CONSTRUCTION INDUSTRY COUNCIL

CIC GREEN PRODUCT CERTIFICATION

Assessment Standard

Aluminium

CIC GREEN
PRODUCT CERTIFICATION

(Version 2.0)

Aluminium

Summary of Assessment Criteria

CORE CRITERIA

Criteria	*Requirements*	*Verification*	*Points*		*Index*
			Basic	*+Bonus*	
Product Information	Provide following information with delivered products or made accessible to public: • Country of origin • Information of product specification • Instructions for use / installation. • Possible toxicity or health hazards • Methods of cleaning / maintenance	Documentation including but not limited to product catalogue, technical datasheet, webpages	**5**	-	4.1.1
RESOURCE					
Material Optimization	Raw Materials: Adopt recycled contents for minimum 30% of the aluminium ingot, by weight.	Material summary with calculation	**10**	-	
ENVIRONMENT					
Environmental Management	Acidification: Maintain both SO_2 and NO_x emissions level below 100 mg/m^3 during the production.	Testing report(s) of acidifying emissions	**10**	-	
	Emission of Fluorides: Limit the fluoride emissions as below • Gaseous fluoride: < 0.6kg/ton of product • Particulate fluoride: < 0.5kg/ton of product	Testing report(s) of fluorides emissions	**5**	-	
	Water Pollutants: Limit the pollution level in wastewater as listed in Table 3.	Testing report(s) of pollutants concentration in wastewater	**10**	+5	
Volatile Organic Compounds	VOC Content: Limit the VOC contents in architectural paints, coatings and primers applied below the listed threshold in Table 4.	Laboratory testing report(s) of VOC contents	**10**	+5	
		Subtotal:	**50**	+10	

NON-CORE CRITERIA

<table>
<tr><th>Criteria</th><th>Requirements</th><th>Verification</th><th>Points
+Bonus</th><th>Index</th></tr>
<tr><td colspan="5">CARBON</td></tr>
<tr><td>CFP quantification</td><td>Provide a life cycle assessment report with the carbon footprint of products (CFP) in $kgCO_{2e}$/t of product, covering at least A1 to A3 and meet the following.
For Aluminium extrusion:<table><tr><th></th><th>CFP</th></tr><tr><td>+25 [Bonus]</td><td>≤ 13,300</td></tr><tr><td>+20 [Bonus]</td><td>13,301 – 16,100</td></tr><tr><td>+15 [Bonus]</td><td>16,101 – 18,900</td></tr><tr><td>+10 [Bonus]</td><td>18,901 – 21,800</td></tr><tr><td>+5 [Bonus]</td><td>≥ 21,801</td></tr></table>For Aluminium sheet:<table><tr><th></th><th>CFP</th></tr><tr><td>+25 [Bonus]</td><td>≤ 13,400</td></tr><tr><td>+20 [Bonus]</td><td>13,401 – 17,800</td></tr><tr><td>+15 [Bonus]</td><td>17,801 – 19,900</td></tr><tr><td>+10 [Bonus]</td><td>19,901 – 24,100</td></tr><tr><td>+5 [Bonus]</td><td>≥ 24,101</td></tr></table></td><td>CFP quantification report

OR

Environmental Product Declaration (EPD)</td><td>+5/
+10/
+15/
+20/
+25</td><td>4.2.1.1</td></tr>
<tr><td colspan="5">RESOURCE</td></tr>
<tr><td rowspan="2">Circularity</td><td>Recyclability:
Developed a recycling plan for the product and declared options for reuse, recycling, recovery and disposal. The plan shall include the following and made available to public.</td><td>Recycling plan</td><td>+5</td><td>4.3.2.1</td></tr>
<tr><td>Packaging Requirements:
The packaging materials shall not contain halogenated plastics; OR

Shall be comprised of 100% recycled materials, readily recyclable materials or decomposable materials; OR

Shall not be impregnated, labelled, coated or otherwise treated in a manner, which would prevent or significantly limit recycling.</td><td>Documentation on packaging materials used</td><td>+5</td><td>4.3.2.2</td></tr>
<tr><td>Waste Management</td><td>Waste Management Plan:
Implement effective Waste Management Plan detailing the policies, procedures and/or a waste management program covering manufacturing operations</td><td>Waste management programme</td><td>+5</td><td>4.3.3.1</td></tr>
</table>

