% recycled content by weight or volume. Number of points awarded is determined by the level of impact of the item(s).</p>	<p><i>Points Available</i></p> <p>3</p>
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INDOOR ENVIRONMENT QUALITY

<p>4-2 Noise level (depending on the function and design)</p> <p>Product is likely to assist in a project obtaining credit points by assisting in the achievement of ambient sound levels recommended in the prescribed standard.</p>	<p><i>Points Available</i></p> <p>2</p>
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BCA Greenmark Office Interior v1 (see disclaimer below)

SUSTAINABLE MANAGEMENT & OPERATION



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3-2(b) Sustainable Material Selection	<i>Points Available</i>
Product is likely to assist in a project obtaining credit points as it contains at least 30% recycled content by weight or volume and/or is certified under the Singapore Green Labelling Scheme. Number of points awarded is determined by the level of impact of the item(s).	3

INDOOR ENVIRONMENTAL QUALITY

4-5 Internal Noise Level (depending on the function and design)	<i>Points Available</i>
Product is likely to assist in a project obtaining credit points by assisting in the achievement of ambient sound levels recommended in the prescribed standard.	2

BCA Greenmark Infrastructure v1 (see disclaimer below)

ENERGY

2a-1 Energy Efficiency (depending on the function and design)	<i>Points Available</i>
Product is likely to assist in a project obtaining credit points by improving the energy efficiency of the project compared to code compliance facility or industry norm. Number of points awarded is determined by the percentage energy savings from the norm.	13

WASTE MANAGEMENT AND ENVIRONMENTAL PROTECTION

5-3 Recycled Material	<i>Points Available</i>
Product is likely to assist in a project obtaining credit points as it contains at least 30% recycled content by weight or volume or is certified under the Singapore Green Labelling Scheme. Number of points awarded is determined by the extensiveness of use of the item(s).	6

BCA Greenmark Residential Buildings v3 (see disclaimer below)

MANDATORY REQUIREMENTS

M1 Building Envelope – ETTV (depending on the function and design)	<i>Required</i>
Product is likely to assist in a project complying with mandatory requirement by reducing heat conduction and radiation through walls and fenestrations. In order to comply, the envelope thermal transfer value (ETTV) of the building shall not exceed 50 W/m ² .	

ENERGY EFFICIENCY

1-3(b)(ii) Building Envelope – Design / Thermal Parameters: Sunshading (depending on the installation)	<i>Points Available</i>
Product is likely to assist in a project obtaining credit points by providing sunshading devices for windows. Number of points awarded is determined by the percentage of west facing window areas with sunshading devices.	10



ENVIRONMENTAL PROTECTION

3-1(c)(ii) Sustainable Construction: Sustainable Materials: Recycled Content	<i>Points Available</i>
Product is likely to assist in a project obtaining credit points as it contains at least 30% recycled content by weight or volume. Number of points awarded is determined by the level of impact of the item(s).	4

INDOOR ENVIRONMENT QUALITY

4-2 Noise level (depending on the function and design)	<i>Points Available</i>
Product is likely to assist in a project obtaining credit points by assisting in the achievement of ambient sound levels recommended in the prescribed standard.	2

BCA Greenmark Non-Residential Existing Buildings v2

ENERGY EFFICIENCY

1-1 Energy Efficiency (depending on the function and design)	<i>Points Available</i>
Product is likely to assist in a project obtaining credit points by contributing to increased energy efficiency of the building. Number of points awarded is determined by the percentage improvement from the specified benchmarks.	22

INDOOR ENVIRONMENTAL QUALITY

4-2(a) Environmental Protection: Sustainable Materials	<i>Points Available</i>
Product is likely to assist in a project obtaining credit points as it contains at least 30% recycled content by weight or volume, or is certified under the Singapore Green Label Scheme. Number of points awarded is determined by the level of impact of the item(s).	2
4-5 Internal Noise Level (depending on the function and design)	<i>Points Available</i>
Product is likely to assist in a project obtaining credit points by assisting in the achievement of ambient sound levels recommended in the prescribed standard.	2

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Green Building Index Non-Residential New Construction Version 1 (see disclaimer below)



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National Australian Built Environment Rating System (NABERS) Compatibility

Product may assist in the achievement of Energy credits in this rating tool (depending on the function and design).

BASIX Building Sustainability Compatibility

Product may assist in the achievement of Thermal Comfort credits in this rating tool (depending on the function and design).

