

CONSTRUCTION INDUSTRY COUNCIL

CIC GREEN PRODUCT CERTIFICATION

Assessment Standard

Technical Requirements

Artificial Stone



CIC GREEN
PRODUCT CERTIFICATION

(Version 2)

Copyright © 2026 Construction Industry Council

All rights reserved. No part of this document may be reproduced, stored in a retrieval system or transmitted, in any form or by any means, whether electronic or mechanical, including photocopying and recording, without the written permission of the Construction Industry Council. If there is any inconsistency or ambiguity between the English version and the Chinese version, the English version shall prevail.

ARTIFICIAL STONE

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: <ul style="list-style-type: none"> Country of Origin Product composition Information of product uses Instructions on the installation and protection of the product Recommendation on maintenance for the product 	Documentation including, but not limited to, product catalogue, technical datasheet, and webpages	5	-	4.1.1
RESOURCE					
Material Optimization	Raw Materials: Raw materials or components of product (by weight) are made from combinations of recycled materials and/or waste materials: <ul style="list-style-type: none"> ≥ 30% (10 basic) ≥ 40% (10 basic + 5 bonus) ≥ 50% (10 basic + 10 bonus) 	Documentation on recycled content	10	+5/+10	4.3.1.1
ENVIRONMENT					
Environmental Management	Particulate Matters: Total particulate matters during the manufacturing process: < 30 mg/m ³ .	Detailed report(s) of the air emission of particulate matters	10	-	4.4.1.2
	Water Pollutants: Limit the concentration of pollutants in wastewater discharged below the threshold listed: <ul style="list-style-type: none"> Suspended solids: < 40 mg/L Cadmium: < 0.015 mg/L Chromium (VI): < 0.15 mg/L Iron: < 1.5 mg/L Lead: < 0.15 mg/L 	Testing report(s) of pollutants concentration in wastewater	20	-	4.4.1.3
PERFORMANCE					
Product Life	Serviceability: Carry out at least FOUR of the testing items to demonstrate quality, durability and performance properties of the product. Relevant tests include but not limited to: <ul style="list-style-type: none"> Compressive Strength Flexural Strength 	Laboratory test report(s) and any product documentation for all relevant quality and performance tests	5	-	4.5.1.1

Criteria	Requirements	Verification	Points		Index
			Basic	+Bonus	
	<ul style="list-style-type: none"> • Water Absorption • Abrasion Resistance • Chemical Resistance • Stain Resistance • Impact Resistance 				
		Subtotal:	50	+10	

NON-CORE CRITERIA

Criteria	Requirements	Verification	Points	Index
			+Bonus	
CARBON				
CFP Quantification	Provide a 3 rd party endorsed life cycle assessment report with the carbon footprint of products (CFP), covering at least A1 to A3 OR provide an Environmental Product Declaration (EPD).	CFP quantification report OR Environmental Product Declaration (EPD)	+10	4.2.1
RESOURCE				
Circularity	Recyclability: Developed a recycling plan for the product and declared options for reuse, recycling, recovery and disposal.	Documentation on recycling plan	+5	4.3.2.1
	Packaging Requirement: The packaging materials shall not contain halogenated plastics; <i>OR</i> Shall be comprised of 100% recycled materials, readily recyclable materials or decomposable materials; <i>OR</i> Shall not be impregnated, labelled, coated or otherwise treated in a manner, which would prevent or significantly limit recycling.	Documentation on packaging materials used	+5	4.3.2.2
	Waste Management Plan: Implement effective Waste Management Plan detailing the policies, procedures and/or a waste management program covering manufacturing operations.	Waste management plan	+5	4.3.3.1
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 a 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

Criteria	Requirements	Verification	Points	Index
			+Bonus	
	Option B: Energy Management System: Possess valid certificate under ISO 50001: Energy management systems.	ISO 50001 Certificate issued by accredited certification body		4.3.5.2
	Option C: Energy Consumption Limits: Limit the Unit product energy consumption to be ≤ 2.58 kgce/m ³ .	Energy consumption data report(s)		4.3.5.3
	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 with supporting documents	+5	4.3.5.4
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 Manufactured 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 with distance between manufacturer and HKSAR	+5	4.4.2.1
Human Toxicity and Ecosystem Impact	Hazardous Substances: The following compounds, their functional derivatives or in-situ precursors shall not be contained in the product or be added to the products and their component parts and/or packaging or used at any stage of the manufacturing process, including as the preparatory agents, cleaners, or degreasers in the production facility: <ul style="list-style-type: none"> • Materials that give rise to dioxins; • Halogenated organic flame retardants (e.g., decaBDE, chlorinated paraffins, etc); • Flaming additives for natural products; • Halogenated organic solvents; • Aniline-based amines; • Aziridine or polyuridines; • Alkylphenol ethoxylates (APEO) or derivatives (APDs) • 1,3 butadiene. <p>AND</p> Limit the Carcinogenic Substances, listed in IARC Group 1, 2A, and 2B, to be below 0.1% by weight of the product.	Laboratory test report(s) or self-declaration letter	+10	4.4.3.1