Criteria	*Requirements*	*Verification*	*Points* *+Bonus*	*Index*
Water Management	Option A: Water Consumption Reporting: Report both potable and non-potable water usage in the production process of the past year.	Water consumption report	+5/ +10	4.3.4.1
	Water Recycling Program: Develop and implement water recycling program during the manufacturing process.	Documentation on water recycling		4.3.4.2
	Option B: Water Management System: Process valid certificate under ISO 14046: Water Footprint Assessment	ISO 14046 Certificate issued by accredited certification body		4.3.4.3
Energy Management	Option A: Energy Management Plan: Implement effective energy management policies and procedures and/or an energy management programme.	Energy management plan	+5/ +10	4.3.5.1
	Option B: Energy Management System: Possess valid certificates under ISO 50001: Energy management systems	ISO 50001 Certificate issued by accredited certification body		4.3.5.2
	Clean Energy: Procure or produce renewable electricity or carbon offsets to compensate 5% of total electricity used and greenhouse gas emissions from other energy sources	Calculation report	+5	4.3.5.3
ENVIRONMENT				
Environmental Management	Environmental Management System: Possess valid certificate under ISO 14001: Environmental management systems or EU Eco-Management and Audit Scheme (EMAS).	ISO 14001 or EMAS Certificate issued by accredited certification body	+5	4.4.1.1
Regional Product	Regional Product: Products that are manufactured within 800km radius of HKSAR by road transportation; within a 1,600km radius by rail transportation; or within a 4,000km radius by sea transportation.	Location map	+5	4.4.2.1

Criteria	*Requirements*	*Verification*	*Points* *+Bonus*	*Index*
Human Toxicity and Ecosystem Impact	Hazardous Substances: For Carcinogenic Substances, the product shall be listed in IARC Group 1, 2A and 2B shall be < 0.1% by weight of the product. *AND* The product shall also not contain any substances or chemicals that are classified as Fatal, Toxic, Harmful in accordance with Regulation (EC) No 1272/2008.	Laboratory test report(s) or self-declaration letter	+5	4.4.3.1
	Heavy Metals: Products without coating; *OR* Limit the concentration of Lead, Cadmium, Chromium and Mercury in architectural paints, coatings and primers applied below 0.01% by weight.	Laboratory test report(s)	+5	4.4.3.2
PERFORMANCE				
Product Life	Durability: Carry out applicable durability tests, including but not limited to Salt Spray Tests, Natural Weathering Tests, Ultraviolet Light Test, Xenon-arc Lamp Test.	Laboratory test report(s)	+5	4.5.1.1
INNOSMART				
Innovations & Additions	Adopt new practice, technology and strategy; *OR* Achieve exemplary performance	Narrative with supporting	+5	4.6.1
		Subtotal:	+95	

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1. INTRODUCTION

1.1 Purpose

The CIC Green Product Certification Scheme (the "Scheme") is a green product labelling scheme, owned by the Construction Industry Council (CIC) and implemented by the Hong Kong Green Building Council (HKGBC). The primary goal of the scheme is to support Hong Kong's transition to a low-carbon economy by encouraging the adoption of environmentally friendly construction practices.

With the Green Product Certification, various stakeholders, including consumers, building professionals, construction practitioners and policymakers, can easily and unequivocally identify environmentally preferable construction materials and building products. This certification serves as a reliable indicator of a product's sustainability, helping to drive market demand for greener options.

To ensure the credibility and effectiveness of the certification, the CIC and the HKGBC has jointly developed this Technical Assessment Standards (the "Standard"), which sets out the assessment criteria and their benchmarks to govern the application and award of a label under the Scheme. The comprehensive assessment evaluates the overall sustainability of construction materials and building products across multiple dimensions. These dimensions include environmental impact, resource efficiency, technical performance, and the use of smart manufacturing technologies.

The Standard is divided into two main parts:

- General Requirements (Refer to General Requirements provided in separate document). This part introduces Scheme's framework, outlines the application procedure, and details the grades.

- Technical Requirements (This document refers). This part defines the principles, requirements and guides for quantifying and reporting the products' carbon footprint (CFP), along with other sustainability assessment criteria and scoring standards.

This Standard neither modifies nor supersedes laws and regulations. Compliance with this Standard is not a substitute for, and does not assure, compliance with any applicable laws or regulations. Compliance with all applicable laws and regulations is a prerequisite for the manufacturing and marketing of the product.

1.2 Background

The manufacturing of aluminium products involves two major processes. The first stage is the production of primary aluminium, i.e. aluminium ingot, from bauxite. This process begins with bauxite mining. It is then followed by alumina production, anode production, electrolysis and finally ingot casting. The second stage involves the production of aluminium products from aluminium ingot obtained from the first production stage. The production of aluminium products in these two stages may generate a significant amount of greenhouse gases (GHGs), acidifying emissions (i.e. SO2 and NOx), and other pollutants.