Green Star™ Office Interiors Version 1.1 Compatibility (see disclaimer below)

Green Star™ Office Design Version 2 Compatibility (see disclaimer below)

Green Star™ Office Version 3 Compatibility (see disclaimer below)

Green Star™ Retail Centre Version 1 Compatibility (see disclaimer below)

Green Star™ Education Version 1 Compatibility (see disclaimer below)

Green Star™ Industrial Version 1 Compatibility (see disclaimer below)

Green Star™ Multi Unit Residential Version 1 Compatibility (see disclaimer below)

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Green Star™ Healthcare Version 1 Compatibility (see disclaimer below)



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Green Star SA™ Office Version 1 Compatibility (see disclaimer below)

Green Star SA™ Retail Centre Version 1 Compatibility (see disclaimer below)

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Green Star NZ™ Office 2009 Compatibility (see disclaimer below)

Green Star NZ™ Office Interiors 2009 Compatibility (see disclaimer below)

Green Star NZ™ Education 2009 Compatibility (see disclaimer below)

Green Star NZ™ Industrial 2009 Compatibility (see disclaimer below)

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ASSESSMENT COMPARISON

cladding panel, facade cladding, sun shade

RELATED TOPICS

wall cladding, sun control

CSI CATEGORY & NUMBER

e.g. 09 65 16 Resilient Sheet Flooring

[CSI MaterFormat](#)

NATSPEC CATEGORY AND NUMBER

See www.natspec.com.au/Products_Services/listallworksection.asp

NBS CATEGORY & NUMBER

Building and Residential Services

H43 Metal panel cladding/ features

Landscaping



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ASSESSMENT CRITERIA SATISFIED

WORKPLACE OH&S, OCCUPANT HEALTH, HUMAN WELL-BEING	
<input checked="" type="checkbox"/>	Low/Reduced offgassing
<input checked="" type="checkbox"/>	Reduced, or no toxicity/ carcinogens/mutagens/teratogens or ionizing agents through life cycle
<input type="checkbox"/>	Reduced electromagnetic radiation
<input type="checkbox"/>	Promotes safety and security
<input checked="" type="checkbox"/>	Improved indoor environment
<input checked="" type="checkbox"/>	Reduces visual disturbance
<input checked="" type="checkbox"/>	Improved Occupational Health and Safety (OH&S)
HABITAT & BIODIVERSITY CONSERVATION	
<input type="checkbox"/>	Reduced terrestrial impacts
<input type="checkbox"/>	Reduced aquatic impacts
<input type="checkbox"/>	Contributes to biodiversity
<input type="checkbox"/>	Net-Positive biodiversity contribution
<input type="checkbox"/>	Independent management accreditation
<input checked="" type="checkbox"/>	Reduced waste generation
<input type="checkbox"/>	Reduced generation of hazardous waste
AIR POLLUTION	
<input checked="" type="checkbox"/>	Reduced, or no toxicity/ carcinogens/mutagens/teratogens or ionizing agents through life cycle
<input checked="" type="checkbox"/>	Reduced smog-forming potential
<input checked="" type="checkbox"/>	Reduced urban heat island potential
<input type="checkbox"/>	Reduced Ozone Depleting Substances (ODSs)
<input type="checkbox"/>	Reduced Greenhouse Gas (GHG) emissions
<input type="checkbox"/>	Greenhouse Gas (GHG) Neutral
<input type="checkbox"/>	Greenhouse Gas (GHG) Sink
RESOURCE DEPLETION	
<input type="checkbox"/>	Abundant
<input type="checkbox"/>	Recycled content- post consumer min 10%
<input type="checkbox"/>	Recycled content- post consumer min 20%
<input checked="" type="checkbox"/>	Recycled content- post consumer min 50%
<input checked="" type="checkbox"/>	Reduced water consumption
<input type="checkbox"/>	Water production (potable)
<input type="checkbox"/>	Water production (non-potable)
<input checked="" type="checkbox"/>	Resource efficiency
<input type="checkbox"/>	Durability
<input type="checkbox"/>	Extended Producer Responsibility scheme (EPR), product stewardship and take-back schemes
<input type="checkbox"/>	Eco packaging
<input checked="" type="checkbox"/>	Least processed materials
<input type="checkbox"/>	Uses renewable materials
<input type="checkbox"/>	Uses rapidly renewable material
<input type="checkbox"/>	Uses agricultural by-products
ENERGY RESOURCES	
<input type="checkbox"/>	Reduced embodied energy
<input type="checkbox"/>	Contributes to downstream reduction of energy use
<input type="checkbox"/>	Renewable energy
CORPORATE SOCIAL RESPONSIBILITY, ENVIRONMENTAL MANAGEMENT AND REPORTING	
<input type="checkbox"/>	Legal Compliance
<input type="checkbox"/>	SA 8000 certification
<input type="checkbox"/>	Social/ethical compliant supply chain



<input type="checkbox"/>	Public CSR/sustainability report
<input type="checkbox"/>	Environmental Management System (EMS)
<input type="checkbox"/>	Certified EMS
<input checked="" type="checkbox"/>	Environmental policy
<input type="checkbox"/>	Social or environmental enhancement programmes
OTHER VITAL SIGNS	
<input checked="" type="checkbox"/>	Material Safety Data Sheet (MSDS)
<input type="checkbox"/>	Quality Management System
<input type="checkbox"/>	Ecolabel / Certification
<input type="checkbox"/>	Environmental Product Declaration
<input type="checkbox"/>	Certification Mark
<input type="checkbox"/>	Independent LCA
<input type="checkbox"/>	Independent Audited LCA
<input checked="" type="checkbox"/>	Documented manufacturer claims
<input checked="" type="checkbox"/>	Expert Assessment

MANUFACTURER DETAILS

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Chartered Architect, FAIA, ABSA, Green Star AP, LEED AP, MRoySocAS



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