Criteria	Requirements	Verification	Points	Index
			+Bonus	
	Radioactivity: External Hazard Index, $H_{ex} \leq 1.2$ Internal Hazard Index, $H_{in} \leq 0.9$	Laboratory test report(s)	+5	4.4.3.2
	Plasticisers: Concentration of phthalate in the product below 0.1% by weight of the product. The limited phthalates include the following types: <ul style="list-style-type: none"> • Bis(2-ethylhexyl)phthalate (DEHP) • Dibutyl phthalate (DBP) • benzylbutylphthalate (BBP) • Diisononylphthalate (DINP) • Diisodecylphthalate (DIDP) • Di-n-octylphthalate (DNOP) 	Laboratory test report(s)	+5	4.4.3.3
Volatile Organic Compounds (VOC)	VOC Content: Total Volatile Organic Compounds: < 0.25 mg/m ³ .	Laboratory test report(s)	+5	4.4.4.1
INNOSMART				
Innovations & Additions	Adopt new practice, technology and strategy. <i>OR</i> Achieve exemplary performance.	Narrative with supporting documents	+5	4.6.1
		Subtotal:	+90	

TABLE OF CONTENTS

1. INTRODUCTION.....	1
1.1 PURPOSE.....	1
1.2 BACKGROUND	2
2. SCOPE	2
3. DEFINITIONS	2
4. EVALUATION CRITERIA	4
4.1 BASIC INFORMATION.....	5
4.1.1 Product Information - Core Criteria	5
4.2 CARBON	5
4.2.1 CFP Quantification – Non-core Criteria	5
4.3 RESOURCE	6
4.3.1 Material Optimization	6
4.3.2 Circularity.....	6
4.3.3 Waste Management.....	7
4.3.4 Water Management	8
4.3.5 Energy Management.....	9
4.4 ENVIRONMENT.....	11
4.4.1 Environmental Management	11
4.4.2 Regional Product.....	12
4.4.3 Human Toxicity and Ecosystem Impact	12
4.4.4 Volatile Organic Compounds (VOC)	14
4.5 PERFORMANCE.....	14
4.5.1 Product Life	14
4.6 INNOSMART.....	15
4.6.1 Innovations & Additions- Non-Core Criteria	15
5. SCORING.....	17

1. INTRODUCTION

1.1 PURPOSE

The CIC Green Product Certification (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 grade 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.

The Scheme is owned by the Construction Industry Council (CIC), 38/F, COS Centre, 56 Tsun Yip Street, Kwun Tong, Kowloon, Hong Kong; and operated by Hong Kong Green Building Council (HKGBC), 1/F, Jockey Club Environmental Building, 77 Tat Chee Avenue, Kowloon Tong, Hong Kong, Phone: +852 3994 8888, Email: cicgpc@hkgbc.org.hk

1.2 BACKGROUND

Artificial stones are commonly applied as the decorative surface material of interior and exterior walls, such as wall cladding, non-load-bearing exterior veneer, and wall finishes etc. The product could also be used as tables and desktops, kitchen and bath countertops, and backsplashes. The production cycle of artificial stones includes mixing of natural stones or aggregate, a resin (as a binder), pigments, and additives. The mixture is compacted into slabs under pressure, vibration, and controlled temperature. Major environmental impacts associated with the production of artificial stones include raw materials consumption, human toxicity, and waste discharges.

The purposes of assessment criteria developed for both natural and artificial stone products are, therefore, to minimise the impacts to both the human health and environment throughout the product's life cycle.

2. SCOPE

The scope of this Standard includes all artificial stone products made from natural stones, aggregates, and combining with other materials such as fibre, mineral, cement, ash, and resin etc. The products could be in the form of blocks or slabs, which can be transformed into finished slabs, tiles, vanity tops, or similar elements complementary to products for flooring and wall finishes. But the scope does not include the support structure or system of the product and the product serving any structural function.