The assessment criteria developed for aluminium products are designed to help conserve resources and energy consumption, to minimise the use and subsequent release of harmful substances to the environmental and human, and to encourage the implementation of proper environmental management systems.

2. SCOPE

This Standard assesses the environmental impacts caused by the manufacturing of aluminium products including aluminium extrusion and aluminium sheets used in construction industry. The criteria in this Standard cover (i) the process of manufacturing primary aluminium, i.e. aluminium ingot, from bauxite; and (ii) the process of manufacturing aluminium products from primary aluminium.

Note:

The type of alloys and serial number shall be specified clearly in each application. **ONE** application is only for **ONE** product series with same alloys (raw materials). All the related products must be listed on the submitted documents.

3. DEFINITIONS

Applicant:	Organisations which apply for the label of the CIC Green Product Certification of the Construction Industry Council
Aluminium:	A metal with a minimum of 99% aluminium content by mass provided that the content of any other elements by mass does not exceed the following limits: • Iron and silicon content does not exceed 1% • The content of other elements does not exceed 0.10% each, with the exception of copper in which the permitted content is up to 0.20% provided that neither the chromium nor manganese content exceeds 0.05%
(Aluminium) scrap:	An input material which may be used for the production of aluminium products, destined for trade and industry, mainly consisting of aluminium and/or aluminium alloys. The scrap can be collected from various stages of fabrication or from used products

ASTM:	American Society for Testing and Materials
BS:	British Standards
Casting:	A process in which molten metal is poured into a mould and solidified
CCA:	Certified Carbon Auditor
CIC:	Construction Industry Council
Clean scrap:	Scrap which does not contain any foreign material
CNAS:	China National Accreditation Service for Conformity Assessment
Extrusion:	A process in which a billet being housed in a container is forced under pressure through a die aperture
Extrusion ingot:	Aluminium or aluminium alloy cast in a form suitable for extrusion
Foreign material:	Any materials other than aluminium or aluminium alloys which is physically identifiable as part of a scrap consignment. Foreign materials can be attached to pieces of scrap or separate. Examples of foreign materials are oil, wood, plastic, glass, other metals, dry paints, etc.
HKAS:	Hong Kong Accreditation Service
HKGBC:	The Hong Kong Green Building Council Limited
HOKLAS:	The Hong Kong Laboratory Accreditation Scheme
IARC:	International Agency for Research on Cancer
ISO:	International Organization for Standardization
MSDS:	Material safety data sheet. To qualify as suitable, MSDS and information therein must not be more than 5-years old
NO_x:	Nitrogen oxides
Post-consumer recycled content	Consumer waste, generated by end-users and can no longer be used for its intended purpose. Examples include construction and demolition debris, materials collected through recycling programs, discarded products (e.g., furniture, cabinetry, decking), and landscaping waste (e.g., leaves, grass clippings, tree trimmings)

Pre-consumer recycled content	Recycled content comes from process waste that is used to make a different product
Primary aluminium:	Aluminium produced by electrolytic reduction directly from alumina. Remelt metal should not be classified as primary aluminium
Third-party:	An entity without any financial interest or stake in the sales of the product or service being evaluated or other conflict of interest

4. EVALUATION CRITERIA

A product to be assessed shall meet all the minimum requirements of the "Core Criteria" in order to be awarded a "Green" (i.e. a "pass" grade) Label under the Scheme. Bonus points may be awarded if the product meets the "Non-core Criteria". "Bronze", "Silver", "Gold" or "Platinum" Label will be awarded according to the total points accumulated, as shown in Table 1.

Table 1 Benchmarks for grading

Points achieved	Grade to be awarded
90 or above	Platinum
80 – 89	Gold
70 – 79	Silver
60 – 69	Bronze
50 – 59	Green
Below 50	No label

All submissions and documentations shall be endorsed by the Chief Executive Officer or other authorised persons of the Applicant to demonstrate conformance to the assessment criteria. All certification, laboratory report and documentation must be valid during the assessment process and labelling period. The validity of all laboratory report and documentation shall be within 5 years from the date of issue. The chemical tests should be conducted by either a third party or the manufacturer, providing that they have obtained ISO 17025 certification or relevant national accreditations, such as HOKLAS or CNAS.

4.1 BASIC INFORMATION

4.1.1 Product Information – Core Criteria

The Applicant is required to achieve 5 Basic Points under this section.