The types and ratio (formulation) of raw materials shall be specified clearly in each application. **ONE** application is only for **ONE** product series with same raw materials and ratio (formulation). All the related products have to be listed on the submitted documents.

E.g. Composition of mixed quartz stone and glass fibre plus binding agent A and various colouring is regarded as one application.

Subsequent application is available for the similar products with the same raw materials i.e. quartz and fibre of a labelled product series with different ratio (formulation), which is only eligible for applying within the validity period of the label.

3. DEFINITIONS

<i>Applicant:</i>	Organisation which applies for the label of the CIC Green Product Certification of the Construction Industry Council
<i>ASTM:</i>	American Society for Testing and Materials
<i>Biological Cycle:</i>	The cycle by which materials or parts are released to, and ideally reprocessed in, the environment via composting, biodegradation, nutrient extraction, or other biological metabolic pathways
<i>BS:</i>	British Standards

<i>CIC:</i>	Construction Industry Council
<i>CNAS:</i>	China National Accreditation Service for Conformity Assessment
<i>EMAS:</i>	Eco-Management and Audit Scheme (EMAS) is an environmental management tool which enables organisations to assess, manage, and continuously improve their environmental performance
<i>GB:</i>	National Standards of China
<i>HKAS:</i>	Hong Kong Accreditation Service
<i>HKGBC:</i>	The Hong Kong Green Building Council Limited
<i>HOKLAS:</i>	The Hong Kong Laboratory Accreditation Scheme
<i>IARC:</i>	International Agency for Research on Cancer
<i>ISO:</i>	International Organisation for Standardisation
<i>MSDS:</i>	Material Safety Data Sheets. To qualify as suitable, the MSDS and information therein must not be more than 5-year-old
<i>Natural stones:</i>	Naturally occurring rock, such as marble, granite, sandstone, and limestone
<i>Non-Steam Pressure:</i>	Non-Steam pressure curing relies on ambient temperature or direct heat application without the use of steam. This method may involve using molds under pressure but does not utilize steam for the curing process
<i>Technical Cycle:</i>	The cycle by which a product's materials or parts are reprocessed for a new product use cycle via recycling, repair, refurbishment, remanufacturing, or reuse
<i>Third-party:</i>	An entity without any financial interest or stake in the sales of the product or service being evaluated or other conflict of interest
<i>Usable Materials:</i>	The materials or substances produced from natural resources. The usable materials are suitable for further processing and use; all materials destined for disposal are not defined as usable materials.
<i>VOC:</i>	Volatile Organic Compounds

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) grade under the Scheme. Bonus points may be awarded if the product meets the “Non-core Criteria”. “Bronze”, “Silver”, “Gold”, or “Platinum” grade 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 grade

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 reports, and documentation must be valid during the assessment process and labelling period. The date of issue of all laboratory reports and documentation shall be within 5 years from the first application submission date.

If the certification expires during the labelling period or upon renewal, the applicant is required to provide an updated and valid certification. Failure to resubmit the required certification will result in the revocation of CIC Green Product Certificate without compensation.

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
- Product composition
- Information of product uses
- Instructions on the installation and protection of the product
- Recommendation on maintenance for the product

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 – Non-core Criteria

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

Requirements

10 Bonus Points for providing life cycle assessment report for quantifying and reporting the carbon footprint of products (CFP), covering at least A1 (raw material supply), A2 (transport), and A3 (manufacturing process). This can be achieved by either of the following:

Conduct CFP study report in accordance with ISO 14067:2018, GB/T 24067-2024 or equivalent.

OR

10 Bonus Points for Providing the product's CFP value from a product level EPD issued in accordance with ISO 14025:2006, ISO 14067:2018, BS EN 15804:2012, ISO 21930:2017, GB/T 24025-2009 or GB/T 24067-2024.

Verification

Either of the following documents shall be provided for verification.

CFP quantification report endorsed by a third-party critical review, in accordance with ISO 14067:2018, GB/T 24067-2024 or equivalent

OR

Environmental Product Declaration issued by 3rd party fulfilling the above requirements.

4.3 RESOURCE

4.3.1 Material Optimization

The Applicant can achieve maximum 20 Points under this section.

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

4.3.1.1 Raw Materials – Core Criteria

Requirements

10 Basic Points for $\geq 30\%$ of the raw materials or components of product (by weight) are made from combinations of recycled materials and/or waste materials.

10 Basic Points and 5 Bonus Points for $\geq 40\%$ of the raw materials or components of product (by weight) are made from combinations of recycled materials and/or waste materials.

10 Basic Points and 10 Bonus Points for $\geq 50\%$ of the raw materials or components of product (by weight) are made from combinations of recycled materials and/or waste materials.

Verification

Documentation including but not limited to product catalogue, MSDS, test reports, and written declaration.

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 be 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; and

- Identify potential partners for product reuse, recycling, and recovery in accordance with the intended cycling pathway(s); and
- 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); and
- 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 Requirement – Non-core Criteria

Requirements

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

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

- Initiatives taken to reduce waste generation and improve recovery/recycling of waste; and

- 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 plan detailing the above, supported by organisational policy or other equivalent documents.

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..

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, supported 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, supported 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.

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; and
- 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 certificate 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.

Option C:

4.3.5.3 Energy Consumption Limits – Non-core Criteria

Requirements

10 Bonus Points for meeting the requirements for unit product energy consumption as follows:

$$\text{Unit Product Energy Consumption: } \leq 2.58 \text{ kgce/m}^3.$$

Verification

Energy consumption data report(s) for all relevant manufacturing procedures and detailed plans of energy consumption and reduction programme.

4.3.5.4 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; and
- Quantity of other energy source consumed with the associated carbon emission factor, supported by purchase order, declaration letter, or other equivalent documents; and
- Quantity of renewable electricity produced onsite, supported by drawings, submeter reading, or other equivalent documents; and

- Quantity of renewable electricity or carbon offset purchased, supported by purchase agreement, carbon offset program certification, or other equivalent documents.

4.4 ENVIRONMENT

4.4.1 Environmental Management

The Applicant can achieve maximum 35 Points under this section.

The Applicant is required to achieve 30 Basic Points under this section. Additionally, the Applicant can achieve maximum 5 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 are not limited to, the reduction of hazardous substance emissions, energy consumption, CO₂ 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 Particulate Matters – Core Criteria

Requirements

10 Basic Points for demonstrating the total particulate matters during the manufacturing process is < 30 mg/m³.

Verification

Detailed report(s) of the air emission of total particulate matters shall be compiled according to the National and International test methods including but not limited to EN 12341. Other related testing methods are also acceptable with justification provided by the Applicant.

4.4.1.3 Water Pollutant – Core Criteria

Requirements

20 Basic Points for limiting the concentration of pollutants in wastewater discharged below the threshold listed:

Table 2: Limits of Specific Emissions in Wastewater

Emission	Limit (mg/L)
Suspended solids	< 40
Cadmium	< 0.015
Chromium (VI)	< 0.15
Iron	< 1.5
Lead	< 0.15

Verification

Test report(s) of the amount of pollutants in wastewater discharged from the manufacturing plant. Test report(s) shall be compiled according to the National and International test methods including but not limited to ISO 5667-17 or APHA 2540D for suspended solids, ISO 8288 for lead and cadmium, ISO 11083 for hexavalent chromium, and ISO 6332 for iron.

4.4.2 Regional Product

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

4.4.2.1 Regional Manufactured 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 20 Bonus Points under this section.

4.4.3.1 Hazardous Substances – Non-core Criteria

Requirements

10 Bonus Points for meeting the requirements as below:

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.

AND

The following compounds, their functional derivatives, or in-situ precursors shall not be contained in the product or be added to the products and their component parts and / or packaging or used at any stage of the manufacturing process, including as the preparatory agents, cleaners, or degreasers in the production facility:

- Materials that give rise to dioxins;
- Halogenated organic flame retardants (e.g., decaBDE, chlorinated paraffins, etc);
- Flaming additives for natural products;
- Halogenated organic solvents;
- Aniline-based amines;
- Aziridine or polyuridines;
- Alkylphenol ethoxylates (APEO) or derivatives (APDs);
- 1,3 butadiene.

Verification

Laboratory test report(s) or self-declaration letter.