Requirements

5 Basic Points for providing following information with delivered products or made accessible to public:

- Country of origin
- Information of product specification
- Instructions for use / installation.
- Possible toxicity or health hazards imposed by the chemical components;
- Methods of cleaning / maintenance

Verification

Documentation showing the product information and instructions, including but not limited to product catalogue, technical datasheet, webpages and/or any other information freely accessible by customers.

4.2 CARBON

4.2.1 CFP quantification

The Applicant can achieve maximum 25 Bonus Points under this section.

Requirements

Provide a life cycle assessment report for quantification and reporting of the carbon footprint of products (CFP), in accordance with ISO 14067:2018. The system boundary of the CFP shall cover at least A1 (raw material supply), A2 (transport) and A3 (manufacturing process).

OR

Provide the product's CFP value from a product-level EPD issued in accordance with BS EN 15804:2012, ISO 14025:2006 or ISO 21930:2017. The EPD shall demonstrate the GHG emission covering product stage A1-A3 (Cradle-to-gate).

Points are awarded according to achieved CFP benchmark as listed in Table 2.

Table 2: CFP Benchmark for Aluminium Product under the CIC Green Product Certification

Points	**CFP** ($kgCO_{2e}$/t of product)	
	Aluminium extrusion	**Aluminium sheet**

+25 Bonus	≤ 13,300	≤ 13,400
+20 Bonus	13,301 – 16,100	13,401 – 17,800
+15 Bonus	16,101 – 18,900	17,801 – 19,900
+10 Bonus	18,901 – 21,800	19,901 – 24,100
+5 Bonus	≥ 21,801	≥ 24,101

The goal of carrying out a CFP study is to calculate the GHGs generated from the production of aluminium in terms of CO_2 equivalents (CO_{2e}). Under Kyoto Protocol, seven types of GHGs are identified to have direct impact on global warming, namely, carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs), sulphur hexafluoride (SF_6) and nitrogen trifluoride (NF_3) (United Nations, 2012).

The CFP study should be conducted on a per-product basis. The functional unit of the CFP Study is defined as 1 ton of the aluminium product and the CFP shall be reported in kg$CO2_e$.

The CFP Study shall capture the product stage A1-A3 (Cradle-to-gate) as defined in ISO 14067:2018, ISO 21930:2017, , GB/T 24067-2024 and BS EN 15804:2012. Figure 1 below illustrate the major process of aluminium product manufacture covered under A1-A3.