4.4.3.2 Radioactivity –Non-Core Criteria

Requirements

5 Bonus Points for for demonstrating the following:

The effective concentration of potassium isotope K_{40} (C_K), radium isotope Ra_{226} (C_{Ra}), and thorium isotope Th_{232} (C_{Th}) shall satisfy the following requirements:

External Hazard Index, H_{ex} :

$$H_{ex} = \frac{C_K}{4200} + \frac{C_{Ra}}{370} + \frac{C_{Th}}{260}$$

Internal Hazard Index, H_{in} :

$$H_{in} = \frac{C_{Ra}}{200}$$

where H_{ex} shall be ≤ 1.2 and H_{in} shall be ≤ 0.9 .

¹ [Agents Classified by the IARC Monographs, Volumes 1–137 – IARC Monographs on the Identification of Carcinogenic Hazards to Humans](#)

Products shall be tested based on the requirement as stated in GB 6566-2010 (or latest version); other related testing methods are also acceptable with justification provided by the Applicant.

GB 6566-2010 specifies the limits and natural radionuclides in building materials radionuclide radium-226, thorium-232, potassium-40 Test Method for radioactivity.

Verification

A detailed laboratory report(s) meeting the above requirements shall be provided.

4.4.3.3 Plasticisers – Non-Core Criteria

Requirements

5 Bonus Points for limiting concentration of phthalates in the product to be below 0.1% by weight of the product. The limited phthalates include the following types:

- Bis(2-ethylhexyl)phthalate (DEHP)
- Dibutyl phthalate (DBP)
- Benzylbutylphthalate (BBP)
- Diisononylphthalate (DINP)
- Diisodecylphthalate (DIDP)
- Di-n-octylphthalate (DNOP)

Verification

Test report(s) compiled according to the National and International test methods.

4.4.4 Volatile Organic Compounds (VOC)

The Applicant can achieve 5 Bonus Points under this section.

4.4.4.1 VOC Content – Non-core Criteria

Requirements

5 Bonus Points for limiting the Total Volatile Organic Compounds (TVOC) content below 0.25 mg/m³.

Verification

Laboratory test report(s) meeting the above requirement.

4.5 PERFORMANCE

4.5.1 Product Life

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

4.5.1.1 Serviceability

Requirements

5 Basic Points for demonstrating the product durability, safety, and suitability through at least **FOUR** testing items which may include but not limited to the following:

- Compressive Strength
- Flexural Strength
- Water Absorption
- Abrasion Resistance
- Chemical Resistance
- Stain Resistance
- Impact Resistance

Table 3: Standards for Artificial Stone

Testing items	Standards
Compressive Strength	ASTM C170, GB/T 9966, GB/T 44178, TCECS 10051-2019, GB/T 35160
Flexural Strength	ASTM C880, GB/T 9966, GB/T 44178, TCECS 10051-2019, GB/T 35160
Water Absorption	ASTM C97, GB/T 9966, GB/T 44178, TCECS 10051-2019, GB/T 35160
Abrasion Resistance	ASTM C1353, GB/T 9966, GB/T 44178, TCECS 10051-2019, GB/T 35160
Chemical Resistance	ASTM C650, GB/T 9966, GB/T 44178, TCECS 10051-2019, GB/T 35160
Stain Resistance	ASTM C1378, GB/T 9966, GB/T 44178, TCECS 10051-2019, GB/T 35160
Impact Resistance	ASTM D2794, GB/T 9966, GB/T 44178, TCECS 10051-2019, GB/T 35160

Verification

Laboratory test report(s) and any production documentation for all relevant quality, durability performance 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:

- Implementing technologies that significantly reduce resource consumption across various aspects.
- Adopting intelligent production methods that leverage automation, data analytics, and innovative design techniques.

Verification

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

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

5. SCORING

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

Table 4: 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		-	+10	
Resource	Material Optimization	Raw Materials [CORE]	10	+5/+10	MW 6
		Circularity	Recyclability	-	+5
	Packaging Requirement		-	+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			
		Energy Consumption Limits			
Clean Energy		-	+5		
Environment	Environmental Management	Environmental Management System	-	+5	
		Particulate Matters [CORE]	10	-	
		Water Pollutant [CORE]	20	-	
	Regional Product	Regional Manufactured Product	-	+5	MW 8
	Human Toxicity and Ecosystem Impact	Hazardous Substances	-	+10	
		Radioactivity	-	+5	
		Plasticisers	-	+5	
Volatile Organic Compounds (VOC)	VOC Content	-	+5		
Performance	Product Life	Serviceability [CORE]	5	-	MW 4
InnoSmart	Innovations & Additions		-	+5	IA
Total:			50	+100	

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
- Innovations and Additions