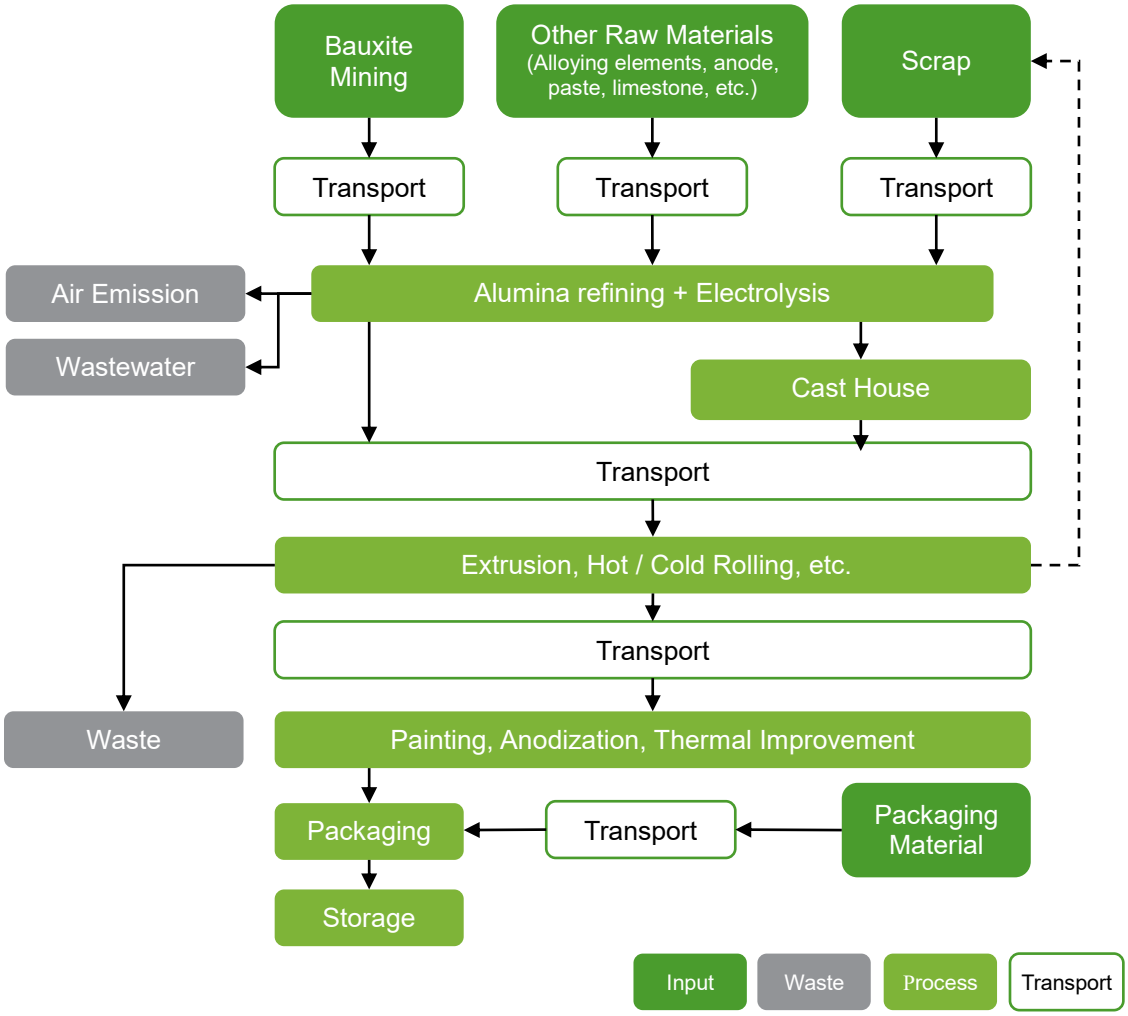

Figure 1 CFP System boundary

Verification:

- CFP quantification report endorsed by CCA, in accordance with ISO 14067:2018

OR

- Environmental Product Declaration (EPD) in accordance with ISO 14025:2006, ISO 14067:2018, ISO 21930:2017, GB/T 24067-2024 or BS EN 15804:2012.

4.3 Resources

4.3.1 Material Optimization

The Applicant is required to achieve 10 Basic Points under this section.

4.3.1.1 Raw Materials – Core Criteria

Requirements

10 Basic Points for adopting recycled content, achieving minimum 30%, by weight, of the aluminium ingot.

Verification

Material summary with detailed breakdown of the raw materials used in the manufacture process. The summary shall include at least the following information:

- Material type with quantity
- Source of recycled content, support by purchase order, declaration letter from suppliers or other equivalent documents
- Calculation of recycled materials percentage

4.3.2 Circularity

The Applicant can achieve maximum 10 Bonus Points under this section.

4.3.2.1 Recyclability – Non-core Criteria

Requirements

5 Bonus Points for demonstrating that the manufacturer has developed a recycling plan for the product and declared options for reuse, recycling, recovery and disposal. The plan shall include the following and made available to public.

- Designate all homogeneous materials in the product as being intended for technical and/or biological cycles and define the intended cycling pathway(s) for each material.
- Identify potential partners for product reuse, recycling, recovery in accordance with the intended cycling pathway(s).
- For products and materials intended for municipal recycling, the product and/or material must be compatible for municipal cycling systems (e.g., painted plastics and plastic laminated paper are not currently compatible for municipal recycling).
- Instructions for how to cycle the product shall be made publicly available.

Verification

Documentation of recycling plan, including, but not limited to product catalogue, MSDS and written declaration.

4.3.2.2 Packaging Requirements – Non-core Criteria

Requirements

5 Bonus Points for minimizing the wastage from all primary packaging materials. The packaging materials shall achieve either of the followings.

The packaging materials shall not contain halogenated plastics

OR

The packaging materials shall be comprised of 100% recycled materials, readily recyclable materials or decomposable materials

OR

The packaging shall not be impregnated, labelled, coated or otherwise treated in a manner, which would prevent or significantly limit recycling.

Verification

Documentation describing the packaging materials used as well as their chemical composition (if any and where applicable), treatment process and recyclability.

4.3.3 Waste Management

The Applicant can achieve maximum 5 Bonus Points under this section.

4.3.3.1 Waste Management Plan – Non-core Criteria

Requirements

5 Bonus Points for implementing effective waste management plan detailing the policies, procedures and/or a waste management program covering manufacturing operations. The waste management plan should include but not limited to the following information:

- Initiatives taken to reduce waste generation and improve recovery/recycling of waste
- Initiatives implemented for recovery of post-consumer and/or pre-consumer waste that can be re-introduced into the manufacturing process and
- Other environmental benefits or constraints associated with waste minimisation objectives and processes.

Verification

Documentation of waste management programme.

4.3.4 Water Management

The Applicant can achieve maximum 10 Bonus Points under this section.

The Applicants can select one of the options below and comply with any or all the requirements under that option to achieve associated points. Each option is eligible for a maximum 10 Bonus Points.

Option A:

4.3.4.1 Water Consumption Reporting – Non-core Criteria

Requirements

5 Bonus Points for reporting both potable and non-potable water usage in the production process of the past year.

Verification

Water consumption report, support by water usage data acquired from water meter, water sub-meter, water bill or other equivalent documents.

4.3.4.2 Water Recycling Program – Non-core Criteria

Requirements

5 Bonus Points for developing and implementing water recycling program during the manufacturing process.

Verification

Documentation demonstrating the implementation of water recycling program, support by drawings, water usage data acquired from water sub-meter or other equivalent documents.

Option B:

4.3.4.3 Water Management system – Non-core Criteria

Requirements

10 Bonus Points for possessing valid certificate under ISO 14046: Environmental management – Water footprint – Principles, requirements and guidelines.

Further Explanation

ISO 14046 is a framework for assessing the water footprint of products, processes, and organizations. It provides principles, requirements, and guidelines for conducting and reporting water footprint assessments. It helps organizations evaluate and improve their water management practices.

Verification

A valid ISO 14046 certificate issued by accredited certification body.

4.3.5 Energy Management

The Applicant can achieve maximum 15 Bonus Points under this section.

The Applicants can select one of the options below and comply with any or all the requirements under that option to achieve associated points.

Option A:

4.3.5.1 Energy Management Plan – Non-core Criteria

Requirements

5 Bonus Points for implementing effective energy management policies and procedures and/or an energy management programme, including but not limited to the following items:

- Energy efficiency initiatives: Manufacturer should undertake specific initiatives to reduce energy use and improve energy efficiency throughout their operations. This could include upgrading to more efficient equipment, optimizing production processes, or implementing energy-saving technologies
- Supplier requirements: Manufacturers should extend their energy management efforts to their supply chain by establishing requirements or initiatives for suppliers and contract manufacturers to improve their energy performance where possible

Verification

Documentation of energy management plan detailing the above, supported by organizational policy or other equivalent documents.

Option B:

4.3.5.2 Energy Management System – Non-core Criteria

Requirements

10 Bonus Points for possessing valid certificates under ISO 50001: Energy management systems — Requirements with guidance for use.

ISO 50001 provides a framework for organizations to establish, implement, maintain, and improve an Energy Management System. The goal is to help organizations improve their energy performance, increase energy efficiency, and reduce energy costs and greenhouse gas emissions. By achieving ISO 50001 certification, manufacturers can demonstrate their commitment to energy efficiency and sustainability.

Verification

A valid ISO 50001 certificate issued by accredited certification body.

4.3.5.3 Clean Energy – Non-core Criteria

Requirements

5 Bonus Points for procure or produce renewable electricity or carbon offsets to compensate 5% of total electricity used and greenhouse gas emissions from other energy sources.

The targets can be met via a variety of methods. One or more of the methods listed below may be applied toward achieving the targets.

i) For electricity

- Procure or produce renewable electricity to match 5% of the electricity used
- Purchase carbon offsets to compensate for 5% of the resulting greenhouse gas emissions (using grid average emissions factors)

ii) For greenhouse gas emissions from other energy sources

- Purchase carbon offsets to compensate for 5% of the resulting greenhouse gas emissions

Verification

Calculation report include at least the following information:

- Quantity of electricity consumed with the associated carbon emission factor, supported by electricity bill and grid emission factor
- Quantify of other energy source consumed with the associated carbon emission factor, support by purchase order, declaration letter or other equivalent documents
- Quantity of renewable electricity produced onsite, supported by drawings, submeter reading or other equivalent documents
- Quantity of renewable electricity or carbon offset purchased, support by purchase agreement, carbon offset program certification or other equivalent documents

4.4 ENVIRONMENT

4.4.1 Environmental Management

The Applicant is required to achieve 25 Basic Points under this section. Additionally, the Applicant can achieve maximum 10 Bonus Points under this section.

4.4.1.1 Environmental Management System – Non-core Criteria

Requirements

5 Bonus Points for possessing valid certificate under ISO 14001: Environmental management systems — Requirements with guidance for use or EU Eco-Management and Audit Scheme (EMAS).

The target of the environmental management system shall be set to reduce the environmental impacts during the manufacturing process which include but not limited to the reduction of hazardous substance emissions, energy consumption, CO_2 emissions, secondary environmental load, waste management, water management, etc.

ISO 14001 is the international standard which provides an outline of how to meet the environmental policy and objectives for the business of the applicant.

Eco-Management and Audit Scheme (EMAS) is an environmental management tool which enables organisations to assess, manage and continuously improve their environmental performance.

Verification

A valid ISO 14001 or EMAS Certificate issued by accredited certification body.

4.4.1.2 Acidification – Core Criteria

Requirements

10 Basic Points for maintaining both SO_2 and NO_x emissions level below 100 mg/m^3 respectively during the production of aluminium product.

Verification

Testing report(s) of acidifying emissions in accordance with relevant USEPA or ASTM test methods, self-declaration letter and production documentation.

4.4.1.3 Emission of Fluorides – Core Criteria

Requirements

5 Basic Points for limiting the fluoride emissions below the listed threshold during production from bauxite mining to aluminium products:

- Gaseous fluoride: < 0.6 kg/ton of aluminium products
- Particulate fluoride: < 0.5 kg/ton of aluminium products

Verification

Testing report(s) of the amount of fluoride emitted into the air (in the forms of both gaseous and particulate fluorides) in accordance with relevant ISO, USEPA and ASTM test methods, self-declaration letter and production documentation.

4.4.1.4 Water Pollutants – Core Criteria

Requirements

Limit the pollutants contained in wastewater below the listed threshold. Points will be awarded according to Table 3.

Table 3 Pollutants threshold for wastewater

	10 Basic	**10 Basic + 5 Bonus**
	Concentration (mg/L)	
Fluorides	8.0	5.0
Nitrogen (Ammonia)	25	15
Total nitrogen	30	15
Total phosphorous	2.0	1.0
Oil & Grease	8	3
Cyanide	0.5	0.5
Total sulphide	1.0	1.0
Phenols	0.5	0.5

Verification

Testing report(s) showing pollutants concentration in wastewater discharged from the manufacturing plant, self-declaration letter and production documentation.

4.4.2 Regional Product

The Applicant can achieve maximum 5 Bonus Points under this section.

4.4.2.1 Regional Product – Non-core Criteria

Requirements

5 Bonus Points for products that are manufactured within 800km radius of HKSAR by road transportation; within a 1,600km radius by rail transportation; or within a 4,000km radius by sea transportation. The distance is measured by the direct distance, not by actual travel distance.

Verification

Documents demonstrating the location of the manufacturer and a map showing the distance between the manufacturer and HKSAR.

4.4.3 Human Toxicity and Ecosystem Impact

The Applicant can achieve maximum 10 Bonus Points under this section.

4.4.3.1 Hazardous Substances – Non-core Criteria

Requirements

5 Bonus Points for demonstrating the following:

The product shall not contain any carcinogenic substances or chemicals that are classified as Group 1, 2A or 2B according to International Agency for Research on Cancer (IARC)1. Any such carcinogens which are known to be present as contaminants shall be less than 0.1% by weight of the product.

The product shall also not contain any substances or chemicals that are classified as H300 - Fatal if swallowed, H301 - Toxic if swallowed, H302 - Harmful if swallowed, H310 - Fatal in contact with skin, H311 - Toxic in contact with skin, H312 - Harmful in contact with skin, H330 - Fatal if inhaled, H331 - Toxic if inhaled ,H332 - Harmful if inhaled, in accordance with Regulation (EC) No 1272/2008 of the European Parliament and of the Council[2].

Verification

Laboratory test report(s), self-declaration letter and production documentation to demonstrate the compliance with the criteria mentioned above.

4.4.3.2 Heavy metals – Non-core Criteria

Requirements

5 Bonus Points for aluminium products without architectural paint or coating

OR

[1] Agents Classified by the IARC Monographs, Volumes 1–137 – IARC Monographs on the Identification of Carcinogenic Hazards to Humans
[2] Regulation - 1272/2008 - EN - clp regulation - EUR-Lex

Limit the concentration of Lead, Cadmium, Chromium and Mercury in paint or coating below 0.01% by weight.

Verification

Laboratory test report(s), self-declaration letter and production documentation to demonstrate the compliance with the criteria mentioned above.

4.4.4 Volatile Organic Compounds

The Applicant is required to achieve 10 Basic Points under this section. Additionally, the Applicant can achieve maximum 5 Bonus Points under this section.

4.4.4.1 VOC Content – Core Criteria

Requirements

Limit the VOC contents in architectural paints, coating and primers applied to aluminium products below the listed threshold. The calculation of VOC shall exclude water and colorants added at the point-of-sale. Points will be awarded according to Table 4.

Table 4 Limits of Volatile Organic Compounds (VOC)

	10 Basic	**10 Basic + 5 Bonus**
Product Type	**VOC Content (in g/L)**	
Flat Topcoat	50	40
Non-Flat Topcoat	100	80
Primer or Undercoat	100	80
Anti-Corrosive Coating	250	200

Verification

Laboratory testing report(s) of VOC contents in paint used in accordance with relevant test methods, including but not limited to USEPA Test Methods (Method 24); South Coast Air Quality Management District Method 303 and Method 316A; California Air Resources Board Method 310; ASTM Methods (ASTM D6886); NIOSH Manual of Analytical Methods.

4.5 PERFORMANCE

4.5.1 Product Life

The Applicant can achieve maximum 5 Bonus Points under this section.

4.5.1.1 Durability – Non-core Criteria

Requirements

5 bonus point for ensuring the durability of products with applicable tests in accordance with International Organization for Standardization (ISO), American Society for Testing and Materials (ASTM), Chinese National Standard (GB) or other equivalent national standards.

List of durability tests include, but not limited to the following

- Salt Spray Tests in accordance with ISO 9227:2017
- Natural Weathering Tests in accordance with ISO 2810: 2020
- Ultraviolet Light Test in accordance with ISO 6581:2010
- Xenon-arc Lamp Test in accordance with ISO 16474:2013 OR ASTM G155

Verification

Laboratory testing report(s) of the durability tests.

4.6 INNOSMART

4.6.1 Innovations & Additions – Non-core Criteria

The Applicant can achieve maximum 5 Bonus Points under this section

Requirements

5 Bonus Points for achieving significant, measurable environmental performance using new practices, technology and strategy not addressed in this Standard.

OR

Demonstrating exemplary performance in any of the existing assessment criteria.

The benefits of environmental performance can be achieved throughout the lifecycle of the products, covering the product, construction process, use and end of life stage. Examples of innovative and smart technologies are shown below.

- Adopt Smart technology at manufacturing facility, such as automation and robotics, to enhance the efficiency of production process.
- Deploy digital platforms to enhance the production, logistics, management of the manufacture, enabling data-driven decision making and optimization.
- Implement systems, such as IoT devices, for real-time hazard detection and monitor the health and safety of workers.
- Reduce Scope 1 carbon emission with process improvements, or carbon capture and utilization technology.
- Enhance the functionality of the product, such as self-cleaning technology, photo-chromic windows

Verification

Report with a maximum length of 1,000 words, outline the objectives, solution and evaluation of the performance achieved by proposed Smart and Innovative Technologies.

AND

Include attachments that provide evidence of implementation, along with relevant technical specification that support the claims made in the report.

5. SCORING

The points for meeting each criterion stated in this Standard are summarized below.

Table 5: Points to be awarded under the assessment criteria of this Standard

Label	Evaluation Criteria		Points		Related BEAM Plus Credits
			Basic	+Bonus	
	Product Information [CORE]		5	-	
Carbon	CFP Quantification		-	+5/+10/ +15/+20/+25	MW 10
Resources	Material Optimization	Raw Materials	10	-	MW 6
	Circularity	Recyclability	-	+5	
		Packaging Requirements		+5	
	Waste Management	Waste Management Plan	-	+5	
	Water Management	Water Consumption Reporting	-	+5/+10	
		Water Recycling Program			
		Water Management System			
	Energy Management	Energy Management Plan	-	+5/+10	
		Energy Management System	-		
		Clean Energy	-	+5	
Environment	Environmental Management	Environmental Management System	-	+5	
		Acidification [CORE]	10	-	
		Emission of Fluorides [CORE]	5	-	
		Water Pollutants [CORE]	10	+5	
	Regional Product	Regional Product	-	+5	MW 8
	Human Toxicity and Ecosystem Impact	Hazardous Substances	-	+5	
		Heavy Metals	-	+5	
Performance	Volatile Organic Compounds	VOC Content [CORE]	10	+5	HWB 8
	Product Life	Durability	-	+5	MW 4
InnoSmart	Innovations & Additions		-	+5	IA
		Total:	**50**	**105**	

Related BEAM Plus Credits refer to these relevant credits under BEAM Plus New Buildings Version 2.0, as listed below.

- MW 4: Design for Durability and Resilience
- MW 6: Recycled Materials
- MW 8: Regional Materials
- MW 9: Use of Green Products.
- MW 10: Life Cycle Assessment
- HWB 8: Indoor Air Quality
- Innovations & Additions